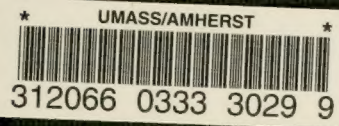


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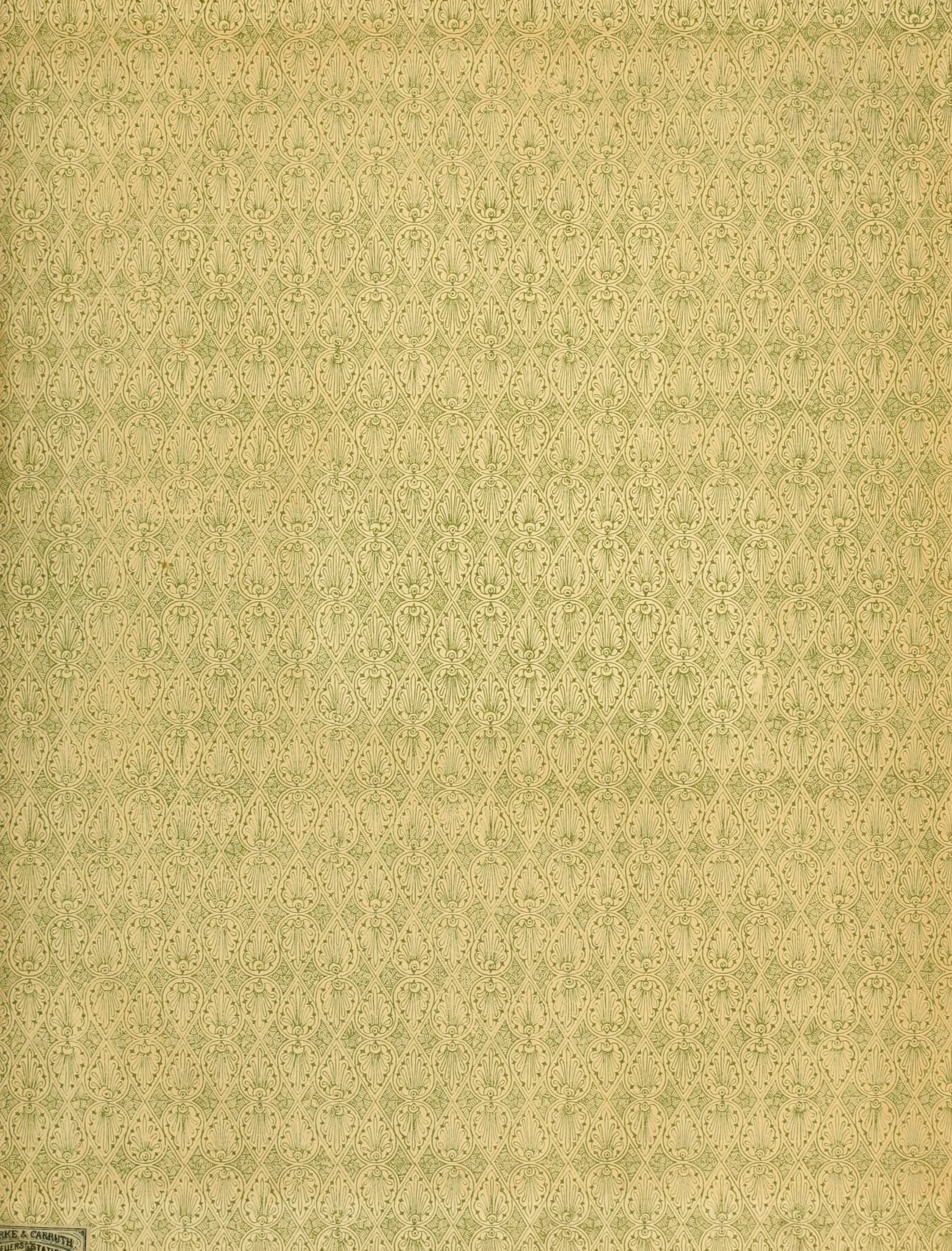


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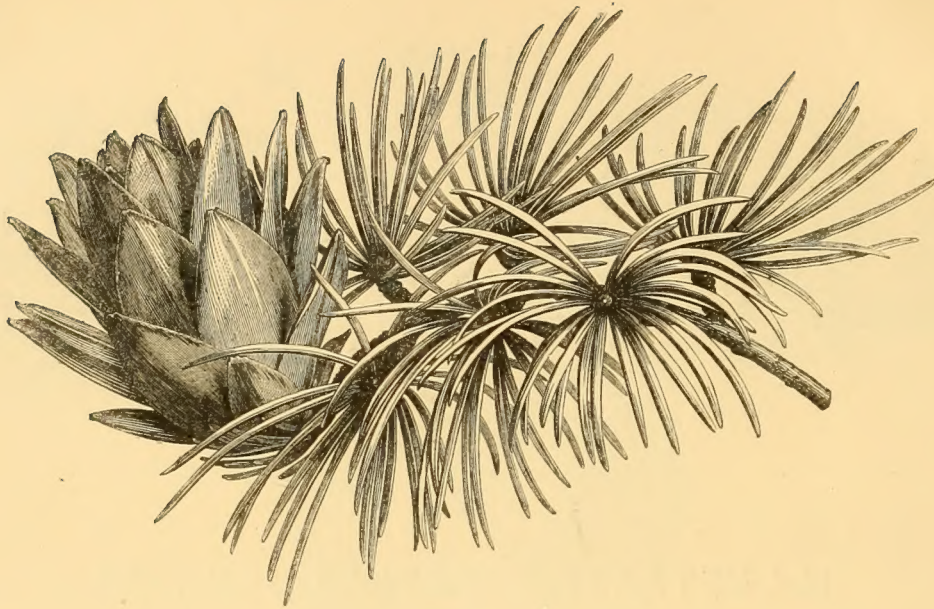
W. Robinson, F.L.S., Author of "Alpine Flowers," etc.

' You see, sweet maid, we marry
A gentle scion to the wildest stock
And make conceive a bark of baser kind
By bud of nobler race: This is an art
Which does mend nature change it rather.
'The art itself is nature.'—*Shakespeare*.

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TO

PHILIP FROST,

OVER SIXTY YEARS GARDENER AT DROPMORE,

THE TWENTY-SECOND VOLUME OF "THE GARDEN"

IS DEDICATED.

W. R., December, 1882.

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1882 v. 22

INDEX TO VOLUME XXII.

A.

Abelia rupestris, 184, 201
 Abercorn Nursery, 344
Abies Douglasi, 227; *Nordmanniana* con-
 ing, 410
Abronia arenaria, 162
 Abuse of a privilege, 64
Abutilon Boule de Neige, 400; *insigne*,
 386
Acacia platyptera, 461; *sempervirens*,
 244
Acacia microphylla, 159
Acenas, 218
Acer, some good kinds of, 459
Achillea ægyptiaca, 159; *filipendulina*,
 134; *ptarmica fl.-pl.*, 161
Achimenes, new, 198; *coccinea*, 582
Acis autumnalis, 183
Aconitum autumnale, 309; *japonicum*,
 342; *Pallasi*, 225
Acorus gramineus variegatus, 484
Acroclonium, new double varieties, 541;
roseum, 541
Acrophorus, 436
Actæa spicata rubra, 85, 244
Actinopterus, 436
Adiantum Lodge, 112
Adiantum Legrandi, 35; *Pacotti*, 484;
 the genus, 530, 563, 568
Acerides Lawrenceianum, 35; *cylindricum*,
 585
Aithusa Cynapium, 533
African Lily, 236
Agapanthus Mooreanus, 244; *umbellatus*
albus, 113
Agathæa celestis, 461, 582; as a speci-
 men plant, 482
Agave Consideranti, 431; *Victoriæ reginæ*,
 448, 460
Ageratum, new, 198
Agrostemma flo-jovis, 357
Aix-les-Bains, Savoie, 79, 136
Ajuga Brockbanki, 17
Alexandra Palace estate, 562
Allamanda Hendersoni, a fine, 183
Allamandas and their culture, 69, 102,
 182, 161
Allium pedemontanum, 10
Allium oblongifolia, 185
Alonsoa incisa, 161
 Alpine plants, protecting, 528
 Alps, notes from the southern, 423, 495,
 505
Alsophilla Colensoi, 218
Alstroemeria aurantiaca, 41
Alstroemerias, 89, 292
Alyssum maritimum, 92
Amanita rubescens, 207
Amaryliss Autumn Beauty, 309; *reticu-*
ta, 46, 201; *alica superba*, 548; *hybrid*,
 566
Amboyana Lily, the, 503
 America, gardening in, 485; Pear and
 Apple culture in, 523
 American blight, 409
 American woods, 497
Ampelopsis and Ivy for walls, 181
Ampelopsis Veitchi, 133
Amphicomme Emodi, 113
Andromeda japonica, 197; *speciosa*, 270;
pulverulenta, 17
Anemone alpina, 357; *fulgens*, 244; *japo-*
nica and its varieties, 274; *vitifolia*,
 150; *palmata alba*, 466; *sylvestris*, 357;
red Japan, the, 572
Anemones from Howth, 332
Angelica, the, 555
Anguloa Clowesi, 119
 Annuals and biennials, sowing, 92
 Annuals for autumn sowing, 5; for town
 gardens, 155; *hardy*, when to sow,
 108, 133
Ansellia africana nilotica, 304
Anthemis tinctoria, 400
Anthurium Andreanum, 134; *ferrie-*
riense, 367, 481; *Scherzerianum*, 320,
 586; select species of, 226
Antipodis, sub-alpine rambles at, 46
Antirrhinum, 50
Antirrhinums and their culture, 312
Antirrhinums from cuttings, 85; notes
 on, 343; *wintering*, 92
Autler moth, the, 551

Ants in the garden, 11
Amicia Zygomeris, 383
 Aphides, how to destroy, 169
Aponogeton distachyon, 204
 Apple, Cox's Orange Pippin, 254; *Land's-*
berger Reinette, 348; *Lord Suffield*,
 216
 Apple and Pear culture in America, 523
 Apple shoot, a prolific, 219
 Apple trees, age of, 188
 Apples, American, 55, 79
 Apples and red spider, 300
 Apples for export, 275; *Russian*, 507;
 seedling kernel, 166; three good, 222
 Appley Towers, Ryde, 186
 Apricots, 39; in the Highlands, 223;
 notes on, 7
 Aquatics at Bingham, 369
Aquilegia chrysantha, 19; *fragrans*, 5;
longissima, 243
Arabis cœrulea, 427
Arachis hypogæa, 277
Araucaria fruticosa, 95; seeds, 217
 Arboriculture, ornamental, 17
Arbutus, scarlet, 459
Archangelica officinalis, 555
Arctium Lappa, 317
Arctotis aspera, 337; *aureola*, 336, 442
Ardisia crenulata, 129
Aristolochia ornithocephala, 86
Argenteuil, choice plants at, 202
Armeria p. antaginea, 157
Arnebia echinoides, 17
 Artichoke gall, 355
 Artichokes, Globe, 362; *Jerusalem*, 461
Arundina bambusæfolia, 210
Arundo conspicua, 572; *Donax variegata*,
 572
 Ash, the, and its varieties, 272
 Ashton Court, Bristol, notes from, 240
 Asparagus, notes on, 511; on the French
 system, 511; *plumosus*, 333; in the
 open air, 431
Asparagus plumosus nanus in flower,
 396
 Assamese Orchids, some of the, 561
 Association, Cottage Gardeners', 517
Astelma eximium, 497
Aster albens, 85; *formosus*, 268; *pani-*
culatus albens, 396; *Reevii*, 461;
turbinellus, 396
 Asters, a few good perennial, 309; 288;
 tall, 395
Astilbe rivularis, 161
Aubrietia Hendersoni, 357
Aubrietias, new, 431
Auricula, J. C. Niven, 353; fungus on,
 410, 433
Auricula, 396
Auricula disease, the, 443
Auriculas, autumn, 385; notes on, 377;
 potting, 21; show, cultivation of the,
 526, 573
 Australian big trees, 65
 Austrian gardeners, 197
 Autumn bouquet, 422
 Autumn flowers, yellow, 282
 Autumn flower notes, on *hardy*, 223
 Autumn planting, 415
 Autumn roses, 371; fruits, 410
 Autumnal flowers, late, 418
 Avenue, a Scotch Fir, 362
 Avenues, notes on, 383
 Ayr, flowers from, 19
 Azalea, *autumnalis*, 41; *mollis*, 363;
 Victor Vander Hecker, 289; *obtusa*,
 547; *Princess Maude*, 548; *roseiflora*,
 570
 Azaleas and Rhododendrons, 302

B.

Babiana, notes on, 4
 Bags for Grapes, improved, 187
 Ball room decoration, 15
Balsamita grandiflora, 156
 Balsams, culture of, 29
 Barrows, garden, 390; English style of,
 329
Bartonia aurea, 573
 Baskets and epergnes, 463

Baskets, hanging plants for, 132
 Battle Abbey, plants and trees at, 348
 Battersea Park, hedge of climbing plants,
 111
 Beans, Broad, and their culture, 362
Beaufortia splendens, 224
 Beauty, is it a fashion? 516
 Beds, finicking, 140; raised flower, 543
 Beds, *hardy* plants in, 355
 Beeches, New Zealand, 218
 Beet, Turnip rooted, 19
 Beetroot, culture of, 510
Begonia A. F. Barron, 57; *Mrs. Stevens*,
 57; *Thomas Moore*, 57; a new hybrid,
 430; *ascotensis*, 386; autumn Rose,
 439; *diversifolia*, 157; *gozoensis*, 104;
insignis, 503; *lineata*, 35; *Madame*
Comassie, 35; *Madame Fanny Garon*,
 481; *Madame Stella*, 35; *Moonlight*,
 503; *Mrs. Stevens*, 58; *Thomas Moore*,
 58; *sempervirens rosea*, 481; *Victor*
Lemoine, 161
Begonias at Forest Hill, 89; double, 225;
 best new of 1881-2, 311; out of doors,
 278, 343; tuberous, 293, 540; winter
 flowering, 539; for windows, 174; out
 of doors, 108; as basket plants, 70
 Belgian visitors, the, 11
 Belvoir, notes from, 162
Berberidopsis corallina, 109, 183
Bermuda Grass, 264, 380
Bermuda Lily, the, 241
 Berry-bearing plants, 178
Beschorneria yuccoides, 10
Bertolonias and *Somerilas*, 464
 Bible Flower Mission, 274, 310, 374
 Biennials for town gardens, 155
Bifrenaria aurantiaca, 373
Bignonia radicans, 339
Bilbergia mosaica, 10; *Porteana*, 11;
thyrsoides, 353; *nutans*, 570
 Bindweed, beware of, 109
 Bingham, aquatics at, 369
 Black Walnut, 83, 244, 303; as a timber
 tree, 131; at home, the, 406; substi-
 tutes for, 265
 Backening walls, 351
 Bloom, in a land of, 181
Bocconia cordata, 176, 357
 Bocking Place, Orchids at, 84
Bomarea conferta, 268; in flower, 418;
frondea, 183
Bomarea, new, 134, 174; notes on, 132
Bonaparteia juncea, 202; in flower, 183
 Bones as manure, 400
 BOOKS—
 "Dictionary of Economic Plants," 135
 "Exotic Ferns and Lycopods," 460
 "Flowers of Shakespeare," 520
 "The County Geology of England and
 Wales," 239
 "Hot water Heating," 80
 "The Gardener," 520
 "The Larch," 238
 "Town Gardening," 295
 "The Colours of Flowers," 525
 Border and rock plants, 20
 Border plants, tall, 499
 Borders for *hardy* flowers, 499
 Borders for Vines, 16, 474
 Borecole, culture of, 541
 Botanic Garden, Cambridge, 294; *Edin-*
burgh, 258, 294
 Botanical gardens, 380, 412, 444; ugliness
 in, 478; Geneva, 477; public gar-
 dens, 516
Bougainvillea glabra, 41, 151
 Bouquet, a November, 484
Bouvardia Dazzler, 418; *President Gar-*
field, 439; *Privity Beauty*, 570
Bouvardias, notes on, 535
Bravoa geminiflora, 4
 Breakfast-table, flowers for, 120
 Brentford Eyo, proposed sale of, 204
 Priers and buds, among the, 211
 Priers, the first pull at the, 353
 Brighton, new park for, 455
 British Kims, the, 419
 British trees and shrubs, notes on, 381
 Broccoli and its culture, 491
 Broccoli, hardening in winter, 49; late,
 19; Late Queen, 78; laying in and
 protecting, 493
Brugmansia, a fine white, 289; *suaveo-*
lens, 70

Brodiaea laxa, 17
 Brussels Sprouts, early, 255; culture of,
 577
 Buckthorns, the, 381
 Budding and grafting, 466
 Buildings, garden, past and present, 345;
 horticultural, 582
 Bulb beds, permanent, 310
 Bulb growing in Holland, 181
 Bulb list, Barr & Son's, 296
 Bulb trade, the, 328, 390, 455
 Bulbous plants at Kew, 4
 Bulbs, forcing, 464
 Burdock, the, 317
 Burdocks and Silver Weed, 49
 Buttercups on lawns, 314
 Buttercups, double, 67

C.

Cabbage plants, sowing, 110
 Cacti, *hardy*, 444, 460; on walls, 265;
 Rocky Mountain, 444
 Cactus Dahlia, the, 439
Calanthe Veitchi, 480
Calceolaria amplexicaulis albens, 182;
crenatiflora, 224; *Kellyana*, 201; *sul-*
phurea splendens, 268, 311, 358
Calceolarias, raising, 367
Callicarpa purpurea, 410, 442
Calluna vulgaris, varieties of, 386
Calochortus macrocarpus, 110
Calochorti, the best, 291; *venustus*, 291
Calopogon pulchellus, 110
 Calvary Clover, 220
 Cambridge Botanic Garden, 294
 Camellia in fruit, 92
 Camellias, a selection of, 464; nursery-
 men's and gardeners', 581
 Camellias, striking, in winter, 161;
 white scale on, 510
 Camomile, the yellow, 85
Campanula fragilis, 134; *persicifolia*
coronata alba, 357; *pyramidalis*, 355;
isophylla alba, 202; *latifolia macran-*
tha, 41; *nobilis alba*, 154, 182; *pulla*,
 11, 138; *Scheuzeri*, 90; *turbinata* Dick-
 soni, 359; *Trachelium fl.-pl.*, 114; *Van*
Houttei pallida, 202; *Zoysi*, 114
 Campanulas, 50; notes on, 181
 Canada, wild Nuts of, 433
 Canna Ehemanni, 162; *Noutoni*, 225;
iridiflora hybrida, 526
 Cannas, notes on, 244; *wintering*, 342
 Caper plant, the, 233
Capparis spinosa, 233
 Capsicum Little Gem, 10
 Cardiff flower show, 220
 Carnation Alfred Hudson, 105; *Flor-*
ence, 105, 161; *Gloire de Nancy*,
 133; *Henry Cannell*, 105; *Tim Bob-*
bins, 105; *Mary Morris*, 197; *Miss*
Jelliffe, 85; *Mrs. Page*, 105; *Souvenir*
de la Malmaison, 5, 46; *Susan Askey*,
 White Glove, 161; *William Skirving*,
 105; *W. M. Hewitt*, 105; *W. P. Milner*,
 288
 Carnation show at Oxford, 20
 Carnations all the year round, 422, 491
 Carnations and Dahlias, 457
 Carnations and Picotees, 233
 Carnations, border, 66; for exhibition,
 426; from Howth, 18; in London, 113;
 notes on, 159; old and new, 292; per-
 petual flowering, 441; tree, 306; use-
 less, 233, 294; winter flowering at
 Slough, 462
 Carriage, compensation for, 137
 Cashmere Sage, the, 399
Castanea chrysophylla, 274
 Castor-oil plants, 53
 Catalogue of Roses, 10
 Catalogue, National Rose Society's, 296
 Catalpa blooms, 319; *syringæfolia*, 74;
 the, 184
 Caterpillar, the Black Walnut, 319
 Caterpillars on Chrysanthemums, 520
 Cattleya Ainsworthi, 24; *citrina*, 274;
aurea, 417; *candida*, 503; *gigas*, 14;
gigas grandiflora, 35; *gigas striata*, 35;
labiata Percivaliana, 416; *Mossie*
Southgatei, 35; *Trianae*, 70; *Whytei*,
 104; *Walkeriana*, 585

- Cattleyas, differences among, 85; upside down, 416
 Cauliflower, Veitch's Early, 213
 Cauliflowers, keeping back, 461; large, 78, 86; note on, 232
 Celsia Arcturus, 359, 385; cretica, 314
 Centaurea alpina, 396
 Century plant, the Queen Victoria, 448
 Cerasus azorica, 419; lauro-cerasus latifolia, 393; lusitana, 419
 Cereus J. T. Peacock, 4
 Cerinthe bicolor, 64
 Ceanothus aureus grandiflorus, 202; Gloire de Versailles, 65, 114, 244
 Cedar, the, as an ornamental tree, 349
 Cedars of Lebanon, 405
 Cedronella cana, 224
 Celeriac, new variegated, 491
 Celery keeping, 301
 Cellar fungus, the, 207
 Cellars, Mushrooms in, 387
 Champagne, news from, 582
 Chareas graminis, 551
 Chasselas Grape, 446
 Chatsworth, Orchids at, 333
 Cherries, the wild, 881
 Cherry trees, dwarf Moreilo, 402; old and young, 40
 Chestnut, the red Horse, 223; the Tortworth, 523
 Chicory, large-rooted, 403
 Chilian, Stinging Nettle, 303
 Chimonanthus grandiflorus, 503; fragrans, 569
 Chinquapin, the Western, 274
 Chiswick, cordon trained Peaches at, 223; fruit trees at, 328; garden, notes from the, 162; meeting at, 197; trials at, 58
 Choisy ternata, propagating, 269
 Christmas decorations, 543, 581; evergreens, 563; Roses, 561
 Chrysanthemum Adrastus, 288; coronarium, 159; Crimson King, 451; Etoile d'Or, 490; F. A. Davis, 451; Lady Selborne, 396, 418; La Petite Marie, 57; Lord Wolsley, 451; Maize, 332; M. Destreux, 451; Mdlle. de Grange, 288; Madame Brun, 451; Ceres, 541; Duchess of Albany, 541
 Chrysanthemum sports, propagation of, 510
 Chrysanthemum show, Royal Aquarium, 453
 Chrysanthemum, varieties of, 457
 Chrysanthemums about London, 455; at Chiswick, 389; at College Gardens, Dublin, 503; at Eynham Lodge, 439; at Plymouth, 462; at Slough, 469; at the Temple, 431; at Windsor, 462; culture of, 29; exhibiting, 312; history of, 453; in pots, 519; Japanese, 503; new, 481; notes on, 489; summer, 110; Anemone flowered, 561; lifted, 556; select, 533
 Chrysobactron Hookeri, 52
 Chrysocoma Linopryis, 395
 Cienkowski Kiki, 65
 Cinerarias, raising, 368
 Cirencester, flowers from, 18
 Clematis cocinea, 17; Gipsy Queen, 201; graveolens in October, 332; Flammula and Vitaba, 385; Flammula hybrida, 313; Jackmanni, 142; languiosa, 134; Lucie Lemoine, 490; Pitcheri, 85; Sieboldi, 142
 Clematises, summer and autumn, 203; culture of, 143; from Tunbridge Wells, 3
 Clerodendron Balfouri, 428; Kriempferi, 129; trichotomum, 244, 324
 Clethra arborea, 113
 Clanthus Dampieri, 184
 Climate, influence of forests on, 361
 Climbers for an east wall, 180
 Clovenfords, Grape-growing at, 413; Orchids at, 304
 Club root fungus, the, 437
 Clyst St. George, notes from, 314
 Cobaea scandens out of doors, 354
 Cockscobs, large, 309
 Cocos Weddelliana in flower, 481
 Cologny barbatia, 392; Cumingi, 204; Gardneriana, 585
 Coleus, good varieties of, 288
 Colenses out of doors, 304; seedling, 308
 Colletia ferox, 150
 Colletias, the, 333
 Colour in the flower garden, 177, 470, 499, 521, 543, 566
 Colours of flowers, 111, 525
 Columbine, a new, 243
 Columbines, demoralised, 243
 Colutea arboreas, 150; frutescens, 17, 52
 Comely Bank Nursery, 322
 Committee, the Floral, 516
 Compactia falcata, 104; macroplectron, 104
 Compensation for carriage, 137
 Conifers from cuttings, 146; propagating, 217; variegated, 332, 485
 Conium maculatum, 533
 Convolvulus mauritanicus, 224, 288, 332
 Corbularias, the, 66
 Cordyline indivisa, 70
 Coreopsis lanceolata, 224
 Coriaria ruscifolia, 218
 Coryanthes eximia, 35
 Cosmos bipinnatus, 503; b. parviflorus, 541
 Costus speciosus, 225
 Cotoneaster microphylla, 102; Simonsi, 332, 407
 Cotoneasters, 523
 Cottage gardeners, 121
 Cottagers' gardens, 283
 Cottage Gardens Association, 517
 Covent Garden Market, 542; a Belgian's opinion of, 425
 Country, a day in, 369
 Craighleith Nursery, the, 322
 Craig-y-nos Castle, notes from, 303
 Crassula dejecta, 202; gracilis, 440
 Crataegus Carrièrei, 459; cordata, 456; Pyracantha, pruning, 459; select species of, 145
 Cranberry, the American, 485
 Craven, October flowers in, 342
 Crinum Powellii, 114
 Crocus, life history of, 497
 Crops, fruit, report on the, 95
 Crossandra undulatifolia, 289
 Croton aureo-marmoratus, 35; Bruce Findlay, 35; Dayspring, 35, 57; Eyrei, 347; Princess Waldeck, 11; Thomsoni, 286
 Crowhurst Yew, the old, 165, 361
 Crowfoots, alpine, notes on, 262
 Crown forests, 411
 Crown Daisy, the, 159
 Crystal Palace, manager of the, 219
 Cucurbit Model, 110
 Cucumbers and Melons failing, 223
 Cucumbers, diseased, 6, 493
 Cucurbitos, propagation of, 510
 Currant Grape, the, 210
 Cunningham & Fraser's nursery, 322
 Cunninghamia lanceolata, 74
 Cupressus arizonica, 185; Lawsoniana erecta alba, 347
 Cuttings, soft-wooded, 400
 Cycas revoluta, 556
 Cyclamen hederifolium album, 224
 Cyclamens, hardy, 250; infested by grub, 469; Palestine, 225; Persian, 536
 Cymbidium Mastersi, 392, 503; Parishii, 35; elegans, 585
 Cynipide, the, 334
 Cyperus latus variegatus, 465
 Cypripedium cardinale, 306; Arthurianum, 347; Fairicium, 306; grande, 35; insigne, 63, 436; insigne Maulei, 113; selligerum majus, 417; spectabile, 51; spectabile, a fine, 33
 Cyrtanthus Mackeni, 503
- D.
 Dabeocia polifolia alba, 41
 Dahlia Cherry, 347; Christine, 260; Constance, 347; cultivators, hints for, 208; Dr. Pegensteker, 309; Duchess of Albany, 347; Francis Fell, 347; Gem, 104; glabrata, 225; Guiding Star, 225; Harrison Weir, 347; Isabel, 347; John Henshaw, 260, 289; Juarez, 184, 439; Little Princess, 347; Marguerite, 347; Mrs. Burbridge, 347; Mrs. Goldring, 347; new double, 289; Nympha, 347; Pantaloon, 347; Ruby King, 209; the Cactus, 184; Tyro, 347; Yellow Gem, 347; white Cactus, 343; White Queen, hardness of, 427, 491; White Star, 260, 347; Zimapani, 248, 288
 Dahlias, bouquet or pompon, 355; double, 393; new double, 395; notes on show, 312; pompon, 416; single, 183, 353; at Tottenham, 354; in autumn, 370, 375; indoors in winter, 283; size of, 457
 Daisies, double, 500
 Daisy, culture for market, 250
 Danson, Crittenden, 188
 Daphne indica, 536; planted out, 477; propagating, 197
 Darlingtonia californica, culture of, 100, 331
 Davallia tenuifolia Veitchiana, 35, 57
 Day in the country, a, 369
 Decoration of ball-room, 15
 Decorations, dinner table, 4; floral, 1, 59, 200; Christmas, 543; floral, 539
 Delphinium cashmerianum, 3
 Delphiniums, 50; colour in, 457; late flowering, 154; note on, 18; seedling, 88
 Dendrobium Dalhousianum, 63; endocharis, 480; formosum giganteum, 371, 562; Goldiei, 392; leucophotum, 392; infundibulum, 552
 Dendrobiums, the nigro-hirsute, 552
 Deodar, preserving a, 319
 Desfontainea, 42; spinosa, 41
 Design, garden, 135
 Desmodium penduliflorum, 309
 Dessert, setting up, 64
 Destroyers, garden, 437
 Deutzia gracilis, 241
 Devon, flowers from, 18
 Dicentra eximia, 288
 Dichorisandra thyrsiflora, 439
 Dicksonia chrysotricha, 35
 Dicksons & Co.'s nurseries, 297
 Dictamnus Fraxinella, 182, 292
 Difficulties of hardy fruit culture, 88
 Dinner table decorations, 4, 539
 Dipladenia boliviensis, 86; Brearleyana, 183
 Diplopappus chrysophyllus, 100
 Disa grandiflora, 40, 113; superba, 63; polygonoides, 240
 Disease germs in the air, 253
 Diurnal rest for plants, 64
 Douglas Fir, the, 227, 303
 Downie & Laird's nurseries, 343
 Downside, Leatherhead, Orchids at, 240
 Dracena terminalis, 485; Thompsoniana, 35
 Dracenas, culture of, 29; out of doors, 304
 Diospyros Kaki, 389
 Drumlanrig, fruit growing at, 316
 Duke of Buccleuch Grape, 402, 447, 474
 Dundee Horticultural Society, 540
 Dutch bulb trade, 456
- E.
 Earwigs, 210
 East Anglia, storm in, 540
 Eastnor Castle, large Vine at, 40; notes from, 431
 Echeveria retusa speciosa, 520
 Echinocereus gonacanthus, 441; pectinatus rufispinus, 162
 Edinburgh Botanic Garden, 258, 294
 Edinburgh, public gardens of, 255
 Edinburgh Nurseries, notes from the, 283, 297, 322, 243
 Edinburgh, rock garden at, 20, 23; rock gardens about, 320
 Edinburgh Show, notes from the, 261, 285; Roses at the, 303
 Egg Plants and their culture, 254
 Eichonea azurea, 90
 E. magnus, the varieties of, 522
 Electric light, the, and plant growth, 53
 Electric lighting, 88
 Elms, British, 419
 English plant names, 460
 Eperges, dressing, 174, 233
 Epidendrum Schomburgkii, 240
 Epilaea repens, 46
 Epilobium obcordatum, 10
 Epipactis latifolia variegata, 455, 502
 Epiphyllum truncatum, 290, 471; and its varieties, 225
 Erica cerinthoides, 225; Parmentieri, 64
 Erigeron grandiflorum album, 92; roseum, 157
 Eryngium glaciale, 52
 Erythraea diffusa, 159, 443
 Erythrochaete palmatifida, 139
 Escallonia for seaside, 362
 Escallonia floribunda, 309; macrantha, 357; montana, 17; Phillipiana, 18
 Esculent, a new, 6
 Estimates of flowers, 416
 Eucalypti, 83, 220
 Eucharis amazonica, 128, 202, 309, 440; flowering of, 416; candida, 417
 Eucomis punctata, 224, 288, 295
 Eulalia japonica, 443, 484, 491, 572; japonica albo-lineata, 235
 Euonymus for the seaside, 303
 Euphorbia jacquiniiflora, 102, 482; punicea, 225
 Eurya latifolia variegata, 399
 Euryales amboinensis, 503
 Evergreens, planting, 228; in summer, 42, 116; Christmas, 563
 Everlasting Pea, varieties of, 204
 Exacum macranthum, 202, 422
 Exhibiting hardy plants, 28
 Exhibition at Agricultural Hall, 106
 Exhibition, Carnations for, 426
 Exhibitions, judging at, 220, 283
 Exogonium Purga, 418
 Extension and restriction, 254, 309
 Extension v. restriction, 336, 352
 Eyot, Brentford, 304
- F.
 Fashion and beauty, 516
 Ferns, Filmy, a house of, 111
 Fernelia buxifolia, 5
 Fern-ry, climbers for, a, 390
 Fernfield, Bridge of Allan, Orchids at, 532
 Ferns and ferneries, 378
 Ferns, best cultivated, 436, 497, 530, 463, 568; Filmy, 523; for table, 200; in rooms, 241; pot culture of, 421; propagation of, 509
 Ferula communis, 353
 Fertilising Moss, 439
 Ficus repens and its fruit, 410
 Fig Negro Largo, 153
 Figs, 475, 476; in pots, 7
 Filmy Ferns for table, 201
 Fir forest, a, 349
 Fir, the Douglas, 227; the yellow, 301
 Fir tree oil, 562; as an insecticide, 409
 Fire Pink, the, 371
 Flame Nasturtium, the, 11
 Flax, New Zealand, 502
 Floral decorations, 1, 200; in London, 59
 Floral photography, 367
 Florida, Pine-apples from, 137
 Florida Water Lily, 310
 Floriculture in America, 438
 Florist, work of the, 8
 Flower basket, a pretty, 220
 Flower garden at Gunnersbury, 174
 Flower garden, colour in the, 177, 470, 477, 499, 521, 543, 566
 Flower gardening, 394
 Flower gardens, past, present, and future of, 477
 Flower, hardy, borders, 499
 Flower Mission, the Bible, 374
 Flower season, close of the, 394
 Flower beds, raised, 543
 Flowers by post, 497, 506, 528; colours of, 241, 525; estimates of, 416; exhibiting hardy, 53; for cutting, 174, 559; for the breakfast table, 119; from North Wales, 386; good autumn, 309; hardy in winter, 491; immersed out, 184; in shop windows, 481; October, 354; on lawns, 140; packing, 374, 410, 427, 491; spring, 500; sweet scented, 472; yellow, in autumn, 203, 232; weather proof, 426, 455; white scented, 450; winter, for market, 462; arranging, cut, 550
 Forcing plants, preparing, 482; in the dark, 635
 Forest Hill, 89
 Forest Hill Cemetery, 486
 Forest trees, two useful, 83
 Forest tree seeds, keeping, 560
 Forestry, School of, 586
 Forests, Crown, 411
 Forests influence for climate, 361
 Forget-me-nots in Grass, 4
 Formation and treatment of lawns, 500
 Foxglove, malformed, 133
 Foxgloves, hybrid, 491
 Fragaria indica, 161
 Fragrant flowers, 89
 France, notes from, 134, 431
 Francoa ramosa, 63, 90, 109
 Francoa, varieties of, 110, 154
 Freesia, notes on, 107, 241; varieties and culture of, 94
 Fremontia californica, 115, 144, 165, 439
 French Bean, Longsword, 87
 French Willow, the, 85
 Froebel's nurseries, Zurich, 336
 Fruit buds, autumn swelling of, 488
 Fruit crops, report on the, 87, 95, 123
 Fruit culture, difficulties in, 88; time in, 8
 Fruit growing at Drumlanrig, 316; for profit, 400
 Fruit packing for travelling, 338, 388; prizes for, 13; shrivelling, 525
 Fruit preserving in ice, 253
 Fruit, preserving ripe, 253
 Fruit tree borders, dear and cheap, 209
 Fruit trees, young, 545; autumnal growth of, 275; gumming in, 415; in pots, 8, 02; manuring, 141; summer pruning of, 488; surface stirring of, 142; watering in autumn, 316
 Fruits and vegetables, foreign, 137, 176
 Fruits, imported, 111; small, propagating, 547
 Fruits, stone gumming in, 388
 Fuel, cheap, 530
 Fungus, Auricularia, 410, 433
 Fungus on Cinerarias, 284
 Fungus, the club root, 437; the Holly-hock, 376
 Funkia grandiflora, 224, 295; Sieboldii, 3, 250
 Fuchsia, Alphonse Daudet, 220; a new, 284; dependens, 162; globosa, 361; diseased, 161; pumila, 184; Riccartoni, 244, 303; Sunray, 502
 Fuchsias, new seedling, 332; diseased, 284; in October, 386; out of doors, 288; species of, at Pendell Court, 287; the hardy, 351
- G.
 Gaillardia picta Lorenziana, 11, 161, 184, 244, 428
 Galeandra Devoniana, 205
 Gall flies, the Oak, 334; the Rose, 469
 Gal's on Cucumbers, 19
 Garden, a north-east, 257; a wilderness, 83
 Garden barrows, 390
 Garden, Cambridge Botanic, 294
 Garden, colour in the, 177, 543, 566; the, 477; Rose in the, 566

Garden design, 135, 504
 Garden destroyers, 477
 Garden, Edinburgh Botanic, 258, 264
 Garden, Geneva Botanic, 477
 Garden of Roses and Violets, a, 2, 2
 Garden thoughts, 178
 Garden wood, the, 28
 Gardenias, culture of, 320, 537
 Gardening, articles on, 371
 Gardening for profit, 518; indoor, out door, 397; in America, 185; in London parks, 248; in Switzerland, 443; under difficulties, 77; wild, 91; with covered soils, 72; winter, 135
 Gardens, botanic, ugliness in, 478
 Gardens, botanical, 380, 412, 441, 516; cottage, association, 517; cottagers', 283; experimental, at Gifford, 117; inner Temple, 390; past, present, and future of, 477; public, of Edinburgh, 275; town, annuals for, 155
 Gardeners, Austrian, 197
 Gardeners, cottage, 19, 430
 Gardeners, Flemish, 41
 Gardeners' Royal Benevolent Institution, 20, 79, 304, 460
 Gardeners, special, 364
 Garlic and Shallots, 301
 Garrya elliptica, 522
 Gaultheria procumbens, 382
 Gaultherias, and Leucopogon, 218
 Gazaniopsis stenophylla, 52
 Gazania splendens, 235
 Geneva association for protecting alpine plants, 528
 Gesnera tubiflora, 134
 Geneva Botanic Garden, 477
 Genista elata, 225
 Gentiana bavarica, 3; saxosa, 218
 Geranium armenum, 93; roseum, 357, 412
 Geraniums, hardy, 198; some good, 51
 German forestry, 219
 Gesnera oblongata, 503
 Gesneras and their culture, 10
 Geum, the scarlet, 134
 "Gie us a lead," 459
 Gilpin's "Forest Scenery," 348
 Gifford, experimental gardens at, 117 (Gishurstine, 58)
 Gifford, Devonshire, 183; hardy hybrid, 426; in August, 181; new French, 131; new race of, 431; raising from seed, 158; failure of, 570
 Gladiolus, A. F. Barron, 153; Ala, 153; Bono, 173; cardinalis, 134; Colville, 81; James Macintosh, 153
 Glandless Peaches, 415
 Glasgow Botanic Institution, 662
 Glasshouses, rating nursery, 14
 Glasshouses, shading, 178
 Glazing without putty, 217
 Globe Artichoke, 362
 Gloxinia Cordelia, 35; Major Mason, 58
 Gloxinia, 11; Mrs. Atkinson, 35
 Gloxinias, 484; at Reading, 20; late, 418; planting out in summer, 463; some fine, 40
 Guards for trees, 45
 Guelder Rose, the, 440
 Gunning in stone fruits, 588
 Gunnera manicata, 132
 Guts and tracts, 116
 Gobo, the, 6
 Godeia, Duchess of Albany, 57, 313; Satin Rose, 153
 Golden Champion Grape, 417
 Goldlocks, 395
 Gomphia decora, 41
 Gongora superbiflora, 294, 282
 "Good Things" among plants, 156, 159, 313
 Gooseberries and Currants, 576; as standards, 475
 Gooseberries, notes on the best, 140; select, 422
 Gooseberry caterpillar, 409
 Gooseberry trees, transplanting, 210
 Gorse or Furze, planting, 582
 Gorteria acaulis, 268
 Gossip, hardy flowers from 386; notes from, 235
 Grafting and budding, 47
 Grafting, double, 317, 389
 Grammatophyllum Eilae, 35; multiflorum, 104
 Granton Road Nursery, 260
 Grape Alnwick Seedling, 415; Ascot Citronelle, 166; Chasselade Fontainebleau, 187, 416; Duke of Buccleuch, 276, 352, 359, 402, 447, 474; Golden Champion, 447; Golden Queen, 525
 Grape grafting, 210
 Grape growing at Clovenfords, 413
 Grape bags, improved, 187
 Grapes v. Peaches, 221
 Grapes, bottling, 253; cause of shanking in, 223; comparative sizes of, 329; diseased, 40; for a cool house, 389, 476, 507; keeping, 487; late ripened, 331; low temperature for, 350; new and old, 221, 317, 338, 387; ripening and keeping, 316; shanking, 186; worthless, 323, 403; old varieties of, 544
 Grasses, stately, 672

Grass, Bermuda, 381; gardeners' garden, 49; Yellow Ribbon, 602
 Greenhouses, rating nurserymen's, 130
 "Granaeura," 551
 Grevillea Preissii, 462
 Griselinia littoralis for seaside, 262
 Groom, Mr. James, 56
 Ground Nut, the, 77
 Grouping in landscape gardening, 504
 Grubs, destructive, 433
 Gymnogramma schizothylla, 422
 Gynura aurantiaca, 141, 465

H.

Habitzia tamnoides, 41
 Habenaria ciliaris, 133, 202; viridis, 206, 236, 250
 Hackney Chrysanthemum Show, 151
 Haemanthus albidus, 322; Catherine's Alice Barr, 65
 Hailstorms and forests, 242
 Haphazard mixtures, 332
 Hardy herbaceous rubbish, 59
 Hardy plants, choice, 19; exhibiting, 28; summer notes on, 15
 Hardy flowers for cutting, 539
 Harpalium rigidum, 110
 Hart's-tongue Fern disease, 79
 Hawthornes and Pears, 75
 Heath v. Pichard, 498
 Heat, waste, utilising, 189
 Heaths, hardy, 86; summer culture of, 172
 Heckfield Place, 219
 Hedges v. iron fences, 195
 Hedychium Gardnerianum, 309, 332
 Hedychiums, culture of, 280
 Helianthus multiflorus, 349
 Helianthoporus nutans, 152, 221
 Heliotrope White Lady, 229
 Heliotrope culture, 9; new, 198
 Heliotropism in Sunflowers, 468
 Helleborus altiflorus, 462; Chatterboxer Benary, 357
 Heliopsis scabra, 258
 Hemerocallis, 61; Thunbergi, 357
 Hemlock Spruce, the, 134
 Herbaceous plants, stately, 139
 Herbaceous rubbish, 108
 Heterocentron roseum, 481
 Hibiscus schizopetalus, 162, 495; syriacus, propagating, 269
 High Grove, Pinner, 562
 Highlands, Apricots in the, 223
 Himalayan Primulas, 562
 Hotia japonica, 20
 Holiday in Switzerland, 349, 379
 Holland, bulb-growing in, 181
 Hollies, propagating, 509
 Holly berries, 496
 Holly, the common green, 476; Golden Queen, 522
 Hollyhock disease, 79, 104, 376
 Hollyhocks, types and culture of, 340
 Honesty seed-pods for ornaments, 204
 Horological flowers, 80
 Horse Chestnut, the red, 228
 Horticultural buildings, 582; past and present, 315
 Horticultural exhibition, 103
 Horticultural impostors, 80, 121
 Hothouses, new and old, 370
 Hot-water pipes, 137
 Houses, orchard, 416, 475, 523
 House sparrows and green-fly, 27
 Hoya imperialis, 504
 Hull Botanic Garden, explosion in, 304
 Hull, hardy plants at, 182
 Huntingdon Willow, the, 227
 Hurworth Grange, 23; plants in bloom at, 343
 Hyacinths, selection of, 422; Roman, 364; and Viridis, 520
 Hyacinthus candicans, 113; in pots, 150
 Hybrid Orchids, notes on, 63
 Hyde Park Corner, 455; improvement at, 389
 Hyde Park, flower borders in, 203
 Hydrangea, a Japanese, 110; paniculata grandiflora, 319; ramiflora, 266; Thomas Hogg, 292; paniculata, 369
 Hydrangeas and Fuchsia Riccartoni, 251
 Hydrangeas, blue, 292, 319, 631; variously coloured, 361
 Hymenocallis fragrans, 442
 Hypericum Coris, 318; empetrifolium, 41; oblongifolium, 224; olympicum, 41; repens, 52
 Hypericum Scouleri, 52; uralum, 263
 Hypocalymna robustum, 230, 247

I.

Illicium religiosum, 407
 Imantophyllums, the, 368
 Immersing cut flowers, 184
 Impatiens Sultan, 208, 462; alba, 525
 Imperial Society of Horticulture in Russia, 540
 Imposters, horticultural, 121
 Indiana Walnut in 1874, 444

Indiana Crocuses, 304
 Indian Corn as a vegetable, 741
 Indigofera coronilliflora, 65; floribunda, 17, 85
 Insecticide, an economical, 144; Fir tree oil as an, 409; a new, 562; paraffin as an, 551
 Insect life, effects of weather on, 398
 Insects destroying under glass, 266
 Insect pests, 169
 International show at Edinburgh, 261; at Ghent, 455, 460
 Inula, cultivated species of, 234; glandulosa, 3
 Inverleith Nursery, the, Edinburgh, 350
 Ionopsis utricularioides, 133
 Ipomaea Horsfallii, 151, 526; (Mina) lobata, 461; mutabilis, 399; pandurata, 199
 Ipomoea, note on, 579
 Itea speciosa, 188
 Ithaca v. Thomson's nursery, 322
 Ireland, the season in, 86
 Iris aurea, 17, 51, 357; cuprea, 3; Campfield, 65, 337; levigata, 10, 245; sasanica, 177, 182, 311; in Germany, 111; stylosa, 547
 Irish Heath, the white, 302
 Irish bogs, new crop for, 577
 Iron fences v. hedges, 195
 Ivy and Ampelopsis for walls, 181
 Ivy as a decorative plant, 456; as a seaside plant, 481; for winter gardens, 466; red berried, a, 439; under trees, 236
 Ivora Duff, 214, 285

J.

Jaborosa integrifolia, 52
 Jamaica, Orchids in, 305
 Jasmone, the golden leaved, 261
 Jasminum gracillimum, 405, 526
 Judging at exhibitions, 283, 345
 Judging, wrong ideas in, 329
 Judicious pruning, 405
 Juglans, the species of, 251
 Juniperus occidentalis monosperma, 189

K.

Kalmia latifolia, 6; in a cut state, 58
 Kalmias, soil for, 43
 Kew, bulbous plants at, 4
 Kew Gardens, 93, 367; gates at, 411; opening of, 411; report on, 586
 Kingston, Jamaica, flower show, 82
 Kniphofia aloides nobilis, 157

L.

Labels, 434; new, at Kew, 497; zinc, for Rose trees, 3, 540
 Labelling border plants, 561
 Lachenat as and Lachenals, 45
 Lachenals, note on, 4
 Lelia autumnalis, culture of, 408; flamea, 480; monophylla, 440; autumn-flowering, 373; Stelzneriana, 585
 Lagerströmia indica, 85, 184
 Lago Maggiore, notes from, 372
 Lambeth Palace grounds, 586
 Lancashire, notes from, 120
 Land, a tree, 301
 Land of bloom, in a, 182
 Lautana Phosphore, 55
 Lapageria, a fine, 385; culture of the, 160, 483; rosea splendens, 413; hardness of, 160
 Larches, remarkable, 270; the Dunkeld, 270
 Lasia stipitata, 35
 Lasiantha macrantha, 570; in the open air, 202
 Lastrea montana coronans, 153
 Lathyrus pyramidalis, 139; celeratus, Bronze Queen, 153
 Lattice-leaf plant, 247
 Laurel, a broad-leaved, 503
 Laurel insecticide, the, 169
 Laurustinus in pots in winter, 526
 Lawn, making a lawn, 229
 Lawson Company's nursery, 268
 LAW
 Lawwood v. London Cemetery Company, 564
 Lawson Nursery, Edinburgh, 42
 Layia elegans, 418
 Leaf beds and Pine growing, 223
 Leaves from the Southern Alps, 424, 73
 Leea amabilis, 465
 Leeks, culture of, 6
 Leith Walk Nursery, 299
 Lens esculenta, 101
 Lentil, the, 191
 Lentinus lpidius, 207, 269
 Leptosyne maritima, 161
 Lettuce destroying insects, 361
 Lettuces and Onions, 232

Lettuces, summer, 18; varieties of, 171
 Leucium verum, 368
 Liatris pycnostachya, 286
 Luala grandis, 111
 Liculia gratissima, 280
 Ligustrum chinensis, 674; chinensis, 40
 Lilac, white, 174
 Lilies as pot plants, 179; double, 416
 Lilium auratum, a dwarf, 180; a large, 113; culture of, 138; double-flowered, 355; in Nova Scotia, 293; in the open border, 467; virinale, 164, 286
 Lilium Batmannae, 262, 368; Catalina, 353; dalmaticum, 11, 89; elegantum, 10; Harrisii, 85, 167, 244; Lechluthi, 133; longifolium Takesima, 89; Wilsoni, 65; speciosum Melpomene, 197; testaceum, 138; Thunbergianum elegantum, 67
 Lille, International Show at, 242
 Lily of the Valley, 442; English and imported, 463; well grown, 204
 Lily, the southern, 353
 Lime, influence of, on germination, 489
 Limnathes Douglasii, 244
 Linaria thymifolia, 29; trianthemum, 268
 Lincoln's Inn Fields, 79
 Lindenia rivata, 224
 Liparis Saundersiana, 439
 Little and Ballantyne's seed warehouses, 455
 Loasa lateralis, 427
 Loasas, the species of, 593
 Lobelia, Finsbury Park Blue, 35; prize white, 17, 40; jumia Ingrami, 35; varieties of, 203
 Lobelias, white-flowered, 60
 London, open spaces in, 410
 London parks, gardening in the, 267; improvements in, 497
 Longwood, French Bean, 87
 Lonicera japonica, 169; scutellaria, 17
 Loranthus Colensoi, 218
 Lucas, Dr., the late, 196
 Luculia gratissima, 439, 481, 519, 547
 Lupinus nikanus, 3; subcarinosus, 386
 Lycaste Deppii punctatissima, 11, 35; Skinneri alba, 392; Skinneri, culture of, 245
 Lychnis Haageana, 52; the old scarlet, 134
 Lygodium scandens for cutting, 393
 Lysimachia Leechmanii, 201; Nummularia, 138

M.

Madagascar, flora of, 520
 Magnolia macrophylla, 116; at Sunninghill, 150; purpurea, 489; Soulangiana nigra, 17
 Magnolias, the late flowering, 26; mulching, 522
 Maiden-hair Fern in open air, 264
 Maiden-hair Ferns for cool greenhouses, 359
 Malus Halleana, 162
 Mandevilla snavolens, 19
 Mansion House, Rose show at, 19
 Manure, bone, 460
 Manure heaps, utilising, 78
 Manuring fruit trees, 141
 Maple, the better kinds of, 459
 Marguerite, a double, 10
 Marigold, Scotch, 41; new French, 15
 Marigolds, African, 202; French, 15
 Marigold, 561
 Mariposa Lilies, the late, 241
 Market garden notes, 12
 Martagon Lily, the black, 20
 Maerbachia Carnoviana, 113
 Masdevallia Parkiana, 451
 Matlock Bath Pavilion gardens, 567
 Matricaria inodora fl. pl., 268
 Mealy bug on Vine, 676; and air, 67
 Meconopsis, or Indian Poppy, 99
 Meconopsis Wallichii, 18, 199
 Medicago Echium, 260
 Meadow Saffron, double, 363
 Melon, note on, 136
 Melon disease, cause and cure of, 7, 40, 112
 Melon, Highcross Hybrid, 11; Victory of Bath, 61
 Melons in small pots, 17, 40, 142
 Melons, Water, 141, 278
 Menziesia polifolia alba, 372
 Merciless letters, 78
 Mespilus grandiflora, 169
 Meserion berries, 15
 Michaelmas Daisies, the best, 288; 1889 good, 289
 Michauxia campanulata, 462
 Microcahyra fragrans, 46
 Mignonette, Miles' Spiral, 3
 Midge on roses, 2
 Milla biflora, 169, 300
 Millionaire horticulture, 1

Mimicry in Orchid flowers, 282
 Minulus cardinalis, 10
 Mina lobata, 461
 Mitella diphylla, 21
 Mr. Matthew Brown, 82
 Moccason flower, shade for the, 358
 Moggridge, Mr. Matthew, 106
 Monarda didyma, 292
 Moneywort, the, 138
 Monymusk Larches, the, 271
 Monochætums, 471
 Monbretia Pottii, 65; rosea, 161
 Monzie Larches, the, 271
 Morello Cherry trees, dwarf, 402
 Morina elegans, 358
 Mormodes lentiginosa, 503; unicolor, 346
 Moss culture, 174
 Moss, fertilising, 430, 516
 Moth, the antler, 561
 Mountain Ash in town gardens, 301
 Moutan Pæonies, 140, 410
 Mucuna imbricata, 161
 Mulberry, the, 545; trees, 475
 Mullein, purple, 377, 395
 Mummy Pes, the, 232
 Munstead, Godalming, 191
 Mushroom culture out of doors, 554
 Mushrooms, 207; are they poisonous, 498; in cellars, 387; outdoors, 49, 175
 Musa coccinea, 461; vittata, 11, 65
 Myosotis dissitiflora, alba, 5; from seed, 140
 Myrtle, the Peach, 229

N.

Narcissus monophyllus, 457, 502, 547
 National Rose Society, 540
 Native Guano Co. Show, 389
 Naturalisation of plants, 371
 Nelumbiums and their culture, 421
 Nelumbiums, notes on, 369
 Nepenthes and their culture, 121
 Nepenthes madagascariensis, 35; Martensiana, 35, 161, 220; Rajah, 35; species of, 121
 Nerine Fothergillii, 463
 Nerium Maddoni grandiflorum, 58;
 Mons. Balaguer, 53; Oleander, 295;
 Sour Agnes, 58
 New England Mayflower, 46
 New England, notes from, 241, 243; Orchids in, 25
 New Zealand Flax, 30; variegated, 502
 New Zealand, notes from, 213, 423
 Newry, notes from, 51, 167
 Nicotiana tubiflora, 161
 Nierembergia frutescens, 11
 Nomenclature of Orchids, 26
 Norfolk, notes from, 394
 Normandy, Orchids in, 583
 North Wales, notes from, 118
 Notes and Readings, 8, 53, 64, 114, 216, 282, 517
 Notes by "Brookhurst," 268
 Notes from the north-east garden, 267
 Notes from Eastnor Castle, 431
 Notes from France, 134, 451
 Notes from Gosport, 296
 Notes from Lancashire, 120
 Notes from New England, 241
 Notes from Newry, 51
 Notes from Norfolk, 394
 Notes from the Southern Alps, 423, 573
 Notes from Wortley, 565
 Notes on Chrysanthemums, 489
 Notes on autumn hardy plants, 223
 November bouquet, 481
 November flowers, 439
 November Orchids, 417
 Nuphars, notes on, 369
 Nurseries, Bangholm, 298; Dicksons & Co.'s, 297; Frächer's, Zurich, 330; Granton Road, 299; Laing & Co.'s, 89; Lawson Company's, 298; Leith Walk, 299; Methven's, 299; Osborn's, 111; Osborn's sale of, 345; Pilrig Park, 297; Redbraes, 97; Stansfield's, Tadmor, 269; the Laws n. 11; Tunbridge Wells, the, 196; Craigleith, the, 322
 Nuts, the Canadian wild, 435
 Nymphaea alba rosea, 369; Dauberyana, 439; flava, 41, 310, 421; gigantea, 41; odorata, 369; poecile, 369; zanzibariensis, 131

O.

Oak Apple, the, 335
 Oak, a variegated, 303
 Oak gall flies of the, 334
 Oak root gall, 335
 Oak spangles, the, 334
 Oak, green blight on, 74
 OBITUARY—
 Dickie, Dr. George, 106
 Hinds, William, 686
 Hooper, Edward J., 564
 Meehan, Edward, 434

Moggridge, Mr., 82
 Newington, Dr., 58
 Osborn, Robert, 14
 Sadler, John, 542
 Sargent, Henry W., 564
 Piesse, Septimus, Dr. W., 350
 Sherratt, John, 14
 Shirley, Philip Evelyn, 320
 Thwaites, Dr., 368
 Ochna multiflora, 574
 Odontoglossum cordatum aureum, 35; crispum, 161; fine variety of, 65, 436; crispum flaveolum, 393; grande, 304, 373; Rossi majus, 393; tripudians, aureum, 35; vexillarium, 14, 204; vexillum rubellum, 373; Wilckeum, 183
 Enothera Fraseri, 358; Lamarckiana, 150; taraxacifolia, 358; pumila, 157; speciosa, 17
 Oleanders, notes on, 224
 Olearia Haasti, 85, 113
 Oncidium cucullatum giganteum, 160; macranthum, 205; Rogersi, 392, 436; stelligerum, 104; three good, 417; zebrianum, 162
 Onion, Golden Gem, 426; Trebons, 213
 Onions and Lettuces, 232
 Onions and their culture, 169
 Onions, autumn-sown, 190; thinning, 216; unthinned, 254
 Ohio Valley, notes from the, 319
 Oil, Fir tree, 552
 Orange trees in small pots, 134
 Orchard house culture, 575
 Orchard houses, 416, 523
 Orcharding, success for, 210
 Orchards, shelter for, 351
 Orchid bulbs, pruning, 565
 Orchid culture, 204; in America, 531
 Orchid descriptions, 114
 Orchid flowers, mimicry in, 282
 Orchid growing, the A B C of, 119, 185
 Orchid house, temperature of, 371, 393
 Orchids at Albany, 373; at Bocking Place, 84; at Bridge of Allan, 281; at Burford Lodge, 329; at Chitworth, 133; at Clovenfords, 304; at Downs, 240, 330; at Highbury, 167; at Kew, 183; at Selborne, Streatham, 282; at Sudbury House, 365; at The Dell, Egham, 62; at the Royal Exotic Nursery, 306; at Upper Holloway, 392; at Woolton Wood, 133; Australian, 245; British, rare, 373; cool, 282; culture of, 436; description of, 366; growing, 245; at Stamford Hill, 562; at Fernfield, 532; in Normandy, 583
 Orchids in flower, notes on, 373; in bloom, 585
 Orchids in Jamaica, 365; in New England, 25; in season, 85
 Orchids of Assam, some of the, 561
 Orchids, making up, 53; notes on hybrid, 63; November flowering, 417; two good cool, 393
 Orchis, latifolia, 105, 240; maculata superba, 3; the spotted, 17
 Orchis foliosa and its varieties, 530
 Orchises, British, 3
 Ornamental arboriculture, 147
 Ornithogalum arabicum, 249, 346; thyrsoides, 347
 Ornus europæus, 117
 Osborn's nurseries, 111
 Osmanthus ilicifolius, 522
 Osmunda japonica corymbifera, 55, 57; javanica, 55
 Ouvrandra fenestralis, 247
 Ourisia coccinea, 4, 70
 Overhanging trees, 324
 Oxalis lobata, 199, 443
 Oxford, Carnation show at, 20
 Oxide of iron in soils, 216

P.

Packing flowers for transit, 338, 410, 427
 Packing fruit, prizes for, 13
 Paddington, proposed park for, 137
 Pæonies, herbaceous, 51; Moutan, 440; tree, 134; tree or Moutan, 140
 Palms, sowing seeds of, 264; stove and greenhouse, 331
 Pampas Grass, the, 572
 Panchratium illyricum, 292; speciosum, 202
 Pandanus Veitchi, 400
 Pansies, border of, 18; in hot dry soils, 314
 Pansy Distinction, 221; International, 457; King of the Yellows, 52; Lady Kintore, 139; Lord Waverley, 57; Magpie, 4, 50, 265; Sunburst, 65
 Papaver apulum, 92
 Paper making, materials for, 520
 Paphinia rugosa, 11
 Para Grass, 295
 Paraffin as an insecticide, 551
 Paris Daisies, 523; and Gazanias, 235; in autumn, 353

Parks, London, gardening in, 248
 Park, new public, 389
 Parks, London, flowers in, 202
 Parnassia asarifolia, 201
 Parochæus communis, 396
 Parsley, culture of, 540; for winter, 232
 Passiflora cærulea at Eastbourne, 268
 Paterson's, Dr., Orchids, 281
 Pea Alfred the Great, 58
 Pea crop, the, 110
 Pea Everlasting, varieties of, 204; Gladiator, 58; Laxton's Earliest of All, 232, 301; Lye's Favourite, 58; Mummy, the, 87, 136, 232; Stratagem, 58; Turner's Emerald, 53
 Peach, a fine, 222; Amiden's June at Decapris, 210
 Peach borders, 209
 Peach crop in America, 253
 Peach culture, 142; standard, in France, 283
 Peach Dr. Hogg, 389; Early Rivers', 7; Golden Eagle, 222; growing, about, 16; of China or Peen-to, 222; Thames Bank, 301; the Amiden, 141
 Peach trees, cropping, 62; fruitful, 416; weakly, 338
 Peaches and Nectarines, late, 210
 Peaches and Pears in America, 210
 Peaches, classification of, 300; glandless, 415; in doors and outdoors, 53; late, 282, 339; sunshine for, 39
 Peaches & Grapes, 221
 Peaches & Pears on open walls, 476
 Pear and Apple culture, 523
 Pear growing for profit, 507, 525, 545, 575
 Pear Marie Louise, double grafting, 351; Pitmaston Duchess, 552; Seckle on the Apple stock, 186
 Pear trees, double grafted, 389
 Pears, stewing, 275; heavy crop of, 540
 Pears, the best, 276, 415
 Pears trained like Peaches, 216
 Peas and Cocoa-nut fibre, 324
 Peas and their quality, 85
 Peas, flavour of, 49
 Peas in 1882, 387
 Peas, late, 255; mildew on, 213; Mummy, 346; prizes for, 79; protecting autumn sown, 513; six good, 87; sweet, in succession, 52
 Peat for pot plants, 329
 Peen-to, or Peach of China, 222
 Pelargonium Adventurer, 35; Aglaia, 13, 58; Albert Crouse, 451; Belle de Jour, 58; candidissimum plenum, 58; Comtesse Horace de Choiseul, 13, 58; Diadem, 13, 35; Duchess of Albany, 13; Edith Little, 13; Eva, 58; Florrie Thompson, 13; Gambetta, 13; Got, 58; Grand Chancellor Fairhair, 13; Irene, 13; Kleber, 58; Lady Frooke, 12; Little Let, 13; Lovely, 13; Lumen, 58; Lynette, 13; Mad. Harmant, 58; Mad. Marie Knecht, 13; M. Hardy, 58; Miss Blanche, 13; Miss Hamilton, 58; Morning, 13; Mrs. Gordon, 13, 451; Olive Carr, 58; Paul Jacob, 248; Poiteau, 13; Princess of Wales, 13; Rolisson's Unique, 461, 536; Rose Superb, 35; Royal Review, 13; Sister of Mercy, 35; Urania, 13; Vesuvius, 13; Veteran, 35; White Clipper Improved, 13; Guillon Mangin, 573
 Pelargoniums and Geraniums, 49
 Pelargoniums certificated, 12
 Pelargoniums in midland counties, 70; in winter and spring, 411; Ivy-leaved, 46, 503; new, 121, 198; plunging in pots, 5; propagating, 168; training of, 11; winter zonal, 399
 Pendell Court, Fuchsias from, 387
 Penn memorial trees, 540
 Pentas carnea, 485
 Pentstemon Franklini, 235; Jaffrayanus, 52; Mrs. Macfarlane, 347; Murrayanus, 156; new, 198; Richardsoni, 157; speciosus, 156
 Pentstemons, a note on, 134; seedlings, 86
 Peperomia resedæifera, 41
 Perennials, a few good, 291; for winter and spring, 395; hardy, 248; propagating, 323
 Periploca graeca, 41
 Pernettya floribunda, 19; mucronata, 332; mucronata, new seedlings of, 347
 Pescatorea Dayana, 12; Klabochorum, 24; Vervæti, 541
 Petunia Mrs. Dunnett, 153
 Petunias, single and double, 225
 Phacelia campanularia, 20, 104
 Phalanopsis, temperature of, 562
 Phalanopsis Esmeralda, 347
 Phalanopsis and Vanda grown cool, 480
 Phalanopsis at Clapton, 480
 Phalanopsis Sanderiana, 373; Schilleriana, 113; Stuartiana, 118; synopsis of the genus, 118; violacea Schröderi, 153; Portei, 562
 Phallus impudicus, 331
 Philadelphus microphyllus, 522
 Phlox buxifolia, 159, 220
 Philodendron at home, 396

Phlox amoena, 52
 Phormium tenax, 30
 Photographs of Lily of the Valley, 10
 Photography, floral, 367
 Phygadeuon capensis, 162
 Phylloctactus carinatus, 17; grandis, 17; multiflorus, 17
 Phylloxera convention, 444
 Picea pectinata, 543
 Picoles Esther Minnie, 105; Mrs. Gordon, 105
 Picoles and Carnations, 233
 Picoles, old and new, 371
 Pilrig Park Nursery, 297
 Pilumna fragrans, 392
 Pimeleas, culture of, 194
 Pine-apples from Castle Hill, 104; from Florida, 137
 Pine growing on leaf beds, 7, 223
 Pines fruiting in small pots, 275, 351
 Pink Hill Nursery, the, 313
 Pink, Indian varieties of, 234; small double white, 92; the Fire, 371
 Pinks and their culture, 491
 Pinks, dwarf, 86
 Pinus excelsa, 251; reflexa, 186
 Pipes, hot-water, 439
 Pitcairnia aphelandraeflora, 547
 Planes, London, 83
 Plant collector, rambles of, 228, 315, 337, 359
 Plant forms, diversity of, 236
 Plant labels, 346, 540
 Plant protection, 510
 Plantain Lilies, 292
 Plantains on lawns, 2 S
 Planting and pruning, 459, 523
 Planting, autumn, 415; hardy, 235; on benches, 486; spring & autumn, 389, 407, 476; Vines, 351, 414, 473
 Plants at Aix les Bains, Savoie, 136; autumn notes on hardy, 223; berry-bearing, 179; by post, 410; distribution from the parks, 346; exhibiting hardy, 66; for hanging baskets, 132; for indoor rockery, 442; for seaside garden, 287; for winter cutting, 484; winter decoration, 398; from seed, 367; hardy and the season, 109; hardy in beds, 355; hardy in pots, 22; hardy, notes on, 21; hardy stately, 139; hardy, summer notes on, 131; influence of minerals on, 520; judging hardy, 68; old-fashioned, 108; preparation of, for forcing, 482; propagating hardy, 51; some good, 156; sub-tropical, 197; tall border, 490; useless, 137; window, 174; winter-flowering, 45; without earth, 143; alpine, propagating, 528; British, sudden appearance of, 565; herbaceous, and their culture, 571; labelling border, 561; window, in winter, 575
 Platanthera radiata, 206
 Platycodon grandiflorum, 109
 Platystemon californicum, 65
 Pleasure grounds in winter, 438
 Pleione ligariaria, 373; præcox, 451; a new, 535
 Pleiones or Indian Crocuses, 304
 Pleopeltis fossa, 35, 57
 Pleroma Benthani, 464
 Plum Oulin's Golden Gage, 222; the double-blossomed, 440; the Lombard, 333; Transparent Gage, 196
 Plum trees in pots, 40
 Plumbago capensis, 132, 226
 Plumiera Lamberiana, 225
 Podophyllum Emodi in fruit, 89
 Poinsettias dying off, 464; culture of, 250
 Polygonum sachalinense, 244; vacciniifolium, 418
 Polypodium ornatum, 35; vulgare cornubiense Fowleri, 153
 Polystichum munim, 204
 Pomponia Dahlias, 416
 Pontederia azurea, 113; crassipes, 176, 503
 Poppies, Opium, 18
 Populus alba Boileana, 522
 Portugal Laurel, 419
 Portulacas, notes on, 342
 Post, living plants by, 410; flowers by, 523
 Potato, a gigantic, 285; Alderman de Keyser, 285; disease, 43; the, 53; the, 216; James Abbis, 285; prospects, 111; Recorder, 285; sets, a trial of, 461; Sir Walter Raleigh, 285; sports, 324, 345, 363; White Beauty of Hebron, 270
 Potatoes, autumn and spring planted, 346, 426; diseased, 111; early and late, 6; exhibiting, 255; exhibition, 111; in Northumberland, 136; new, 213, 285; special prizes for, 345; Sutton's new, 304; storing for seed, 554
 Potentilla pedata, 157
 Potentilla, 17
 Prairie flowers in Manitoba, 282
 Primrose, a lost, 22
 Primroses, evening, 134, 159; naturalising, 52; October, 332, 373

Primula denticulata, 5; *obovata*, 224; *poculiformis*, 481; *sikkimensis*, 51; Chinese, 503
Primulas, Himalayan, 502; new double, 547
 Privet, dwarf Chinese, 40; variegated, 450
 Prizes for fruit packing, 13; special, 57, 130; Veitch memorial, 36
 Profit, fruit growing for, 400
 Protection of plants, 610
 Pruning and planting, 459
 Pruning, judicious, 405; note on, 8; to the best bud, 388, 447
Pseudotsuga Douglasii, 186
Pternaria serrata, 157
Pteris scaberula, 422
Pyracantha, pruning the, 450
 Pyramid trees, 283
Pyræthrus, double, 51, 138; single, 500
Pyrola rotundifolia, 133
Pyrus, select kinds of, 381; *Sorbus*, 381

Q.

Quercus Emoryi, 185; *grisea*, 185; *hypoleuca*, 185; *pungens*, 185; *undulata*, 185

R.

Ragged Robin, double, 134
 Raisins, Smyrna, 222
 Ramana Rose, the white, 184
 Ramble at the antipodes, 46; of a plant collector, 228, 315, 337, 359
Ranunculus, notes on alpine species of, 252; notes on the, 23; roots, 5; in New England, 67
Raphiolepis japonica, 43
 Raspberries, autumn bearing, 317
 Raspberry Marlboro', 188
 Rat covert, a, 206
 Redbraes Nursery, 207
 Red spider, 135, 167, 206; and Apples, 309
 Regent's Park, 137
Renanthera matutina, 104
 Rendle, the late Mr., 217
 Report on the fruit crops, 95, 123
Reseda Golden Queen, 58, 66; *odora* a *pyramidalis grandiflora*, 11, 58
Restriction v. *extension*, 254, 300
Rhamnus catharticus, 381
Rheum acuticatum, 10
Rhodites rosea, 469
Rhodochiton volubile, 202, 309
Rhododendron balsamiflorum album and *aureum*, 35, 57; *Rose Perfection*, 481; *Sir Beauchamp Seymour*, 347; *Sir Garnet Wolseley*, 346; *Star of India*, 35
Rhododendrons, greenhouse, 161; and *Azaleas*, 322; and *Azaleas* in woods, 26; in heavy soil, 184; prices of, 5
 Rhubarb, Ruby, early forcing, 404
 Ribbon Grass, the yellow, 502
Ricinus, 53
 Riddlesdown, 520
Rigidella immaculata, 4
Rivina levis, 68, 90
 Rivinas, notes on, 112
Robinia viscosa, 41
 Rocamboles, the, 425
Roechia falcata, 129
 Rock garden at Hoole House, Chester, 67; for Edinburgh, 20; in Botanic Garden, Edinburgh, 23; at Southwood, Bickley, 527
 Rock gardens about Edinburgh, 326
 Rockery, a new, 155
 Rockwork, material for, 176, 242; notes on, 527
Rodgersia podophylla, 51
Rogiera gratissima, 410
 Root disturbance, 458; formation and soils, 230; pruning and transplanting, 487
 Root work, 241
 Roots in drains, 83
 Roots, production of, 78
Rosa hevigata, 391; *kamschatcica*, 391; *Brunoniana*, 3
 Rosarian's Society, West of England, 106
 Rose Society, annual meeting of the National, 540
 Rose, Adam, 21; A. K. Williams, 296, 308; a new North American, 190; best style to plant, 435; buds thinning, 24; catalogue of, 10; *Coupe de Hebe*, 3, 44; on north wall, 94; conservatories, 190; culture near towns, 107, 180; *Duchess of Connaught*, 57; *Duke of Albany*, 159; *Earl of Pembroke*, 347; *Empress of India*, 3; gall fly, 464; growing at Sutton, 478; *Her Majesty*, 35; *Lady Mary Fitzwilliam*, 35; *Lamarque* not blooming, 72; *Mrs. Harry Turner*, 296; old double yellow, 167, 372

Rose, Queen of Queens, 160; show at Alexandra Palace, 56; at Mansion House, 19; at South Kensington, the, 20; jottings from the, 71; Society's catalogue, 296; *Souvenir d'un Ami*, 372; the best, 44; trees and zinc labels, 3; *White Baroness*, 229; *White Pet*, 52; *White Ramana*, 184; buds, late, 522; garden, the, 566; *Gloire de Dijon*, 564; *Gloire de Dijon* for winter, 521; *Maréchal Niel*, 522; without a thorn, a, 586
 Roses all the year round, 167; among the, 24, 71, 178; and *Violas*, a garden of, 252; autumn, 371; transplanting of, 372; best autumn blooming, 252, 308; climbing, 391; Cranston's show of, 106; disturbance of roots of, 328; double Briar, 44; early planting, 391; double Briar, 44; early planting, 391; early winter treatment of, 327; fallacies about, 44; from cuttings, 107, 160, 189, 211, 481; from seed, 190; fungus on, 211; grafted, 274; in pots, 44, 189; in Scotland, 94; in September, 252; in town gardens, 93; Mr. Fish on, 186; new, 159, 178; of 1882, 144; of recent years, 274; old-fashioned town, 43; old garden, 168; on planting, 435; own root, 190; mildew on, 2; new sites for, 391; pot, 3; under glass, 94; protecting the tops of, 352; pruning indoor, 391; root disturbance of, 309, 352; Tea, against a south wall, 455; Tea, new and old, 327; Tea, protecting, 352; Tea, under glass, 458; in the north of Scotland, 72; when to plant, 231; white, 107
 Rosy Jasmine, 113
 Rothesay flower show, 82
Roupeilla grata, 86
 Royal Aquarium Chrysanthemum Show, 453
 Royal Botanic Society, 411
 Royal Caledonian Horticultural Society, 260, 390, 86
 Royal Gardens, Kew, 93
 Royal Horticultural Gardens, the, 497
 Royal Horticultural Society, 56, 562
 Rubbish, hardy herbaceous, 59, 157
 Rubbishy plants, 241
Rubus phoenicolasius, 113
 Ruby Klubarb, 403
Rudbeckia hirta, 133; *Newmani*, 225; *pinata*, 396; *speciosa*, 202; *submontosa*, 396
 "Rural New Yorker," the, 220
 Ruskin, Mr., 220
 Russian Apples, 507
 Rust on iron pipes, 14

S.

Saccolabium Harrisonianum, 392
Salix alba, 227
Salvia Bethelii, 224, 230, 386, 482; *Brunata*, 288; *candelabra*, 157; *hians*, 399, 484; *ianthina Hoveyi*, 451; *interrupta*, 17, 52; *patens*, 314; *Pitcheri*, 418
Salvias, winter-flowering, 462
Sambucus heterophylla, 150
Sanchezia nobilis in pans, 536
Sandersonia aurantiaca, 4
 Sandy Show, jottings from, 220
Saponaria calabrica, 265; *officinalis fl.*, 224
Sarracenia Courtii, 35
Sarracenia, culture of, 351
Saxifraga aquatilis, 52; *diversifolia*, 89, 109; *Fortunei*, 386; *granulata*, fl. pl., 138; *peltata*, 258; *Wallacei*, 140
Scabiosa atropurpurea as a pot plant, 41
Scabiosa, double dwarf, 235; the dwarf, 157
 Scallions, 577
 Scarlet Runners, 232
Schizanthus, 181
Schizostylis coccinea, 481
 School of Forestry, 586
Scelopendrium vulgare crispum multifidum, 153
 Screw Pine, the Giant, at Kew, 220
Scutellaria Mocciniana, 70; *orientalis*, 138
 Seakale forcing, 492
 Seaside, Ivy for the, 481
 Seaside plants, 287; shrubs, 73, 362, 382
 Seaweed and slugs, 387
Sedum cyaneum, 201; *spectabile*, 288; *purpureum*, 300
 Sedums, notes on, 128
 Seed raiser, a great, 410
 Seed-sowing in dry weather, 136; testing, 77
 Seeds, American, 292; testing, 44; vitality of, in transit, 496; tree, keeping, 569
Seleginella grandis, 35
 Selborne, Orchids at, 282
 Selection, or not selection, 109, 243, 376
 Selection, our own, 159; nurserymen's, 114
 Sempervivums, notes on, 150

Senecio japonicus, 139; *pulcher*, 332, 405; *speciosus*, 109, 268
Sequoia gigantea at home and abroad, 115
Serico-graphis Ghiesbreghtiana, 461
 Shallots and Garlic, 301
 Shallots, two types only, 58
 Shrub garden, a rare, in Ireland, 241
 Shrubs, flowering, 24; for forcing, 220; for the seaside, 382; hardy for forcing, 440; seaside, 73, 362; evergreen, handsome, 522; for winter bedding, 569
Sidalcea candida, 52, 110
Silene pendula compacta, 265; *virginica*, 371
 Silver Fir, the, 548
 Sm, Mr., 326
 Sites for Roses, 391
 "Six days in London," 337
 Skimmia berries, 455
 Slug, an enormous, 79; and snails, 277, 577; destroying, 410
Smilax tannoides, 483
Smyrna Raisins and the *Phylloxera*, 221
 Snails and slugs, our, 577
 Soapdragons, note on, 183
 Soapwort, double-flowered, 224
Sobralias, the, 508
 SOCIETIES AND EXHIBITIONS
 Alexandra Palace Rose show, 56
 Crystal Palace, fruit, 250
 Crystal Palace Rose show, 31
 Royal Horticultural, 11, 57, 104, 153, 197, 260, 346, 451, 541
 International Potato, 284
 International show at Lille, 242
 National Carnation and Picotee, 105
 International Rose, 32
 Northamptonshire Potato, 304
 Pelargonium, 12
 Richmond, 35
 Royal Botanic, 33, 178
 Royal Caledonian, 390
 Scottish Pansy, 36
 Turinham Green and Chiswick, 14
 West of Scotland Pansy, 130
 Soils and root formation, 230
Soja hispida, 93
Solanums, culture of, 172, 320
Sollya linearis, 85, 268
 Solomon's Seal in shrubberies, 49
Sonerilas, 442
 Soot as a fertiliser, 72
Sophronitis grandiflora, 585
 Sorrel wood, uses of, 489
 Southern Alps, leaves from the, 423, 495, 505, 573
 Southwood, rock garden at, 527
 Soy Bean, the, 93
 Spaces, open, in London, 410
 Spanish Broom, the, 404
Sparaxis pulcherrima, 157
Spartium junceum, 404
Spathoglottis Fortunei, 210; *Lobbi*, 188
 Special prizes, 87
 Special gardeners, 365
 Spergula, the golden, 156
Spilanthes oleracea, 295
 Spinach, culture of, 136
 Spirea, a miniature, 202; *callosa pumila alba*, 109; *crispifolia*, 249, 522; *Douglasii*, 38; *flagelliformis*, 3; *palmata*, 17, 52; *palmata elegans*, 17; *paniculata grandiflora*, 268
 Spring and autumn planting, 407, 415
 Spring plants in summer, 204
 Spring v. autumn planting, 389
Stachys coccinea, 385
 Stamford Hill, Orchids at, 562
Stanhoepia florida, 306
 Stanhoepias, note on, 184
 Stanish's nurseries, Todmorden, 269
Stephanotis, floriferous, 216
Sternbergia atnensis, 357
Stephanotis floribunda in fruit, 570
Stinkhorn fungus, the, 331
 St. John's, Ryde, 397
 St. Mary's Garden, Birmingham, 410
 St. Nicholas House, 287
Stobea purpurea alba, 418
 Stock, Brompton, 22; *Fairy Queen*, 90
 Stocks, notes on, 292
 Storm in East Anglia, 540
 Stoves, oil, 520
 Strawberries and their flavour, 56; in autumn, 219, 223; in pots, 7; layering, 7, 61; top dressing, 411; wintering for forcing, 487; forcing, 525; late, 546
 Strawberry crop, the, 163; culture, 166; Elton Pine, 62; *P. Hissier*, 210, 474, 525; plants for forcing, old, 402; the alpine or Four Season, 165
Streptocarpus biflorus, 102, 462; *floribundus*, 102
Strelitzia reginae, 481
Stuartia pentagyna, 183
 Stumps, tree, 244
 Sudbury House Orchids, the, 365
 Sumach, ornamental kinds of, 163; the Venetian, 185
 Summer notes on hardy plants, 15
 Sunflowers, heliotropism in, 468; late perennial, 332
 Sutton, Rose growing at, 478
 Swainsona Osborni, 202

Swanley, winter flowers at, 549
 Sweet Pea Bronze Queen, 153
 Sweet Peas, early, 458
 Switzerland, a holiday in, 379; gardening in, 443

T.

Takernamontana Camassa, 396
 Table decorations, 15
Tachadenus curinatus, 439, 481, 556
Tacsonia blooms dropping, 393
Tagetes lucida, 396; *Parryi*, 386; *sinuata pumila*, 374, 418, 526
 Tea plant in New Zealand, 219
 Tea Roses Adam and Niphetos, 71
 Teaching, doubtful, 114
Tecoma radicans, 202, 339
Tecomas, note on, 418
Telopea speciosissima, 400, 431
 Temperature for Vines, 418; low for Grapes, 350; cost of high and low, 325
Teucrium latifolium, 17
 The Dell, Egham, *Nerius* at, 330
Thibaudias, culture of, 236
 Thorns, select, 145
Thuja aurea, mortality of, 450
 Thymus, culture of, 193
Tiarella cordifolia, 21
Tigridia grandiflora alba, 346; or new white, 346
Tillandsia Lindenii, 151, 224. *Lindleyi*, 548
 Timber sale, 251
 Timber tree, a useful, 131
 Tobacco plants, culture of, 8
Todea pellucida in the open air, 220; *superba*, 111
 Tomato, common red, 403; Gilbert's selected Hathaway's Excelsior, 367; new selected, 367
 Tomatoes, 270, 325; all the year round, 5; culture of, 404; diseased, 255; flavour of, 434, 525; new mode of treating, 171; too coarse, 186; under glass, 111
Torenia Bailoni, 396; *rubens grandiflora*, 202
 Town and other Roses, 93
 Town gardens, annuals and biennials in, 155; Mountain Ash, for, 361
 Towns, Rose culture near, 159
Toxicophlea Thunbergii, 151
 Trade list, a, 512
Tradescantia pilosa, 157
 Trailer, a graceful, 453
 Training, extension and restriction, 300
 Training and pruning, 283
 Transplanting, 456
 Tree and shrub mutilation, 196
 Tree, guards, 45; land, a, 391; roots in drains, 83; roots encroaching, 146; stumps, 244
 Trees, American, notes on, 147, 185; and shrubs, concerning British, 381; timely thinning of, 485; Apple, age of, 188; Australasian and Californian, 496; fruit, in pots, 62; of the Lower Wabash Valley, 456; of the South-West, 185; ornamental, 147; overhanging, the law respecting, 324; planting by roadsides, 74, 116; quick growing, 466; and shrubs, half hardy, 522
 Trials at Chiswick, 58
Trichium Manglesi, 52
Trichosma suavis, 373
Tricyrtis hirta nigra, 289
Trigonidium monophyllum, 240
 Trinity College Botanic Garden, flowers at, 304
Tritonia glaucescens, 202; *Saundersii* and *nobilis*, 202
Tritonias, 214
 Truffles, 232
Tropaeolum Empress of India, 104, 236; new, 198; *polyphyllum*, 51; *speciosum*, 11, 64, 201; note on culture of, 313; *tuberosum*, 332; at Balcombe Place, 288; *Bedford Royal*, 526
Tropaeolums, tuberous-rooted, 68
 Tuberose, the Diamond, 346
 Tuberoses, culture of, 320
 Tulip beds, covering, 561
 Tulip tree, variegated, 162
 Turnbridge Wells Nurseries, 196
 Turnip, American Strapleaf, 211; Chirk Castle, 212; Early Purple-top Munich, 78; Early Munich, 136; Early Red-topped Munich, 211; Golden Ball, 211; Jersey Lily, 211; Jersey Navet, 212; Snowball, 211
 Turnips and their culture, 211; judging, 325; yellow and white, 4, 3
 Tydea, new, 198; Robert le Diable, 57
 Tydeas for winter-flowering, 421

U.

Urecolina pendula, 396, 412, 547
Uroskinneria spectabilis, 224
Utricularia Endressii, 41, 162; *montana*, 486

Wood Sorrels, uses of, 489
Woolton Wood, Orchids at, 133
Wormia Burbidgei, 183
Worms in manure, 14; on lawns, 410,
313, 358
Worthless Grapes, 403
Wortley, notes from, 565
Wulfenia carinthiaca, 157

Yew, the Crowhurst, 165, 261
Yew trees, ancient, 164
York horticultural fête, 460
Young, George, 368
Yucca filamentosa variegata, 581
Yuccas, propagating, 433

Zenobia speciosa, 270
Zephyranthes carinata, 65; Treace,
 369



ENGRAVINGS.

<i>Asculus rubicunda</i> , fruit and flowers of	229	Decoration, dinner table	87	<i>Magnolia macrophylla</i>	28	Rock garden at Southwood, Bickley	527
<i>Ethusa Cynapium</i>	534	<i>Delphinium Glynni</i>	38	<i>Magnolia purpurea</i>	485	Rose gall fly	469
<i>Agave Victorie Regine</i> in flower	448	Edinburgh, view in	266	<i>Magnolia Umbrella</i>	27	<i>Salix alba</i>	227
<i>Allium Scerodoprasum</i>	425	Egg plant, fruit of	255	<i>Malva moschata alba</i>	38	<i>Salpiglossis sinuata</i>	426
<i>Andromeda speciosa</i>	271	<i>Erythrea diffusa</i>	443	Marble galls	336	Scallions, bunch of	377
Antler moth, the	551	<i>Ficus repens</i> in fruit	441	Marigold, French, new gold striped	571	<i>Senecio japonicus</i>	139
<i>Apium graveolens tricolor</i>	490	Fire Pink, the	375	Melons, Water	141	Shallot, common	301
<i>Arachis hypogea</i>	277	Flower border, plan of section of a	470	Melon, Water, five varieties of	278	Shallot, Jersey	301
<i>Archangelica officinalis</i>	555	<i>Fraxinus americana caroliniana</i>	173	Menziesia polifolia alba	302	<i>Silene virginica</i>	375
Artichoke gall	335	<i>Fraxinus excelsior</i>	273	<i>Mespilus grandiflora</i>	163	Silver Fir, the, at home	549
Ash, varieties of	273	<i>Fraxinus excelsior heterophylla</i>	273	Munstead, plan of garden at	192	Slug, the cellar	578
Asparagus, well developed stool of	512	<i>Fremontia californica</i>	117	<i>Nepenthes Rajah</i>	122	<i>Smilax tamnoides</i>	483
Avenue of English Elms	382	<i>Fuchsia globosa</i>	361	Oak Apple gall	335	<i>Soja hispida</i>	93
Aubergine Noir de Pékin	255	<i>Godetia Duchess of Albany</i>	313	Oak galls	334, 335, 336	Southwood rock garden, the	527
Azorian Laurel, the	419	Gall fly, the Rose	469	Oak root gall	335	Soy Bean, the	93
Bags for Grapes, improved	187	Galls on Oak	334, 335, 336	Oak spangle	334	Spanish Broom, flowers of	404
<i>Bartonia aurea</i>	573	Garden, reserve, at Munstead, plan of	192	Onion Giant Zittau	170	<i>Spartium junceum</i>	404
Bean, Broad, dwarf early	362	Garlic	301	Onion pyriform brown Spanish	170	<i>Spilanthes oleracea</i>	295
Bean, Broad, Improved Windsor	362	Grape bags, improved	187	Onion, small blood red	170	<i>Sternbergia setensis</i>	357
Bean, Improved Windsor	511	Grape Chasselas de Fontainebleau	447	Onion The Queen	170	Strawberry, the alpine or Four Seasons	170
<i>Begonia Queen of Doubles</i>	91	Ground or Pea-nut	277	Orchids at Downside, Leatherhead	37	<i>Tachadenus carinatus</i>	566
<i>Bertolonia guttata</i>	465	Hollyhock, type of double	340	<i>Orchis latifolia</i>	205	<i>Tamarix tetrandra</i>	73
Burdock roots	317	<i>Hymenophyllum demissum</i>	529	<i>Ornithogalum arabicum</i>	249	<i>Tecoma (Bignonia) radicans</i>	339
Buttercups, double	67	<i>Hypericum Coris</i>	318	<i>Ornus europæa</i>	117	<i>Tiarella cordifolia</i>	21
<i>Calochortus venustus</i>	295	<i>Inula glandulosa</i> , flower of	234	<i>Ornus floribunda</i>	117	Tree guard	45
Caper plant, the	233	<i>Ipomæa mutabilis</i>	399	<i>Oxalis crenata</i>	489	<i>Trichomanes auriculatum</i>	529
<i>Capparis spinosa</i>	233	<i>Itea virginica</i>	38	<i>Palmette Verrier trained tree</i>	507	<i>Trichomanes radicans</i>	529
<i>Catalpa syriacifolia</i>	74	<i>Juglans cinerea</i>	251	Palms, wild Date, in Algeria	505	Turnip : American Strapleaf, Chirk Castle, Blackstone, Early Red-topped Munich, Golden Ball, Jersey Lily, Jersey Navet	212
Celeriac, a new	490	<i>Juglans nigra</i>	251	Para Cress	295	Turnips, seven varieties of	212
Cellar fungus, the	277	<i>Juglans regia</i>	251	Pear tree trained as <i>Palmette Verrier</i>	507	Tydea Madame Heine	421
Cellar slug, fine specimen of	578	<i>Lens esculenta</i>	192	Philodendrons at home	308	<i>Verbascum phœniceum</i>	377
<i>Cerasus azorica</i>	419	Lentil, the	192	<i>Picea pectinata</i> at home	549	Walnut, the black	251
<i>Charcas graminis</i>	551	<i>Lentius lepidus</i>	207	Plan of a flower border	470	Walnut, the common	251
Chasselas de Fontainebleau Grape	447	<i>Lilium auratum</i> , double flower of	355	<i>Pyrus Sorbus</i> , fruit of	381	Walnut, the gray	251
Chicory, large-rooted	403	<i>Lilium Leichtlini</i>	311	Raphiolepis japonica	43	Water Melon, five varieties of	278
<i>Colletia spinosa</i>	333	<i>Limax cinereus</i>	578	Rendle, William Edgecombe	217	Water Melons	141
<i>Conium maculatum</i>	533	<i>Lonicera Halleana</i>	38	Reserve garden at Munstead, plan of	192	Weigela hortensis nivea	185
<i>Crataegus Crus-galli ovalifolia</i>	146	<i>Magnolia auriculata</i>	27	Rhodites rose	469	Willow, the white or Huntingdon	244
<i>Crataegus glandulosa</i>	145	<i>Magnolia cordata</i>	27	Rivina levis	68	<i>Zenobia speciosa</i>	127
<i>Crataegus macrocarpa</i>	146	<i>Magnolia grandiflora</i>	28	Rocamboles, the	425		
<i>Crataegus pyrifolia</i>	145						
Currant gall	335						
<i>Cynips Kollari</i>	334						

COLOURED PLATES.

ANEMONE PALMATA ALBA	466	IPSEA SPECIOSA	188
ARCTOTIS AUREOLA	336	KALMIA LATIFOLIA	6
CATTLEYA CITRINA	274	OCHNA MULTIFLORA	574
CATTLEYA TRIANÆ AND VARIETIES	70	ONCIDIUM CUCULLATUM GIGANTEUM	166
CELSIA CRETICA	314	ORCHIS FOLIOSA AND VARIETIES	530
CLEMATIS SIEBOLDI AND JACKMANI	142	PESCATOREA KLABOCHORUM	24
DENDROBIUM INFUNDIBULUM	352	PHALÆNOPSIS STUARTIANA AND SCHILLERIANA	118
ECHINOCEREUS GONACANTHUS	444	RANUNCULUS ANEMONOIDES	252
EPIGÆA REPENS	46	ROSE ALFRED K. WILLIAMS	296
EXACUM MACRANTHUM	422	SOBRALIA XANTHOLEUCA	508
FREESIAS, GROUP OF	95	SPATHOGLOTTIS LOBBI	188
HYPOCALYMNA ROBUSTUM	231	TELOPEA SPECIOSISSIMA	400
IMANTOPHYLLUM MINIATUM MARTHA REIMERS	358	UTRICULARIA MONTANA	486
IMPATIENS SULTANI	208	VIOLA PEDATA TRICOLOR	378

PHILIP FROST.

THE twenty-second volume of THE GARDEN could not, we think, have been dedicated to a more worthy representative of gardening and gardeners than Mr. Philip Frost, who has worked so long and honourably at Dropmore, and has been successful in making that place so universally famous as it now is for the magnificent collection of coniferous trees which exists there. Philip Frost has been well known in the gardening world for upwards of half a century. Sixty years have passed and gone since he first went to work in the garden at Dropmore. His life has, therefore, not been a very changeful one, though he seems to have moved about pretty freely in his young days in order to acquire experience in his work. He was born at Moreton, in Devonshire, about the middle of 1804. When at the age of fourteen he was employed in planting and other work on Lord Grenville's estate at Boconnoc, in Cornwall, where his father also at the time was employed. Leaving home in the latter part of 1822, he arrived at Dropmore, then also Lord Grenville's estate. Here he stayed until 1826, when he left to go to Ashted Park, but, at Lady Grenville's request, he returned to Dropmore the following year to be foreman. A year later he left again for Lord Mansfield's garden at Caenwood, Hampstead. This place, however, does not appear to have suited him, for he soon left it, and then became foreman in the Botanic Garden, Chelsea, at that time under the curatorship of Mr. Anderson. In the autumn of 1832 Lord Grenville engaged him to succeed Mr. Baillie as head gardener at Dropmore, and from January 6, 1833, just fifty years ago to-day, Mr. Frost has presided uninterruptedly over the Dropmore garden.

Lord Grenville appears to have been an ardent lover of his garden, and particularly fond of ornamental trees, especially Conifers, and it was he who first led Mr. Frost to take an interest in that class of tree. A year after Mr. Frost took charge of the garden the planting of ornamental Coniferae was actively commenced, and carried on at intervals until the death of Lady Grenville in 1864. That Mr. Frost has been eminently successful in cultivating Coniferae, abundant proof is afforded by the magnificent examples which have made Dropmore so well known. With pardonable pride Mr. Frost points to the great Douglas Fir, now 114 feet high or more, or to the equally remarkable Araucaria, over 60 feet high, and says, "Could it be believed that trees like these would grow to such a size during my term of service here, or even during a man's lifetime?"

Mr. Frost was, in his earlier years, a frequent contributor to horticultural literature; even as far back as 1834 we find him contributing practical information to Loudon's *Gardener's Magazine*. He was also among the first to improve the Indian Azalea, and seedlings he raised by hybridising were distributed among his friends. One was called Glory of Sunninghill, which was acknowledged to be an exceptionally fine variety.

In 1872, on the completion of his fiftieth year of service at Dropmore, some 200 of his friends presented him with a handsome silver cup, on which were engraved the portraits of the large Araucaria and Douglas Fir. Accompanying the cup was a purse containing £210, which was invested as a life annuity.

W. G.





THE GARDEN.

VOL. XXII.

THE VICTORY OF THE "LEAST BAD."

At the Botanic the usual fault was very evident last week; the old and deeply-rooted notion of elaboration has hardly been disturbed. A score of flowers where one would do, a hundred little vexing points put in with laboured care, symmetry secured by wiring in the most painful and elaborate way, and a general want of effect were the prevailing features. Scarcely one of the compositions must have cost less than four or five hours of painstaking labour to put together, not to speak of the gathering and bringing of so many flowers, and the procuring of them even; that must have been a serious matter for many of the exhibitors. No one had sense enough to give us three dishes of good Roses or any simple bold thing; the prizes were given by the judges to the least bad, and the first prizes would not, in many cases, have been given at all had it not been undesirable to discourage the exhibitors. The first prize dinner table had a great many more flowers on it than would be tolerated in any house with sane inmates. Its brazen bowls were nice in form and infinitely better than the common trumpet-over-trumpet glasses which were adopted as the ideal form some years ago. But they were too numerous, and they would have been better in some quiet colour. The second prize lot had many defects and some ill-smelling flowers, and it was far too much like the display of a chinaware merchant, but won from its simplicity of colour and distinctness. The third was of low dishes of flowers, rather more simple in arrangement—the judges avoiding in almost every case honouring the usually complicated dish-over-dish arrangement, though some of these had good points and received extra prizes.

The mirror and the china swans is a device which came under notice among the "tables;" a deal of wasted force of intellect was bestowed on this style, but no prize was given. It is a pity the artist had not a real lake and a herd of live swans to amuse himself with. In any case a dinner table is not the place for the "lake school" of "artistic floral decorators." Besides, the lakes hardly left room for the food, let alone the feeders. The root of the evil in this, as in many other cases, is cost. Speaking to a successful exhibitor, we said, "If any here had the sense to place three good bowls of Roses on a table, they would have beaten all these elaborations, including yours, which won." The answer was that simple arrangements did not suit the trade, for the obvious reason that little could be charged for them. There is much in this that is worth considering. We think one deduction should be—amateurs and florists should compete in separate classes for the table decorations.

It is sad to think of the effect that these tables are calculated to have in London and other houses if people take any notice of them, but most know better, we hope. In many houses ladies seem to do the right thing mostly, and that is to arrange a few things themselves in a not wearisome, hour-eating way. We know women who would in seven minutes and with a few china bowls or dishes do something infinitely more lovely than anything seen at these shows. As for the wiring business, it is almost devilish in its absurdity. Looked into, some of the most innocent flowers in these terrible "compositions" were swathed in wire so that their little faces might be turned exactly at the right angle to the public! We believe a distinct step in advance would be made by abolishing wire altogether in these baskets. If flowers can only be

arranged by being trussed and spitted they are better not "arranged" at all.

The schedule of these shows itself stands in need of reform. Who ever saw an arch with flowers tied over it in a decent house? Imagine the unfortunate exhibitors incited to take a number of graceful flowers and tie them closely over an arch, as people tie tawdry artificial rubbish over sticks when getting up the triumphal business. Hours must have been spent in collecting an infinite quantity of flowers of all kinds, and painfully tying them on to those slim arches. Large Lily buds (*L. giganteum*) were forced into the distortions, and all their fine form and grace destroyed by the process. In one arch we noticed many large flowers pressed out of all form and broken. This is a class which should not exist, and which could have only a bad effect on all who attend or work at these shows. If we wish to decorate our sideboards or any similar surfaces, there are various ways of doing so in a more natural and artistic manner.

In the single dishes of flowers the competition there was just the same as in the tables; the same style of elaborate over-doing, of neutralising all simplicity or breadth of effect by the introduction of too many flowers, just as if one were to let a few dozen musicians all loose at once, each playing a different tune. It is really not a question of taste, but a matter of common sense and fact that a man cannot see with pleasure or profit a great many things at once. In pictures, in gardens, in table decoration, the eye looks with most pleasure upon uncomplicated effects. We do not say that mixtures would not sometimes be right and sometimes a relief, and most graceful, but it is the eternal repetition of the old nosegay idea which wearies and hurts.

One lady, who had a beautiful notion of Water Lilies and Forget-me-nots, had a double dish united by a glass arch, and in the middle of this arch other superstructures built, with flowers in them. She did not, as she deserved to, win the first prize, as she would have done with one simple dish to show her excellent idea. The baskets next in merit were those simple in character, and with some predominating feature which gave them a definite character. The notion of quietness, decision, or harmony of colour is only just budding in the gardening mind; many of the best things we have are lost through want of some perception of what is right in this way.

In the baskets for flowers a great deal of tawdry and bad taste was displayed. The actual money value of several of the baskets of Orchids, &c., if bought in the market would not be less than £20! One of the baskets contained a garden of Roses, and fine Roses, too, jammed together and then running all over the handle as thick as paving pebbles, yet there was no good effect; properly arranged, there was enough material in this to make two or three graceful baskets of Roses. The prize was given for the simplest thing in the many baskets, and one which probably did not take the young lady who sent it three minutes to arrange—a few good Pansies standing in Moss in a small, light basket with little on the handle. All the unhappy exhibitors thought the handle should not be seen, and the flowers were painfully stuck over the handles usually by the aid of wire. Some of the exhibitors, who had excellent taste in the selection and arrangement of flowers, made mistakes in adopting some of the ugly and elaborate forms of glass.

Another class we should like to protest against at these shows is baskets for open garden decoration. Some very dreadful things with large heads, no bodies, and deformed feet were shown in this way; they would not stand a moment in any open garden before a breeze, but nobody wants such things. A bed in the shape of a basket we sometimes see, but they cannot be carried to a show. What is really wanted in this direction would be the improvement of vases which we find in many gardens, and which are, indeed, an essential feature of some. Here is a class of subject very often badly done, and the society would do real good in letting people see how beautiful vases of various kinds might be arranged. It would be also well to encourage beautiful forms of vases. One might get then at the Botanic a well-formed and well-arranged vase. But these horrid cork, deformed, and rustic baskets are impossible creations, and cannot be gracefully done by anybody, and which, like the arches before mentioned, are doing harm, and nothing but harm.

This show, in an improved form, would be one of the best things for gardening, and we hope the society will persevere with it, beginning with some healthy changes in its own plans. Flowers for the table and the house are a charming subject, and it is of much importance that good and simple tastes concerning them be spread through all who have them. The common florist's vulgar over-crowding and costly complications have no charm for the educated or refined, and the society would do well to encourage simplicity in materials and designs to counteract these evils. No flower show could be more fertile in good than this properly carried out. The ambition to exhibit one's plant at a flower show is not a very common one, but everybody with gardens, and, indeed, those without them, and even in the most dismal haunts of our great cities, love to put a few flowers together for the decoration of their homes. Few have any idea how important it is how the flowers are placed. Our delight in them is determined to a wonderful extent by

the way they are arranged or the light in which they stand. We had ourselves no sufficient idea of the importance of this subject till within the past few years. Most gardeners dislike cutting flowers. If they knew their own interests to the full they would aid and abet every attempt to cut flowers for the house and provide for full supplies in the open air garden. Some flowers that might be passed without notice out-of-doors are so lovely in form or colour on the table near the eye, that they would make an enthusiast out of the most apathetic. We want their aid the more as our gardens are generally so arranged as to steal all the charm, and life, and variety out of the plants. It is not a question of the dinner-table only, but the breakfast-table or any other in the house of poor or rich, and therefore we trust these shows may be continued and improved year by year. It would be well to get up similar and simpler ones in country places with the single object of the embellishment of houses, big or little, with flowers and foliage. It is a more important aim than any subject at the ordinary flower show, and it requires less expense and care to succeed. For even if there are no greenhouses or great gardens near, there is usually a fine choice of material in the hedges, woods, river-sides, or heaths.

ROSE GARDEN.

MILDEW ON ROSES.

"A. D." very courteously invites my opinion as to the cause and cure of mildew. I will therefore do my best to oblige him, and probably assist not a few besides who may be struggling with this troublesome pest, which has come on the heels of maggots, grubs, aphides, weakly growths, and malformed flowers to complete the trials of the rosarian for the year. It may, however, be well to state at the outset that a perfect cure for mildew on Roses is about as hopeless as one for the Vine pest or Potato disease. As to its causes, "A. D." has pretty nearly exhausted them; an excess of moisture or of drought in the earth or air, sudden and severe transitions from the one state to the other, violent changes of temperature, and cold currents of air are one and all fruitful sources of mildew. An excess or a scarcity of food will also produce mildew, as will also excessive growth and over-flowering or over-crowding, especially in a sheltered site or a stuffy atmosphere. Perhaps the most fruitful causes of all are sudden checks of the sap and exhaustion of vital force or energy. Hence, we mostly find mildew following sharply on the heels of a spell of mild weather succeeded by a biting east wind. The latter arrests growth as well as shrivels up the tissues of the Rose, and mildew is the natural product of such stoppage or derangement of vital force. The general coldness of the nights during most of May and June, and the prevalence of east winds were no doubt the predisposing causes of mildew this season. But many will ask, how could these produce mildew under glass? "A. D.'s" experience shows what most practical Rose growers are well aware of—that few glass houses are proof against the keen penetrating force of a sharp east wind. This pours in at every crevice and cranny, and punishes the Rose shoots all the more from their being made abnormally tender through being grown under glass. Like "A. D.," I have frequently seen mildew produced thus by cold wind. It follows it, especially in open houses, or where a door or ventilator may have been left inadvertently open, so speedily as to prove that the cold draught caused the mildew.

As to remedies, by far the best is certainly prevention. With a clear and lively notion of the probable causes of mildew it may generally be avoided under glass. If one-half the energy expended on cures were devoted to the prevention of mildew, it would be far less frequent. Even in the open air it is not wholly unpreventable. True,

we cannot control the east wind, or make it genial to our Roses by any amount of skill, but we may prevent it hitting them at a disadvantage, with their roots sunk in a bog or baked in a Sahara, or the whole plant forced by stimulants into a Willow-like vigour, or exhausted with five hundred blooms. A medium healthy growth, with a fair crop of flowers, and an average supply of food and water, will be the likeliest means of preventing mildew. And then above all the plants must be kept clean—clear of dirt and free from all suspicion of insects. Leaf injury, stem wounding or robbing of sap by leech-like aphides and devouring maggots—these beget the weakness and disorganisation of vital force and fluids that invite and start mildew. The former leads to the latter as surely as the ants carry the aphides to fresher and sweeter pastures new, and the two thus work in harmony to devour our Roses. Therefore, if we would have no mildew we must have no insects on our Roses. And so of other causes. These should be traced if possible and mildew nipped in the bud. Hence instead of prescribing the usual soot, sulphur, nitre, or other cure for mildew, I would recommend as many cures or rather preventives as there are causes. For example, where mildew is caused by drought it may be watered out; by an excess of water it may be drained out; by food it may be starved out; by starvation it may be fed or grown out; by overgrowth it may be checked out; by overflowering it may be thinned or disbudded out; by draughts it may be glazed or sheltered out; by insects it may be cleansed out.

The most effectual cures after all appear to be sulphur, lime, soot, nitre, and alcohol. The two last must be used with care, especially the nitre. Alcohol even pure will not injure Roses unless in a very tender state of growth, and the strong spirit checks or destroys the fungus. Methylated spirits of wine, however, must not be used, as the spirits of tar injures the leaves. Sulphur is the most common remedy, and the simplest way of applying it is in a dry state, as flowers of sulphur dusted over the leaves and shoots when the latter are either wet with rain or artificially syringed to cause the sulphur to adhere. Some, to avoid the waste of using dry sulphur, and also to bring its destructive forces into closer contact with the minute fungus, bring the sulphur into a semi-sublimated state by boiling, and apply it in a liquid state. It is, however, much stronger, and requires to be reduced with water when so used, and is apt in unskilled hands to destroy the leaves and tender shoots as well as the mildew. Sulphur, however, forms the bases of most of the cures for mildew offered to rosarians, and some of these are fairly effective, though it would be invidious to quote names. Quick and caustic lime is well known to be fatal to most forms of fungoid life; hence it has often been employed in similar methods to sulphur, and as an antidote or a cure of mildew. Soot, again, possesses powerful semi-caustic or bitter properties that render it fatal to the growth of mildew. This may be applied either in a dry or liquid state. It is most effective in a dry state, though it is almost more difficult to make it adhere to leaves or stems than even flowers of sulphur, as it is called. Some, and I confess I prefer that, believe in the anti-mildew properties of all these, carefully incorporate and mix them together, and apply them either in the form of a dry powder or a caustic liquid; in bad cases of mildew several applications may be needful. A cheap and efficient composition may be formed of two parts caustic lime, two of fresh soot that has been stored under cover, and one of sulphur. Dust as much over the mildewed parts as can be made to stick on saturated leaves and shoots; leave it on until the air, rain, or dew washes it off. Should the mildew seem scorched or killed, let the one dressing suffice; should it seem otherwise, repeat the dressing again, or even a third time. With perseverance, and especially associated with preventive measures where the probable cause can be discovered, such dressings will finally subdue or cure the worst cases of mildew. The great thing, however, is prevention, and next in importance to

this is a speedy attack on the disease the moment it appears; when once firmly established it is difficult of cure, and even if cured the Roses may be crippled for a season, probably ruined for life. It is also hopeless to expect to cut show flowers from mildewed Rose trees, and even could this be done the judges would probably disqualify them on account of the mildewed leaves, while the latter sadly mar the enjoyment of Roses either in the garden or in the drawing-room.

D. T. FISH.

Old double yellow Rose.—The wearing out theory both in the case of this Rose and in that of fruit trees mostly breaks down when subjected to practical tests. For example, M. Jean Sisley says (p. 444) that his double yellow Roses refuse to grow. Ours, also received from the Count de Torre, grow like Willows. At present their one fault is that they refuse to form or open good flowers. As to the partial disappearance of such Roses as *Rosa centifolia*, changes of fashion have far more to do with it than any inherent weakness through the mere lapse of time. There seems, in fact, no reason why a species of Rose should not be as permanent as that of an Oak, and no one has yet raised the cry that *Quercus sessiliflora*, say, is wearing or has worn out. Gladly as I welcome M. Jean Sisley's contributions to our knowledge of the history or literature of this interesting Rose, I cannot accept his explanation of the cause of our failure to grow or to bloom it.—D. T. FISH.

—The weight of evidence from such an experienced grower as M. Jean Sisley is so great, that I hesitate to make a statement not in accordance with his views. Yet here in my garden the old double yellow Rose grows as flourishingly as it did with my father some 40 years ago. It seems, however, very capricious as to soil; it prefers a loamy stratum, with a sandy subsoil and much warmth. In some years, according to weather and climate, it flowers admirably, while in others nearly all the buds become deformed. There is, however, some prospect that we shall have a new double yellow from Cashmere and Little Thibet, seeds of which have been introduced lately by Mr. I. Anderson-Henry, of Edinburgh. The plants raised from these look very robust and distinct. MAX LEICHTLIN, *Baden-Baden*.

Pot Roses.—As many pot Roses thrive indifferently in a cool greenhouse, I should feel obliged if any of your correspondents would inform me if there are any Roses enumerated below that are untrustworthy for such a position. Also, whether any of the varieties have been surpassed in beauty and robustness by their more recent offspring or rivals: *Niphetos*, *Devoniensis*, *Souvenir de la Malmaison*, *Alba rosea*, *Souvenir d'Elise*, *Catherine Mermet*, *Xavier Olibo*, *Charles Lefebvre*, *President*, *La France*, *Alfred Colomb*, *Marie Baumann*, *Monsieur Furtado*, *Vicomtesse Decazes*, *Madame Margottin*, *Isabella Sprunt*, *La Boule d'Or*, *Jean Pernet*, and the new perpetual Moss Rose, *Blanche Moreau*. I may add that climbing is not permitted, and that the maximum height from the collar that Roses are permitted to grow is 3 ft.—PLYMOUTHIAN.

Zinc labels and Rose trees.—Last planting season I very carefully labelled my Rose trees with zinc labels, fastening them on, not tightly, with fine metal coated picture wire. At pruning time I found in almost every case the portion of branch above the fastening dead or dingy, and now at blossoming time I observe the whole branch bearing the label dead from start to point. How to account for this is the question. No doubt the brass-coated tying wire contained copper and the zinc, and these with the moisture in the atmosphere have acted galvanically or electrically in such a manner as to turn the branch into a diminutive conductor to its destruction. I am not sufficiently *au fait* in electrical phenomena to speak definitely, I confess; but will some correspondent open up the question further?—R. A. H. GRIMSHAW.

EDITOR'S TABLE.

IRIS CUPREA.—A singularly curious and fine copper-coloured kind of *Iris*, from Mr. Stevens. Those who are interested in very quaint, yet good, colour would do well to secure it.

BERBERIS DARWINI IN BERRY.—The fine purple Grape-like bloom on these pretty berries and their profusion make them of good use in the cut state, as, indeed, are those of the common *Barberry*.

ROSA BRUNONIANA.—This beautiful single white Indian wild Rose comes from Mr. McIntosh, of Weybridge, in whose garden it grows admirably. Mr. Ellacombe believes it to be the original of the Musk Rose.

ROSE EMPRESS OF INDIA.—Dr. William Henry Browne, of The Laurels, Aldborough, Hull, has the art of growing the Empress of India Rose as large as fair specimens of the Cauliflower. It is a really most remarkable Rose in size, and we hope may be satisfactory in other respects.

ROSE COUPE DE HEBE.—Very fine, from Mr. Fish, who says it is his favourite pink Rose. It is a beautiful Rose, too, and, associated, as it is, with many of our earliest pleasures among Roses, we are glad its claims are still strong enough to secure it a home in many gardens.

DELPHINIUM CASHMERIANUM.—Very fine, from Mr. Burton, of Gainsborough. If we had not the splendid erect forms that are now so fine wherever they are well treated, we should be very glad of this. As it is, it is distinct from all the rest, and a good plant for the warm border or a dryish bank.

CALOCHORTUS VENUSTUS.—The best plants we have seen of this fine Californian bulb, over 2 ft. 4 in. in height. It well deserves the name *Butterfly Tulip*, from the strange and delicate beauty of the flowers, especially when so well grown as these specimens sent by the New Plant Company at Colchester.

GENTIANA BAVARICA.—The best and strongest flowers of this we have ever seen in cultivation and a little stouter in stem, we think, than we have seen them by the alpine grass-bordered rills where they jewel the ground. Messrs. Backhouse seem to have succeeded in its culture at last, and we hope they will tell us how.

VIOLA QUEEN OF SPRING.—This is a beautiful, clear, bold, and handsome kind which Mr. Vertegaus, of Chad Valley, Birmingham, describes as having been in bloom three months. This variety in this neighbourhood is considered superior to any other yellow *Viola*, and is almost a perpetual bloomer.

SIEBOLD'S PLANTAIN LILY IN THE HOUSE.—Out-of-doors one admires this for its foliage more than its flowers, but in a fine specimen sent us by Mr. Stevens the flowers, with their quiet coloured bracts, are good enough for a proper position in the house, in which the foliage lasts so long and is so very effective.

RHODOTYPOS KERRIOIDES.—A singularly charming bush with pure white flowers and well formed curious rich green distinct leaves. It opens its flowers very well indoors, the buds expanding well. Out-of-doors it does not often show many flowers. A capital shrub for cutting

for those who desire distinct and beautiful things on their table from the open air.

INULA GLANDULOSA.—From Mr. Burton, of Highfield, Gainsborough, who says rightly it is one of the most showy border plants grown. It is a many-rayed *Elecampane*, very distinct, and in flower elegant for a plant of the kind, with rather a strong *Camomile*-like smell. Among the too numerous yellow composite flowers we have it seems a gain.

ORCHIS MACULATA SUPERBA.—Beautiful, from the York Nurseries. This British Orchid has the good quality of spreading and increasing like an ordinary perennial, though not, perhaps, very quickly. Plenty of Orchids grown in hot-houses are not so handsome, so thoroughly good in colour. It is excellent indoors or out, and a charming plant for cutting, the effect of the spikes being singularly good.

LUPINUS NUTKANUS.—This is a distinct and some may call it a good plant, but it is only a "second-class" one, if quite that. Amid the number of hardy plants now in cultivation it is desirable to make a severe choice. If things do not give a distinct effect and a good one, and are inferior to other species near them, they had better be dropped out of cultivation, so far as gardens generally are concerned. It is inferior to the annual and common perennial *Lupinus*.

THE BUSH MEADOW SWEETS AS CUT FLOWERS.—The *Spiræas* are elegant plants for cutting; they are very varied, and remind one in the case of many species with the little Hawthorn-like blossoms of other flowers that are past for this year. Some are delicately fragrant, and others have a good bright colour. Mr. Stevens sends one called *S. flagelliformis*, one of the white flowered type, which is good, but there is scarcely a species that may not be useful in the way we speak of.

MILES'S HYBRID SPIRAL.—I send a spike of *Mignonette* measuring 21 in. in length; it was sown in pots in March, 1881. I have heard several complaints among my friends as to not having the right variety of Miles's Hybrid Spiral. The plant this specimen came off is in a 12-in. pot and nearly 3 ft. in diameter. Perhaps some of our friends will kindly tell us if there be more than one sort of the above. I may mention that this plant has been constantly cut from since September.—D. HARRIS, *Munstead*.

BRITISH AND HARDY ORCHIDS.—Enclosed you will find a few blooms from our Orchid bed which has given a succession of flowers since early in April. The *Butterfly* and fragrant Orchids are delicious after a shower, and scent the air for some distance around the bed. The following are also in flower: *Orchis foliosa*, *O. maculata superba*, *O. latifolia* (several forms), *Habenaria alba*, *H. viridis*, *Liparis Læseli*, and the Bee and Fly *Ophrys*.—ANGUS D. WEBSTER, *Llandegai, Bangor*. We hope Mr. Webster will continue his culture and observation of these as garden plants, and that he may see the way in which the admirably-grown British Orchids sent us by Mr. Wolley Dod are cultivated. We look forward to very interesting effects from Orchids as hardy plants in the future.]

CLEMATISES FROM TUNBRIDGE WELLS.—A wonderful series of Clematisses from Messrs. Cripps' nurseries at Tunbridge Wells, where these fine plants get much and deserved attention. We wish we could describe their size and

beauty both single, double, and, we may say, monstrous kinds. Some broken or some double kinds are certainly picturesque, but it is doubtful if the class number many good ones. Some single ones with a small rosette of petals in the middle are very pretty. Some single vars. are 10 in. across. The white kinds are very handsome and effective. We congratulate Messrs. Cripps on their very successful culture of these Clematises on which no attention is too much.

FANCY PANSIES FROM SCOTLAND.—A lovely series of "fancy" Pansies, large, bold, and intense in colour, from Mr. John Forbes, of the Buccleuch Nurseries, Hawick, N.B. They interest us particularly what we may call the Wallflower-coloured kinds, some of which are really precious gains in giving us new colours. The following are the names of the varieties of this character which he sends selected from a great number of other colours that might be no less welcome to many. The two marked with the asterisk seem to us to show in a singularly beautiful way various shades of the fine colour we allude to: J. Cocks, Major Molesworth, Mrs. W. H. Miller, Hecla, James Morgan*, Mrs. G. Wood, J. Grant, W. Cranston*.

CEREUS J. T. PEACOCK (HYBRID).—A very beautiful and large species from Mr. Peacock's collection, and much resembling the plant alluded to a few weeks ago as *Phyllocactus amenus*. It is the fashion now, and a very sensible one, to give prizes to encourage various classes of plants or vegetables. We can imagine nothing more worthy of help in this way than the really fine flowering Cacti as distinguished from the merely quaint and rare. A group well grown, comprising the very best of those, would, indeed, give novelty and charm to one of our summer flower shows; the flowers, moreover, would be very attractive at night, and for that reason might come into some of the shows that now accompany the evening fêtes.

GARDEN IN THE HOUSE.

DINNER TABLE DECORATIONS.

WHILE approving generally of your remarks on this subject, and the rules which apparently guided the judges at the late Botanic fête, still one idea seems to have been overlooked, viz., such novelty in material, management, and vases, as can easily, and at a small outlay, be adapted to a dinner table without upsetting the general service, as such arrangements as were awarded the first and second prizes at the Botanic Gardens would have a tendency to do, and though the vases, &c., were very beautiful and appropriately decorated, yet few would be inclined to indulge in such expensive and, when tired of, useless novelties. If such arrangements be encouraged, the china merchant will certainly have the best of the bargain. GEO. FENNELL, *Fairlawn, Tonbridge.*

** We quite agree with you; neither the first nor second prizes were simple, tasteful, or such as would be suitable for a dinner table in a gentleman's house. As we say elsewhere, they were the "least bad." Such merit as they had was owing to their not showing the common vice of the floral decorator—overcrowding, painful elaboration, and too many ill-assorted flowers neutralising each other. They avoided too, though imperfectly, the common mistake as to form—dish over dish, and trumpet over trumpet glass. The craze for this form has unfortunately wholly prevented the use of bowls or simple dishes, and such as a gardener or any person whose time was precious could manage to arrange in a few minutes. But on the other hand they were far too large and pretentious for their purpose, and the china in the second was enough for a small shop: both interrupted the view.

FLOWER GARDEN.

BULBOUS PLANTS IN FLOWER AT KEW.

In the Cape house at Kew several rare and interesting bulbous plants are in flower as well as a good show of the better known kinds. Among several good *Babianas* is a species rarely if ever seen now-a-days, but which is an old introduction, viz., *B. ringens*. In this species we have an arrangement of flowers quite distinct from what is seen in that section to which *B. rubra* belongs, while the flowers are of an indescribably curious form. The flower-stem is thick and about 1 ft. long, about half way from the top of which a side branch is developed, bearing three to four rich red and yellow flowers. These flowers have one straight and two reflexed sepals, and the petals are arranged—two almost horizontal and parallel to each other, the other erect and at right angles to them. This last is the longest, and its margins are incurved, so as to form a tube, which encloses the stamens; altogether a most quaint-looking and beautiful *Babiana*. Another fine Irid is *Rigidella immaculata*, from Mexico, whose rich flame-coloured flowers are very attractive while they last, but unfortunately this is not longer than a day. Of *Freesias* there is an unusually good display, while the sweet odour given off by them adds considerably to their attractiveness. *Lachenalias* are represented by several varieties of *L. pallida*, some of which are dark blue, some paler, and some pale yellow. This seems to be a very variable species. *Gladiolus tristis*, with its yellowish-white sweet-scented flowers; *G. Colvillei albus*, of which there have been some fine specimens now almost over; and *G. gracilis*, a purple and yellow *Moraea*-like species, with a most delicious scent, are all in flower. Amongst *Albucas* is a large specimen of *A. Nelsoni* which will soon bear over half-a-dozen strong spikes. This species has only flowered once before, namely, in the garden of the gentleman after whom it was named, so that we shall now have an opportunity of seeing if the plant deserves the praise bestowed on it some time ago. *Lilium Washingtonianum* is flowering nicely. It is a chaste, sweet-scented Lily, and was figured in *THE GARDEN* last year. In the same house are good plants of *Sarmienta repens*, a handsome specimen of the new *Impatiens Sultani*, and a collection of *Oxalis*, also flowering freely. Brava *geminiflora* is just opening its flowers, as are also several *Crinums*. *Littonia modesta* is trained up one of the pillars and is bearing several of its orange cup-shaped flowers. *Saundersonia aurantiaca* is looking happy, treated in the same way—the closely related genus, *Gloriosa*, being represented by flowering specimens in the adjoining house. B.

FORGET-ME-NOTS IN THE GRASS.

MYOSOTIS sylvatica experiences no difficulty in establishing itself in the Grass and holding its own where the Grass is thin. *M. dissitiflora* does likewise, but where the Grass is thick and the turf perfect, the latter will hardly hold its own against the Grass. It, however, does remarkably well as a sort of link between the Grass and the shrubbery on that debatable border-land that intervenes between the two, where the shrubs are allowed to touch the turf. Here the partially overlapping shrubs have destroyed or weakened the strength and hardness of the turf. The shrubs also provide shelter, and husband the warmth of the sun in such cosy nooks and corners. *M. dissitiflora* comes early, and flowers with a persistency and vigour that no cutting nor-easters can either mar or cut short. In such localities, too, it establishes and perpetuates itself by self-sowing, and though it does not grow so tall as under more liberal culture, it never looks

more lovely than in such natural looking sites and forms. It should also be borne in mind, too, that *Myosotis dissitiflora* will thrive in many dry localities in the early spring that would burn up *M. sylvatica* or *palustris*. The former enjoys the warmth as well as the dryness early in the season, and we have often had it in flower in such positions in February and March. In damp situations on Grass, where there may be more Moss than Grass in the herbage, *M. sylvatica* and *palustris* may often thrive well. The latter is by no means wholly an aquatic, but may be grown well in almost any damp soil or moist locality. *M. sylvatica* is very accommodating as to site and soil, and will thrive well under an infinite variety of both as well as on the Grass. In fact, hardly anything in Nature or art can equal in beauty bold masses of Forget-me-not, contending for the supremacy of our fields or lawns with the myriads of Buttercups that crown our meadows with golden glory in our springs and early summers. Such glorious apprelling of our fields in blue and gold must be seen to be appreciated, and is within reach of all. The best way of naturalising Forget-me-nots on the turf is to scatter the seeds thinly in the early autumn. D. T. FISH.

THE MAGPIE PANSY.

WHERE Pansies are grown for spring bedding, this variety deserves a place. When planted in the centre of a small bed, with a suitable edging, it makes as fine a display in spring as one could desire, commencing to flower early in April, and producing an abundant crop of blossoms well into the summer; but when we get hot, dry weather, the flowers lose their beautiful white blotches, which show them off to such excellent advantage in the early months of the year. This Pansy is also equally effective in mixed borders of hardy plants, or it may be used at intervals along with other varieties of Pansies, or other dwarf early-flowering plants, or as an edging to flower borders. It is a strong grower and a free bloomer, its large maroon-coloured flowers, blotched with white on each petal, making it distinct from most other varieties. Although towards the end of their flowering season the blossoms generally lose, as has been stated, a good deal of the white blotch, it reappears the following spring. I have known people unacquainted with this fact dig up and destroy their whole stock, imagining that the variety had permanently changed its character. Many Pansies with maroon flowers might be found, but not with the same white blotch. It must either be grown from cuttings, or old plants must be broken into pieces, saving all the young growths having roots attached to them. Plant them in nursery rows if required for spring bedding, leaving 9 in. between the rows, and from 6 in. to 8 in. plant from plant. If cuttings are used they should be put in about the end of May or in the first fortnight in June. Choose young fresh shoots from the centres of old plants; cut them to a joint, and plant them in a handlight or in some shady corner, keeping them shaded for a few days until they begin to emit roots, when the shading can be dispensed with. When well rooted plant them in nursery rows, when they will soon become established, and make fine plants for planting in the flower garden or borders in spring. Cut flowers of this Pansy may be used with advantage for filling small vases for room decoration, and I have employed them with good effect in specimen glasses on the dinner-table along with a few light sprays of some Fern. W. CHRISTISON.

Ourisia coccinea.—I have grown this plant successfully both in pots and in the open border; damp and shade are essential to its well being. I do not consider peat requisite; it will thrive well in ordinary loam. I have never tried it against the foot of a wall, as I should consider such a position both too dry and too hot. It flowers freely when the plants attain specimen size, and should only be reotted every second year, the shoots over-

hanging the side of the pots always flowering freest. In the Newton Nurseries, Chester, a large patch of it, somewhat damp and shaded, was flowering freely a few weeks since in an open bed.

—E. JENKINS.

Myosotis dissitiflora alba.—I can confirm "A. D.'s" remarks as to a veritable white variety of this Forget-me-not being in existence, as I last season saw a fine bed of it. It is singular how confident some are that it is a white form of *M. sylvatica*, while anyone conversant with plants so different in habit could hardly mistake one for the other. It may not, perhaps, be so valuable a plant for spring bedding as the blue variety, but it is well fixed as to character, and no casual sport likely to revert to the type.—J. G.

Annuals for autumn sowing.—A gentleman writes to me from a smoky northern town suggesting that I might say what annuals I have found to do well with myself when autumn sown, in anticipation of some remarks on the subject by your correspondents, which, he says, he and many others will look forward to with great interest. I have found the following to be very useful, viz., *Limnanthes Douglasii*, *Nemophila*, *Silene pendula*, *Saponaria calabrica*, *Erysimum Perofskianum*, *Centaurea Cyanus* and *corulea*, Sweet Peas, and Stocks. Of the latter *Mauve Beauty* has been very fine with me all this spring.—H. STUART-WORTLEY (Colonel).

Aquilegia fragrans.—In reference to "Brockhurst's" notice of this plant on p. 420, I may say that Mrs. Davidson kindly sent me flowers last week of the variety of Columbine she called *A. fragrans*; it proved to be undoubtedly the *A. flavescens* of Baker. I obtained seed of this in 1880 from Mr. W. Thompson under the name of *A. fragrans*, and, suspecting it when it flowered, I sent flowers to Kew, and Mr. Baker named it *A. flavescens*. Mr. Harpur Crewe sent me seedlings last year, raised, I believe, from German seed, called *A. fragrans*. He thinks they are the true *A. fragrans*. The flowers resemble what is figured in Wooster's "Alpine Plants" for *A. alpina*, but are far from answering the description given by Mr. Baker of *A. fragrans*. After having grown nearly every Columbine of which the seed is to be bought from any dealer, English or foreign, I have come to the conclusion, expressed last year by the editor of THE GARDEN, that Columbines are so utterly demoralised by being huddled together in gardens, that the only chance of getting them true is to get the seed of each species from its native habitat.—C. WOLLEY DOD, *Erskine House, Llandudno*.

Fernelia buxifolia.—Allow me to thank "B." for the description of this plant (p. 442, Vol. XXI.), and to say that I fear the living specimens which I possess under the above name can scarcely be true if they must in all respects accord with Mr. Baker's description; they differ in two respects materially, my plants are only from 5 in. to 7 in. high, and have proved to be hardy. Paxton, speaking of *F. buxifolia* and *F. ovata*, calls them "elegant little plants;" such terms could scarcely be used in reference to subjects from 4 ft. to 5 ft. high, the size given by Baker. Whatever my plants may be, they much resemble *Vaccinium Vitis-idaea*, the older leaves being spotted underneath; still the general appearance is distinct, seen as they grow side by side. My plants are about 6 in. high, stems very slender, branched, ascending, round, and slightly downy; leaves from $\frac{1}{2}$ in. to $\frac{3}{4}$ in. long, petioled, shining, glabrous, coriaceous, obtuse, the younger ones being obovate. I have not seen the plants in flower, and cannot learn the precise particulars needed; they were in berry when they came into my possession, and at no time, and more especially when in fruit, can it be said of these shining evergreen little bushes that they are "devoid of any characters likely to commend them for cultivation in this country." The berries were bright red and produced singly from the axils of the leaves. I have no acquaintance with the *Fernelias*, and had I not been assured that the plant I have so imperfectly described was *F. buxifolia*, I should have taken it for a *Vaccinium*.—J. WOOD, *Woodville, Kirkstall*.

Plunging Pelargoniums in pots.—Planting out of pots is undoubtedly the most economical plan, for with one good soaking of water they are usually independent of further artificial supplies for the season, and in open sunny positions, where the atmosphere is bright and clear, planting out is best. But in suburban gardens where from the confined space and smoky atmosphere the plants do not usually flower well, the best plan is to plunge the pots, and cover the soil with Cocoa-nut fibre. The latter not only gives a neat finished aspect to the beds, but reduces the necessity for such frequent watering as would otherwise be needed. In cases where the plant refuses to flower freely the best way is to use kinds with good foliage, such as the bronzes, gold and silver tricolors, bicolors, and variegated sorts which make effective beds in conjunction with *Coleus* and other fine-foliaged plants that are known to succeed in such positions. There is one great advantage belonging to this system, viz., that of the readiness with which any plant that fails can be removed and replaced by another, for when a garden is of but limited dimensions there is all the more reason to have it in a high state of perfection. In winter, too, there need be little trouble in keeping plants that are thoroughly established in their pots, compared with those lifted and potted from open beds, with roots to take in the very worst period of the year.—J. GROOM.

Primula denticulata.—To confine the deep-searching, fleshy roots of this *Primrose* in pots is to cripple it effectually. When planted out in a cool shady place and in deep holding soil, not only will the leaf growth be remarkable, but the root-grip of the soil especially so. The best way to serve these Himalayan *Primroses* is to grow them during the summer in the open ground; plant them out in April after the bloom is past, and if the stools are getting too large, split them up with a sharp knife. In rich cool soil these plants will make crowns in the ensuing autumn as large as a duck's egg; and then ere sharp frost and snow come these should be lifted, the roots materially reduced, and got into pots of moderate dimensions, in which to bloom. After that is past they have but to be turned out into the open ground as before. I have always found that these *Primulas* suffer more during the winter from wet, and especially from snow water, than from frost. No doubt the best position is on rockwork in sloping soil, but still I do not see why the crowns might not be protected with a small heap of coal ashes. Even more troublesome with me than excessive moisture are large slugs and snails, which are very partial to the flower-buds. Still they do not present any insuperable difficulty. The chief reason why the plants should be lifted into pots is that as they flower so early, their blossoms are too often marred and destroyed by bad weather. I can assure all who do not grow Himalayan *Primroses* that a dozen strong plants in pots under glass in the months of February and March are not to be despised.—A. D.

SHORT NOTES—FLOWER.

Ranunculus roots.—These should be kept dry from now until their planting time in February. I would not have your correspondent expect too much from these Italian roots. I have never seen any from the south of Europe that can compare with the Dutch and English raised varieties. Perhaps when he has bloomed them he will kindly inform the readers of THE GARDEN what they are like.—DELTA.

Souvenir de la Malmaison Carnation.—I have no great opinion of either the red or pink forms of this Carnation, or even of the type. Many like them because they are large. The flower consists of a bunch of petals, badly formed, which have to be tied together, as the pod always bursts. From twenty to twenty-five petals are quite enough for a double Carnation; when like that there is no need to strap up the pods.—JAS. DOUGLAS.

THE editor of THE GARDEN would beglad to hear of a young man with a good knowledge of hardy plants and taste that would fit him to take charge of a large and beautiful collection of alpine flowers and an extensive rock garden.

KITCHEN GARDEN.

TOMATOES ALL THE YEAR ROUND.

WHERE Tomatoes are fruited under glass, and ripened early in spring or during winter, I find no kind to equal the Orange-field. It makes growth quickly and sets fruit freely, even in winter, when we have but little sunshine. Being dwarf, seldom exceeding $2\frac{1}{2}$ ft. or 3 ft. in height, it is very suitable for pots, especially where other plants are grown in the same house or pit. In 10-in. or 12-in. pots each plant will on an average produce some thirty good-sized fruits, which always ripen well, and are good in flavour even when grown in artificial heat. In order to have ripe Tomatoes all the year round, seed must be sown four times a year, and there must be plenty of room to accommodate a good number of pots. I grow a number of plants in 10-in. pots in a span-roofed Peach house fitted with a stage on each side of the centre pathway, and from plants thus situated I pick a large number of fruits during the spring and early summer months. The seed is sown early in February, three seeds being placed in a 3-in. pot in light soil. They are set in a Cucumber house at work, where they germinate freely, and are soon fit to pot off into 3-in. pots in rich fibry loam, mixed with a portion of leaf-mould and a sprinkling of silver sand to keep the compost open. After potting I replace the plants in the same temperature in the Cucumber house until they fill their pots with roots; they then require shifting into 6-in. pots, using good fibry loam with a portion of rotten manure or decayed leaf-mould and a good sprinkling of old lime rubbish. The latter keeps the whole open, and the young roots seem to like it. Tomatoes cannot withstand sour stiff soil, in which they always have a sickly appearance, and do but little good. As soon as they fill the 6-in. pots with roots shift them into their fruiting pots, using good sound turfy loam broken into pieces about the size of pigeons' eggs, and adding a third of old Mushroom manure and a good sprinkling of old lime rubbish broken fine. I use one 6-in. potful of bone-meal to every bushel of potting soil, incorporating it well with the soil before using it. I transfer the plants to the Peach house soon after starting it for forcing. The temperature kept up in this house suits the Tomatoes, which grow freely and set plenty of fruit, although considerably shaded by the foliage of the trees after the latter get into full leaf.

Soon after potting I procure some straight stakes, from $3\frac{1}{2}$ feet to 4 feet in height; one stake is placed to each plant, and the branches are tied loosely to the stakes. As soon as the fruit begins to colour we use weak liquid manure made from fresh horse droppings steeped in a tub of water. When fresh made we use about a pint of the liquid to every gallon of clear water. When liquid is used too soon the plants make more foliage than is wanted, and if potted in good soil the latter will carry them on till the first fruits begin to colour. With seed sown in the first week in February, and the plants grown on quickly, one is enabled to pick ripe fruit about the end of April if grown in a Peach house, and earlier if grown in a higher temperature. I only grow one crop upon the same plants, as I find it more profitable to keep a stock of young ones coming on to succeed those that have fruited than to try to recruit exhausted plants.

Where a house is devoted to the cultivation of Tomatoes, strong varieties may be planted to be trained under the roof, while good crops of Orange-field may be had from pots set upon the front of the bed in which the permanent plants

are growing. The produce of a second sowing, made about the middle of March, will succeed the early plants. The young plants from this will require the same treatment as that described until they are in their fruiting pots, when they may be placed in a cool orchard house or deep pit, in which they will be ripe before the outdoor crop comes in, and succeed the first crop, which generally lasts until the beginning of July. A third sowing should be made in the first week in July. The produce of this will only require to be grown in a cool house or pit until the end of September or beginning of October, when it may be placed in a house in which the temperature is kept up as near 60° as possible. Ripe fruit may thus be picked in December and on to the new year. A fourth sowing should be made in September, and the young plants, the result of this, should be grown in a warm house, and will produce ripe fruit early in spring. The plants will grow and fruit freely in a Cucumber house at work in the winter months. The same treatment will be found to agree with the stronger growing varieties if grown in pots. The Orangefield is equally suitable for growing out of doors in summer; being dwarf, it is suitable for planting against low walls or on bare spaces on walls on which fruit trees are grown.

Bromley Common. Wm. CHRISTISON

POTATOES—EARLY AND LATE.

AMONGST a considerable number of early Potatoes here, the earliest is Early Rose, which, planted in the open on February 10 last, and partially injured by frost in April, I had for table use the size of duck's eggs on June 8. Beauty of Hebron came next, and then First Crop Ashleaf, with the quality in the inverse order named. I have limited quantities of such new varieties as Eight Weeks, Cleopatra, Bread Fruit, and Forcing, but shall be in no hurry lifting them. I may have something to say concerning them by-and-by. Snowflake I find, too, one of the best earlies, and Fortyfold is also good, with the disadvantage of coloured flesh, while the former, when first lifted, has the common shortcoming of most early varieties, of being too glutinous or waxy and flavourless. This failing is partially remedied by culture on a dry border, with a fibrous, loamy soil, where the maximum of sunshine can be enjoyed. The Flounder is largely grown in this country, and is of fair quality, but very subject to disease. So much for early varieties; but the two points I wished particularly to refer to remain. 1. The present system of exhibiting; and 2, the best late-keeping Potato. First, "Sylvestris," referring to the last Crystal Palace show (p. 107), says, "size and beauty of form would be the determining points in the eyes of the judges, for we could not expect them to become a tasting committee, so as to decide as to the cooking qualities." This point has, if I remember rightly, been before raised in THE GARDEN by Mr. Dean, and not satisfactorily disposed of. For my part, and I am not singular in the opinion, I believe this is precisely the point the judges should decide; and further, I believe Potato shows will fail in what ought to be their principal function until they decide on the best early, late, and intermediate varieties for cooking purposes. People talk of the best Potato at an exhibition solely from size and beauty. Why, I know American varieties that in these two respects would, to use their own phraseology, "whip creation," and yet when cooked are only fit for pigs or cattle. Is it not, therefore, a misleading blunder to speak of such varieties as the best? What valid objection can there be to classifying Potatoes, say, into early, late, and intermediate, or into rounds and kidneys as a subsection, giving points for colour if so decided, and have a cooking apparatus attached to every Potato exhibition, with definite rules of procedure framed to decide which is really the best variety? One exhibition from this point of view might be held for earlies, say in August, and for late

varieties, to determine their keeping properties, in spring. This brings me to a point I am very anxious to ask your correspondents for information about, viz., the best keeping late Potato. Three-fourths of the Potato crop in this country at present are Champion, yet I have found it worthless for table use after April; and Magnum Bonum has proved with us of comparatively inferior quality.

Chinnel.

W. J. M.

Leeks.—These seldom get the attention which they deserve, considering the length of season during which they last, and how useful they are during the spring months for various culinary purposes, when the crop of old Onions is getting exhausted, and the autumn-sown ones not yet of a size sufficient to render them fit for use. We sow in March for the first crop, and in April for those required late in the spring. A seed bed a few yards square will supply abundance of plants fit for transplanting in June. We then select some ground that has been deeply cultivated and well enriched; we mark the rows out in it 18 in. apart, and make large, deep holes the same distance asunder in the row. We then lift the plants carefully with their roots entire, and drop them into the holes so that their roots touch the bottom; only soil sufficient to cover the roots is put in, a good soaking of water is given, and the top part of the hole is left open. Thus treated, the plants quickly grow up, when the soil may be filled in about them gradually. Or a very good plan is to prepare trenches just the same as for Celery, and to plant from one to three rows in them, earthing up in the same manner as for Celery.—J. G.

A new esculent.—In a recent number of the journal of the French National Horticultural Society M. Dyboursk communicates the result of experiments made with Gobo, a species of Burdock, the root of which is much eaten in Japan. The seed was sown early in June in the open air in rich soil, the young plants being eventually thinned out to about 1 ft. apart. In the course of three months the roots had attained the length of 2 ft. and were proportionately thick. Cooked in the manner of Salsafy, they were found to be excellent, having much the flavour of Cardoons. M. Dyboursk has formed a high opinion of this Japanese vegetable, as, owing to its easy culture and the short time it takes to develop, it will, he thinks, prove of greater value than Salsafy or Scorzonera, being much superior to them in flavour. Will some of your Scotch correspondents inform me whether the root of the common Burdock is ever eaten as a vegetable in Scotland? and if so, which species? There are two closely resembling each other, Arctium Lappa and A. Bardana, the latter the Bardane of the French, supposed to be eaten in some parts of France, Potentilla anserina, a wayside species, with handsome silvery leaves, is also said to be eaten in Scotland, but I have never yet met with a Scotchman who had eaten of any of these plants.—J. C. B.

Diseased Cucumbers—G. L. G.—The Cucumbers you send are suffering from what is termed "gumming," and the scars left by the "gumming" in the large example are covered with fungi, which are hastening on the destruction of the crop. The fungus growth is entirely an after result of the "gumming," and the latter is caused by some constitutional disturbance brought on by abnormal growth. What has made the plants wrong in the first instance it is impossible to say without the fullest particulars, or a very careful examination. It frequently happens that the roots and even stems are infested within by a minute worm, which lays its eggs and goes on breeding and feeding in and on the internal tissues of the plant. These worms often throw Cucumbers and other plants seriously out of health. The microscopic worms are in the earth, and some country brooks and streams swarm with them. When water is taken from these positions the worms attack the plants, and a few individuals soon increase to hundreds of thousands. They frequently descend in rain. No cure for them has yet been published.—F.

GARDEN FLORA.

PLATE CCCXLIII.—KALMIA LATIFOLIA.

THE mountain Laurel of the American States (*Kalmia latifolia*) is one of those plants which, if of recent introduction, would be eagerly sought after; but having been an inhabitant of our gardens for nearly a century and a half, it receives but little attention. When in robust health, as one often finds it among the Surrey hills, its dark glossy evergreen foliage alone stamps it as a plant of the highest merit, but when in flower in June and July its true value becomes apparent, and it remains strikingly showy even after the beauty of the Azaleas and Rhododendrons is over. When raised from seed, as it often is in quantities, the individual plants vary a good deal both in size and colouring, and also in the profusion in which the flowers are produced; thus amongst seedlings the produce of one plant may sometimes be found greatly superior to that of another, and these, when once obtained, if propagated by grafting on the common type become fixed. A well-marked variety is the kind called *mytifolia*, which, as its name indicates, has leaves much smaller than those of *latifolia*, and the growth is also less vigorous. The flowers, too, are smaller; indeed, the whole plant may be described as a miniature form of *latifolia*.

Of a totally different character is *Kalmia angustifolia*, a small upright shrub 2 ft. to 3 ft. in height and earlier in flowering than the others just named. Its leaves are generally about 1½ in. long and ¾ in. broad, but they vary somewhat in size as well as in colour, some being deep green, others of a pale hue, while a glaucous form is also sometimes met with. Its flowers are, as a rule, deeper in colour than those of *K. latifolia*, while some of the selected kinds known under the names of *rubra* and *superba* are deeper still. There is also a very dwarf variety called *nana*, which seldom grows more than 1 ft. in height, and another in which the leaves are edged with creamy-white, but not worth growing. In *K. angustifolia ovata* the leaves are broader and the plant more vigorous than in the common type, while the very glossy foliage of a kind called *lucida* renders it worth growing for the sake of variety.

Kalmia glauca is a charming little plant, very distinct from all the others, and its season of flowering is much earlier, being often in blossom in April. This, and the dwarf variety of *K. angustifolia*, are seen to the best advantage when planted in dense masses.

CULTURE AND POSITION.—*Kalmias*, like most other Ericaceae, like a peaty soil and a position that even though exposed is such that the roots are kept moist; if dry, they soon assume a sickly aspect. *K. glauca* succeeds best in very damp places; in planting it, too, it is well to bear in mind the fact that rabbits are very fond of it and will crop it close down to the ground. Suitable spots may be found for all the varieties of *Kalmia* in what is known as the American garden. The large kinds associate well with Rhododendrons and similar plants, while the smaller ones are available for carpeting. Many of the *Kalmias* make good plants for forcing in spring for the embellishment of the greenhouse and conservatory. Owing to their having a dense mass of fibrous roots they can be taken up and potted during winter after the bloom is well set without injury; and when assisted by a gentle heat and frequently syringed they flower freely and continue in beauty for several weeks in succession.

ALPHA.

* * Mr. Bond, of Walcot Gardens, in Shropshire, was, many years ago, in the younger

Aiton's time, busily engaged in drawing plants in the Royal Gardens at Kew. We had the pleasure of seeing a number of his highly finished excellent drawings, which show a care, a decision of drawing, and purity of colouring that we would find great difficulty in equalling now-a-days. It occurred to us that we would like to reproduce one or two of the said graceful drawings which he has kept carefully for many years, and one of these was the typical *Kalmia* which has since become so famous a plant in our gardens. Mr. Bond is now and has been for many years past head gardener to the Earl of Powis, at Walcot, whence on various occasions we have seen examples of his excellence as a cultivator. The present earl is the third he has had the honour to serve during a period of forty-eight years. The drawing of *Kalmia latifolia*, represented by the annexed plate, was made about the year 1839.

FRUIT GARDEN.

APRICOTS.

NOTWITHSTANDING the fact that the Moorpark variety of Apricot is so liable to lose its largest branches without any apparent cause, it is, in my opinion, still the best Apricot to grow. The tree is a good bearer, and the fruit is larger and better flavoured than that of any other kind. In many cases Apricots are pruned too much; for many years I followed the close pruning system, and obtained results in no way satisfactory. Since then I have adopted a more free-and-easy system, and have done what little pruning was necessary in summer by tying in the breastwood and pinching off the tops of the strongest shoots once in the month of June, and our crops have become greatly improved. Such a system will not, however, do in gardens where severe pruning and stiff training are carried out. But I am satisfied that where a good crop of fruit is of more importance than a neatly trained tree the free-and-easy system is the most profitable. In winter, instead of cutting off all the breastwood, we cut out some of the old, exhausted shoots, and tie in the young ones instead of cutting them back to a spur. By thus tying in the young shoots they shelter each other, and better crops are the result. Our trees of the Moorpark variety suffered so much from the loss of large branches that I determined eight years ago to try other varieties, and secured Rivers' Early, the Royal, and Musch-Musch. Rivers' Early I discarded the second year after fruiting, as the skin was so thick and the stone so large, that it was considered to be valueless; it is only right, however, to say that the tree was a good grower, and produced fruit in abundance. The Royal has a good many if not all the characteristics of the preceding, except that the tree is less vigorous, the fruit somewhat larger, and its branches do not die off so suddenly after the tree attains a good size. It is somewhat tender, and only suitable for very warm positions. Under glass I have seen this variety better than any other kind, *i.e.*, if I except the airy lean-to houses at Sawbridge-worth, where Apricots of all kinds used to be grown so well in pots. The tree of the Musch-Musch kind is quite distinct from that of the Moorpark, and with me it is a very prolific bearer. It is a good grower, but the fruit is small, and has a thick skin and indifferent flavour. It is not so likely, I apprehend, to lose its main branches suddenly as the Moorpark, and where a hardy variety is required in positions where others have failed, this should, I think, have a fair trial.

J. C. C.

Layering Strawberries.—This is an operation in which an early start is of importance. The sooner the runners are in their pots the greater is the chance of getting good fruitful plants. To attempt early forcing with late potted plants is to court failure. I would, therefore, recommend all who contemplate forcing Straw-

berries in pots to lose no time in getting the earliest runners they can get of the desired kinds layered in small pots, so that they may be fit for getting into their fruiting pots early in July. After trying all kinds of plans I am convinced that layering in 3-in. pots filled with good rich soil answers best. We use turf cut about 4 in. thick and stacked up long enough to kill the Grass roots, with a thin layer of manure between each layer of turf. When this is chopped down it is ready for use; it will, however, require chopping rather finer for the small pots than for the fruiting pots, but we never sift soil for Strawberries; place one crock or potsherd at the bottom and fill up with soil; then carry the pots to the beds where the layers are to be had, and place one in the centre of each pot, securing it with a wooden peg or a flat stone. The latter is preferred by many, as it retains moisture under it, and hastens the production of roots. Keep the layers well watered, and in a fortnight or three weeks they will be well rooted and fit for severing from the parent plants. Place them in a shady situation till required for potting.—J. G. L.

CAUSE AND CURE OF MELON DISEASE.

THIS heading may seem presumptuous, but being anxious to assist "A. M." and others to the utmost of my ability in a matter in which I have had considerable experience, the title will at least command attention. "A. M." is quite right in separating what is termed the disease from ordinary canker near the base of the Melon plant; the latter is provoking enough, but it affects but one place, the base of the stem, and seldom proves destructive till the crop has reached to something like semi-maturity. But the disease attacks every part and sends its gangrenous and fatal wounds through the stems or leaves in any or all directions. When first brought into personal contact with it, I consulted all available authorities, scientific and practical, as to its origin. The answer virtually amounted to this—not known. As to remedies, immediate destruction, cleansing and deodorising the houses' fresh seeds from a distance, were the chief. All these failed, however. Thus thrown back on our own resources, it occurred to me that the disease seemed to originate in a check of some sort. The plants most virulently affected were mostly the more succulent. Could an excess of moisture and a paucity of heat be the provocative causes of the disease? It looked like it. If so, then the remedies are simple—more heat and a drier atmosphere. From then till now we have, when possible, given our Melons more tropical treatment, and the result is we have out-grown the disease. True, "A. M." says we had plenty of bottom-heat, but the expression is a vague one. Does his plenty mean from 80° to 90°, with atmospheric warmth in proportion? Even under such tropical conditions it is possible to keep Melons far too moist both at top and bottom. They are in no sense swamp plants, though in the free atmosphere of tropical climates it might be impossible to over-water their roots; but the case is widely different in the cramped, artificial areas of our hothouses or frames. This much is certain, we succeeded in out-growing the Melon disease by forcing the plants at high-pressure speed from the start to the finish, and when and where we can command these favourable conditions we have not had it since.

D. T. FISH.

Strawberries in pots.—Young plants intended for early forcing should be placed in their fruiting pots by the end of June or early in July. Small pots, 5 in. to 6 in. in diameter, are quite large enough for the first batch, but for the general stock a larger size may be used with advantage, if only to economise time in watering. See that the fruiting pots are clean, dry, and well crocked, for, much as the Strawberry enjoys a strong, rich soil with plenty of moisture, it soon becomes unhealthy in a pot from which water cannot pass away freely. Pot the plants singly, with the crowns well up above the soil when all is finished, and place them on a hard surface in a

light, airy situation convenient to water, and, if possible, free from worms. Avoid crowding the plants together or setting them near trees, as it is important that the leaf-stalks be kept short and stout, and that good single crowns in preference to double ones be thoroughly ripened before the autumn. Water well with water which has been exposed to the atmosphere, and keep the beds of concrete or ashes on which they are placed well moistened, but avoid wetting the tender foliage in bright weather or at any time with water that is colder than the mean temperature of the air. Remove all weeds and runners. Apply lime water if worms gain a lodgment, and rearrange occasionally, as they require more room, and to prevent the plants from rooting into the ground. With many growers it is the practice to avoid the use of small pots altogether by filling the fruiting pots up to within $\frac{3}{4}$ in. of the rim, and then pegging the runners tightly down on the surface. The drawback to this excellent plan is the establishment of a colony of worms during the time the pots are standing on the quarters, and the time occupied in watering in dry weather. The plants, however, make excellent heart buds, which ripen well, and the check which follows shifting from 3-in. pots to fruiting pots is overcome.—W. C.

Pine growing on leaf beds.—The following is a list of Pines which I have cut, and I still have thirty more to cut. They were rootless suckers planted on a bed of leaves in February, 1881, and the ripe fruits were cut as follows:—

Date	Weight. lb.	Date	Weight. lb.
Aug. 16 .. 5 $\frac{1}{2}$		Oct. 26 .. 3 $\frac{1}{2}$	
" 22 .. 5 $\frac{1}{2}$		Dec. 30 .. 5 $\frac{1}{2}$	
" 24 .. 4 $\frac{1}{2}$		" 30 .. 4 $\frac{1}{2}$	
" 31 .. 6 $\frac{1}{2}$		" 31 .. 7 $\frac{1}{2}$	
Sept. 5 .. 4 $\frac{1}{2}$			
" 10 .. 5		Jan. 4 1882 .. 4 $\frac{1}{2}$	
" 13 .. 6		" 7 .. 6 $\frac{1}{2}$	
" 13 .. 5		" 10 .. 7	
" 13 .. 4 $\frac{1}{2}$		" 10 .. 6 $\frac{1}{2}$	
" 15 .. 4 $\frac{1}{2}$		" 19 .. 4	
" 15 .. 4		" 25 .. 7	
" 20 .. 4 $\frac{1}{2}$		" 25 .. 6 $\frac{1}{2}$	
" 20 .. 4 $\frac{1}{2}$		" 30 .. 5	
" 24 .. 5		Mar. 6 .. 4	
" 24 .. 4 $\frac{1}{2}$		April 15 .. 5 $\frac{1}{2}$	
" 24 .. 3 $\frac{1}{2}$		" 17 .. 5 $\frac{1}{2}$	
" 28 .. 4		" 28 .. 4	
Oct. 7 .. 4		May 2 .. 5 $\frac{1}{2}$	
" 7 .. 4 $\frac{1}{2}$		" 2 .. 4 $\frac{1}{2}$	
" 26 .. 4 $\frac{1}{2}$		" 4 .. 5	

These Pines were grown, as I have said, wholly on a bed of leaves. Our succession Pine pits are 8 ft. wide and 8 ft. deep, and a 3-in. hot-water pipe runs round them for top heat. The fruiting pits are 12 ft. wide and 11 ft. deep, and a flow and return 4-in. pipe runs round them close to the walls for top heat. Over the front pits is an open trough for hot water—the back pipes are only used in very cold weather.—D.

SHORT NOTES—FRUIT.

Figs seem to be well grown at Worksop Manor under Mr. Sutton. They are in pots plunged out of sight in the borders. They are annually well dressed with well-rotted manure and loam; the house being a lean-to, they are trained three parts up the front, and likewise up the back.—M.

Mealy bug and Fir oil.—If "A. E. P." will try on his Vines half a pint of Fir tree oil mixed with six quarts of water, applied with Wells' patent spray diffuser, he will find it one of the best things he ever used for mealy bug or indeed for any other kind of insect on plants. The diffuser is so easily worked, and deposits such a fine spray on the plant that neither mealy bug nor red spider can withstand. CHAS. GOODE, *Eastcote, Redhill*.

Fruit prospects in Shropshire, Mr. Bond informs us, are anything but bright. During the 48 years he has been at Walcot he has never known, he says, such a season. There are few Apples or fruits of any kind, and the trees are nearly destroyed by blight. He adds that during May and June there has hardly been in that part of the country a sunny day.

Early Rivers Peach.—What kills the stones of this Peach? All its stones with me were dead last year, and I find the greater part of them to be so this year. It does not prevent the fruits from ripening, but they are slightly deformed. It is a very good Peach notwithstanding the defect named, and is also very early. My tree is in good health, with only about eighteen fruit on it.—C. M.

NOTES AND READINGS.

NO PRUNING!—Mr. Fish is a welcome recruit to the ranks of the "no pruners," notwithstanding certain publications issued lately from the *Bazaar* office, in which mostly all the barbarities of "restriction" are accurately described and recommended; but that is neither here nor there, nor is it of any consequence that Mr. Fish waited to see what your contemporary had to say before casting his vote in with the advocates of extension. He is now in doubt if "any pruning at all be needed"—that is "the grave and vital question" now to be answered. In its general application we would say decidedly pruning is needed in the case of trained trees, but it must be conducted on more intelligent principles than hitherto. In regard to standard trees, or trees not grown on walls or espaliers, probably no pruning is needed worth speaking about. It is gratifying to hear that a "great change for the better" has come over our pruning practices lately, which there is reason to think is true, although, judging from an "epitome" bringing garden practice down to 1881, one would not think so. A "diagram illustrating branch distribution," intended for general application to wall trees, and by which "fruit trees may be readily trained into the forms which are amongst the best that have been devised," delineates in the clearest style what Mr. Fish describes as "the old and barbarous practice of hacking off the heads of trees." The first step towards improvement in this direction would be the destruction of much matter on pruning that has been published, and especially the diagrams, which many gardeners have found to their cost were barbarous.

THE FUTURE OPPORTUNITY OF THE FLORIST.—Hitherto the labours of the "florist" have been too restricted in their scope, and he now finds the work he ought to have accomplished long ago being taken out of his hands. However creditable the productions of his art, they have been too few and too far out of the track of the gardener and lovers of flowers generally to merit the attention of any but a few specialists. To raise one or two Pansies or Auriculas or Tulips annually or periodically is not and never can be an object of sufficient importance to fire the ambition of any cultivator who takes a broad view of his profession and wishes to cater for the public taste. One thing which is sure soon to engage the attention of those who seek to improve our garden flowers is the selecting and perpetuating of good varieties from seed. Propagation by cuttings will probably never be given up, for it is the only means we have of perpetuating favourite varieties; but propagation by seed is preferable, because it is easier and readier, from the gardener's point of view, as regards raising stock to furnish the garden, if it was only reliable. We want strains of such things as good Violas, Pansies, Primulas, Verbenas, Dahlias, Auriculas, Pyrethrums, Petunias, Phloxes, Primroses, and all popular garden flowers, that can be raised from seed. The raiser of strains of such subjects would not have to concern himself so much about the "form" of the flowers, a point which has so much hampered the older school of florists, as their colour, free flowering disposition, and habit of growth, which are the main considerations in flowers planted for effect either in the "dressed" or wild garden. Past experience has shown that a few years' selection is sufficient to "fix" the character of any particular strain, and mostly all cultivators know well that seedlings are preferable to cuttings for several reasons, not the least being their superior constitution.

ROOT PRUNING.—This is a work that will be demanding the consideration of gardeners soon. It should be performed as soon as the wood of fruit trees is fairly hardened and the leaves matured. It cannot be too well understood, however, that much pruning of the tops and pruning of the roots are quite inimical to each other. Cutting off the roots means cutting off the supplies, and cutting off the branches means reducing the demand on the supplies. Consequently a tree that has its roots and branches curtailed at the same time is in almost the same condition as it was before—like a man who has his income and expenditure reduced simultaneously. And yet simultaneous root and branch pruning is the rule, and hence root pruning is a work that enters largely into the restrictive trainer's practice without much visible advantage. Those who have very large or vigorous, but barren, orchard trees should use the knife at the roots and let the tops alone. It is futile attempting to put fertility into an over-luxuriant tree by reducing the number or extent of the branches.

FRUIT TREES IN POTS.—The plan of growing Apples and Pears in pots, from which so much was expected at one time, seems to be going out of fashion. It is certain the pot system is not extending, and many of those who have tried it for years and found it to be unworthy of the trouble have given it up. Why should we grow fruit trees in pots either indoors or outdoors? That is the question that has never yet been answered. It is fraught with far more trouble, inconvenience, and uncertainty than any other plan of growing fruit. If the trees must be grown under glass, why not plant them out like other fruits that are grown under protection, and substitute occasional root pruning or root confinement instead of annual potting, plunging, top-dressing, &c., saving at the same time so much watering, and avoiding those frequent chances of failure which the system entails? The only real successful orchard house cultivators we know of are those who plant out their trees, be they bush or trained. Their crops of some kinds of fruits, and particularly the finer dessert Plums, are simply marvellous, and this in the hands not of professional gardeners, but amateurs who do not keep a regular gardener. The contrast between two orchard houses which we saw once, both belonging to clergymen, one containing about fifty plants in pots, and the other less than half that number planted out, was instructive. In the first case we had poor, small, scraggy trees with precarious crops, and in the other luxuriance and fine crops. Since we saw the pot specimens they have been disposed of by auction and the orchard house given up.

TIME IN FRUIT CULTURE.—One of your contemporaries says that "slow and sure" should be the motto of those who wish to grow and mature Grapes well, and it speaks truly, and might extend the motto to other fruits as well as Grapes. If we want heavy and solid Pines and Peaches, &c., we must give time. Practice proves this. It is better to start Black Hamburgs, for example, a month or six weeks earlier and give them a longer time to grow. It comes to the same thing in the end as regards cost of fuel and labour and the results are better and more certain. This has been reiterated in *THE GARDEN* a good many times. High rates of speed, says your contemporary, are dangerous both at the start and finish, and it would correct such practices by depression of temperature at night, which "is one of Nature's most powerful means of completing maturity." We would commend this advice to Grape growers, for it is not the case, we are afraid, that many practise it. It does not

follow that the leader writer and calendar writer on Vines have any connection or sympathy with each other in such matters, but it is certain they do not agree. PEREGRINE.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J., SURREY.

No flower decoration is more delightful in a room than a large china bowl full of Roses, but without some support for the flowers it is not easy to arrange. A good plan is to place inside the bowl three common flower-pots of graduated sizes, the outside of the largest being about 1½ in. within the rim of the bowl; a few crocks at the bottom of the largest pot will bring the next-sized one to the right height, and some more crocks in the second will block up the third to the same level. The best effects may be got by keeping the related colourings together, such as the scarlet and black-shaded flowers in one bowl, pale and full pink in another, and so on. A bold mass of Chinese Pæonies, bluish, rosy-pink, and white tinged with sulphur, cut 2 ft. long, have an imposing effect in a large blue and white porcelain vase. Kalmias, in flower and bud, are in a silver punch-bowl; cut in the bud state they will last for a fortnight; their own leathery golden-green foliage is the best possible accompaniment. A blue jar full of Syringa (Philadelphus) is almost too strongly scented for a sitting-room, but does well for a hall or entrance. White Water Lilies are in a wide shallow glass bowl, with a few of their own leaves.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Tobacco plants.—Of all annuals suitable for flower borders, and for grouping in masses in the sub-tropical garden, the Tobaccos or Nicotianas are probably the most rapid growers and the most easily raised. They have also the additional merit of being comparatively hardy, and can be planted out earlier than any of the other kinds of plants usually classed as sub-tropical. Seeds sown on a slight hotbed in March, and the young plants potted off singly as soon as they can be handled, and given ordinary frame culture, will be large to plant out in May. The best varieties are Tabacum and its variegated variety and wigandioides. In good soil all three kinds attain a height of 8 ft., and have broad massive foliage and long spikes of pink blossoms. They flower so freely, that, to prevent premature exhaustion, it is necessary to reduce the flower-spikes to about a couple on each plant, as well as to prevent them from seeding, by frequently picking off the bad flowers. Under this simple culture they will retain their effectiveness till very late in autumn. If planted in groups, each plant should not be allowed a less space than 3 ft.

Bedding plants.—The dripping cold weather of the last three weeks has made the tender section of these look very wretched, so much so, that one almost regrets that there are such plants as Coleus and Alternanthera; but having used them, and that with grand effect, when the seasons were warmer, it is difficult now to make up one's mind to exclude them, but sooner or later it must come to that; meanwhile we must be on the look out for hardy substitutes; at present the only available hardy kinds are the bronze Ajuga and Oxalis corniculata rubra, both a long distance in the rear as regards brightness of colour, but moderately effective when planted in dense masses. Though it is yet early to form an opinion as to whether or not such tender plants as the Coleus and Alternanthera will fill out their allotted space, the moment there is a doubt in the matter will be the time to set to work to cover the ground; dwarf Sedums, dibbled in amongst them, quickly do this, the mixture so formed being infinitely preferable to bare plots of earth. In the case of

succulent arrangements, keep the flowers picked off Echeverias and other ground-work plants associated with them, such as Sedums and Saxifrages, but the small flowers of *Mesembryanthemum cordifolium variegatum* harmonise so well with succulents that they should be left. It will, however, be necessary to occasionally pick off the seed-pods in order to keep the plants in free growth. The most pleasing bed we have at the present time is an arrangement of large succulents, consisting of *Yuccas*, *Agaves*, and large growing *Echeverias* and *Sempervivums*, the whole being in a setting of the large, mauve-flowered *Mesembryanthemum conspicuum*, and the only attention it has ever had or needed since planting has been the keeping of the *Mesembryanthemum* pegged under the taller plants. In rain or sunshine, in fact in all weathers, these succulent arrangements are equally pleasing, and worthy of adoption on that ground alone, not to mention their desirability on the score of variety. Keep the undergrowths of sub-tropical plants neatly pegged down, and in cases in which such undergrowths have been deemed unnecessary the beds should be kept mulched with Cocoa fibre or leaf-soil. For the present the flowers should be kept picked off Cannas, Castor-oils, and the like, and all that need tying and staking should receive that attention before any injury accrues from its neglect.

General work.—During showery weather the weeding and rolling of walks will well repay all the labour that can be afforded in that direction. Shrubberies and mixed flower borders will also require more than ordinary attention against the destruction of weeds, and the mowing necessary to ensure a close, velvety turf is just now incessant. Roses need washing for the destruction of blight; bad flowers should be picked off once a week, and the growths of any that have done flowering should be shortened. Daisies, Pansies, Primroses, Polyanthes, Violas, Pinks, and other spring flowers may now be propagated by division, cuttings, or seeds; they all do best in partial shade; a border having a north or east aspect is in every way suitable. Any strong plants there may be to spare will do good autumn service in the mixed borders amongst Roses.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Double Primulas.—The advantages which these possess over the single kinds where flowers for bouquets are much in demand are their greater duration when so used and their continuous habit of blooming, especially the white and distinct pink kinds, such as Gilbert's seedlings, that deserve to be grown extensively; not only are their flowers individually much larger than those of the old sorts, but the habit of the plants is more vigorous. Every attention should now be given them in the way of pot room and plenty of light, with no more shade than is required to break the sun's rays and prevent the foliage from assuming a sickly hue. If seeds of the single varieties were sown at intervals of about two months, there will be a good prospect of a continuous succession from autumn up to spring, and to have the stock in such order as will enable it to produce a full crop of flowers there must be no want of attention, especially in giving more root room as required. Plants of the last sowing should be encouraged to make growth, so as to admit of their being got into their blooming pots before the season is too far advanced to allow them to attain size enough to flower well. On no account allow the stock of either double or single kinds to stand too close together from the first, for where this occurs the leaf-stalks get drawn out weakly, a defect that cannot afterwards be remedied. The best place for Primulas in summer is in ordinary frames facing northwards at the north side of a low north wall with their heads close up to the glass. Thus situated they will get plenty of light, but not under the full force of the sun. The lights should be well tilted up back and front in the day-time, and a piece of garden netting should

be put on the glass in the middle of the day when the weather is bright.

Heliotropes.—These must be kept close to the glass when subjected to the warmth requisite to bring them into flower during autumn and winter; consequently, where they will have to be brought on in low pits, small plants such as can be grown up from spring-struck cuttings occupying 6-in. or 8-in. pots should at once be placed in such, regularly pinching off the flowers as they appear. This is necessary in order to direct all their strength to the formation of growth. Large old *Heliotropes* are most useful where there are means of giving them the requisite room, as where these exist, if encouraged with a little warmth after the weather gets cold, they will go on blooming for months. With large examples of this description it is not so necessary to keep all the flowers nipped off now as in the case of small ones, but means must be taken to keep them growing freely by the aid of sufficient pot room and frequent applications of manure water.

Perpetual flowering Carnations.

The later flowering stock of these will now be in fine bloom, and should be assisted with manure water once a week, which will induce them to push up strong shoots from the bottom that will flower later on. Plants that have been forced early should have their old flowering shoots well shortened back, so as to encourage the young shoots, which in free-growing varieties are always making their appearance; they should then be turned out of the pots without disturbing the balls of roots more than what occurs in removing the drainage, and be planted out in prepared soil, not too light, but with sand enough in it to admit of their being taken up and potted in the autumn without much breakage of their roots; they must have an open situation fully exposed to the sun, and not be allowed to suffer through want of water. If well managed they will produce many more flowers than younger plants, and will not be so leggy or unsightly as where the old stems are allowed to grow up without cutting back. Young plants struck from cuttings in the winter or spring must have all the attention which they require, or it is useless to expect more than a meagre production of flowers. Move them as soon as necessary out of the small pots they occupy to others a couple of sizes larger, using good strong new loam, to which has been added a little leaf-mould with some sand, but not so much as is required by most soft-wooded plants, as if the soil is too light they will not be unlikely to refuse to move altogether.

ORCHIDS.

J. DOUGLAS, LOXFORD HALL.

East India house.—We find *Odontoglossum Roezli* to succeed best in this house, but in the coolest end, there being a difference of at least 5° between the two ends; our plants of it are placed very near the glass, and when making growth are as freely supplied with water as the cool house species. They have just passed through the flowering period and are again starting to grow. Some of them were reported about mid-winter and have done well; these will not be disturbed now, but all that were repotted at this time last year will be potted again; the roots should not be disturbed more than what may happen in removing the decayed and sour compost. For these we fill the pots with drainage up to within 3 in. of the rim. They should be cleared from thrips before repotting. Some of the *Cattleyas* grown in this house will now be pushing up their flowers from the recently formed pseudo-bulbs amongst these we place *C. gigas*, which flowers best when placed very near the glass in the coolest end of this house. *Cattleya Dowiana* requires very similar treatment. It does well with the pots placed inside a basket. *C. superba* is grown in quite the warmest end, but this should be on a block, or, what is better, fastened to a bit of the stem of a Tree Fern.

We find *Cattleya Warneri* to succeed better in this house than in a cooler temperature. Our best plant of it has been grown here for many years and always flowers well. Any *Dendrobiums* starting into growth, as many of them do at this time, should be repotted as they require it; give them plenty of heat and moisture, and occasionally syringe them overhead. The smaller-growing species should be placed near the glass; those that are taller will do in the centre or on the side stages. *Saccolabiums* are now beginning to make fresh roots; if any of them require robust setting or repotting it ought to be done at once. These Orchids dislike being disturbed, and if the potting material has become decayed, it may be best to carefully pick it out from amongst the roots and substitute fresh material. They do not require any peat amongst the Sphagnum, but crocks and charcoal are necessary to keep it open. I find it answers well to have dried Sphagnum that has been well washed previous to drying to work in amongst the roots, finishing off with live material chopped fine and that has been mixed with a little pounded charcoal as well as the lumpy portions of it. We always wash the leaves with soapy water before potting.

Cattleya house.—If any *Cattleyas* really require repotting, it should be done now, but I am of opinion that January is the best time for performing the operation. Most of ours are being left until that time. Recently imported plants are dealt with differently. Some pot the plants at once in the usual compost, and as a rule roots are very soon emitted from the base of the last formed pseudo-bulbs. The best way, I think, of treating all such plants, including *Laelias*, is to pot them in clean crocks, and as soon as the roots have begun to push, remove some of the crocks and replace them with the usual compost; the roots run into it at once, and before it becomes tainted by repeated waterings. Many new and notable additions are constantly being made to *Cattleyas*, and as there is always much pleasure in watching the development of new forms, it ought not to be forgotten that as a rule flowering sheaths are most likely to be formed when the plants are placed near the glass. We had six plants of *C. gigas* in one house placed on the stage; they were not more than 3 ft. from the glass, but not a flowering growth was formed upon one of them until they were all suspended from the roof close to the glass; now they are all forming flowering sheaths. *Odontoglossum hastilabium*, an inmate of this house, is usually much punished by the long time during which its flowers remain on it. We have had single spikes last for three months and longer; one even lasted six months. Carefully attend to the plants in the way of giving water at the roots, and maintain a moist growing atmosphere. They are now making new growths and pushing out young roots.

Cool house.—The instructions given in the last calendar as to the general treatment of this house will do for the next two months. We have not had very hot weather, consequently no extra precautions have been necessary; indeed, the rather cool, moist atmosphere has suited the occupants of this house well. We would rather not repot many of the *Masdevallias* and *Odontoglossums* at this season, but it may be necessary to do so; in that case we are careful to disturb the roots as little as possible, and are also very careful not to let them suffer from want of water afterwards. Cool house Orchids are rapidly increasing in numbers and interest, and the house need not be altogether filled with *Odontoglossums* and *Masdevallias*; a few of the finest *Dendrobiums* may find a home there. *D. Jamesianum* and the nearly allied *D. infundibulum* make the best growths in the warmest end of the cool house; in potting and watering deal with them much the same as is done with *Odontoglossums*; they like to be near the glass. Besides *Oncidium macranthum* alluded to in last calendar, another really pretty species does best in this house, at least during the summer months, viz., *C. cheiroporum*; it is best grown in pots, but the pots may be placed in baskets and suspended from the roof. Amongst *Cattleyas* the

lovely *C. citrina* succeeds well here on blocks, or, as I saw it flowering freely at Messrs. Veitch's, in shallow pans. In either case it is best suspended from the roof. *Lælia majalis* and *L. autumnalis* are good subjects for this house. They will do very well if they can be placed in a corner where they can get a few hours' sun each day, as they will not form flowering growths if they are too closely shaded. Cultivators know that certain plants must be placed in the lightest part, others near the ventilators, and others again at a distance from both. To grow Orchids well in any department it is necessary that their habits and the conditions under which they are found in their native habitat should be known, and if possible adhered to when under cultivation.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Peaches.—When all the fruit has been taken from the early house, go over the trees and remove the shoots which have performed their office and can now be spared with advantage to the young growths intended for next year's fruiting. Tie in and regulate the latter, allowing plenty of room for free development of foliage and the free admission of light and air. Syringe regularly with pure water where the foliage is clean, and add soft soap or Gishurst compound on dull evenings to keep it clear of spider. Keep the inside borders regularly supplied with water, and renovate the mulching where the trees show signs of weakness or exhaustion from heavy cropping, but carefully guard against forcing them into a vigorous growth when they should be going to rest. The ventilators may now be left open by night and day, and when the buds are well made up, the roof lights, if possible, may be taken off, painted, and stored away ready for use early in the autumn.

Succession houses.—If time is an object the trees in succession houses may now be subjected to a higher temperature than would have been safe before the fruit commenced its last swelling, but it must be borne in mind that nothing in the way of quality is gained by it, increased size, colour, and flavour being the true tests of merit. I prefer a temperature ranging from 60° at night to 75° by day, with plenty of air and full exposure by drawing the lights off when the weather is very fine after the end of June. Where good soft water can be obtained the trees may be syringed every morning until the fruit has attained its full size and shows signs of changing for ripening, but on no account should the afternoon syringing be performed when there is danger of the foliage remaining wet after nightfall. If the roots are confined to internal borders, and the latter are well drained, liberal supplies of water at the mean temperature of the house will be needful in this and later houses; but where they run outside, the heavy rains we have lately had, combined with good mulching, will keep them in a satisfactory state until the earth becomes much warmer than it is at the present time.

Late houses.—See that the wood is thinly and evenly laid in in late houses and wall-cases, particularly where no heating apparatus has been provided for ripening it up in the autumn; pinch the points out of gross shoots where they are likely to rob the fruit or weaker parts of the trees, and elevate all that can be raised to the influence of sun and light as the work proceeds. Syringe well twice a day, leave the ventilators constantly open, and mulch the roots with some non-conducting material to counteract the drying influence of constant currents of air; but guard against the use of over-rich manure, which will force the trees into vigorous growth late in the season.

Figs under glass.—Our early forced trees are now swelling up the second crop of fruit, and a few of the most forward Figs are beginning to ripen. The fruit has been well thinned to insure good size, and the roots have been liberally supplied with warm liquid to keep the trees in growth. From the first week in June stopping is discontinued, as it is from the young growths

now being made that next year's first crop will be obtained. When all the best fruit has been gathered the lights will be taken off the roof, the shoots will be well cleansed if insects are present, and the trees will be allowed to go gradually to rest. In our best house a large tree of Brown Turkey is ripening hundreds of fine Figs. This tree is planted out against a rough stone wall forming the north side of a span-roofed pit. The shoots are trained upwards to the ridge, thence downwards to the south front. The winter pruning consists in cutting away barren shoots which have reached the extremity of the trellis to make room for summer growths, and as these are never stopped, a successional growth of wood and fruit is secured until the time arrives for withholding stimulants. The shade produced by the foliage having caused the stems of eighteen years' growth to throw a complete network of roots over the surface of the old limestone wall, we keep them packed Orchid fashion in the pieces of turf, from the floor line 4 ft. upwards, and feed copiously with warm liquid, which is poured on at the top every other morning, or as often as the turf roots, and projecting stones show signs of becoming dry. I ought to say the wood never becomes so gross, neither does the fruit drop at the usual critical period of its growth, two striking proofs that this heat and moisture-loving tree is most decidedly at home when planted where rich, stimulating food can pass quickly away and the air is not excluded from the roots.

KITCHEN GARDEN.

R. GILBERT, BURGHEY.

KEEP the hoe constantly going among growing crops, and prick out Broccoli, Savoys, and winter greens. If ground for them is not likely to be early at liberty I always sow as late as possible, so that the plants do not get drawn while they stand in the seed beds. Early Potatoes now occupy the ground where I intend to plant my spring Broccoli; therefore with me pricking out the plants will be a necessity, otherwise I prefer planting from the seed bed. Keep Tomatoes well nailed to the walls. Encourage them to become strong healthy plants, so that their fruit may be a sure and profitable crop. On Globe Artichokes recent winters have left their mark, but last winter being a mild one has helped them wonderfully. I am well watering my stock of these, and will not forget to duly protect them next winter. All Celery for late spring use should now be pricked out. Keep early Celery in the trenches growing by giving it daily a slight damping. It should be kept constantly growing.

NOTES OF THE WEEK.

MIMULUS GRANDIFLORUS.—It should have been stated in last week's GARDEN when speak of this *Mimulus*, a fine variety of luteus, that it was sent to us by Messrs. Carter & Co., of High Holborn.

RHEUM ACUMINATUM.—One of the most vivid effects we have ever seen even in the American woods was afforded by this plant as the declining sun shone through its inflorescence on last Sunday afternoon. The plant grows in the small rock garden at Kew.

ALLIUM PEDEMONTANUM.—This plant, which we figured in THE GARDEN some time ago, and the quality of which has been doubted by several who have tried it, comes again to us from Messrs. Backhouse, and, we are pleased to say, in a very pretty state. It seems the best of its race; the colour reminds one a little of some forms of *Sparaxis pulcherrima*.

EPILOBIUM OBOCDATUM in flower in the rock garden at Kew is a charming little plant, by far the best of the Willow Herbs for a rock garden, as it is so dwarf and spreading. The flowers, about 1 in. across, are of a bright rose;

hence very showy. It grows well in any good soil in a well-drained part of the rock garden. It is not half so common as it deserves to be.

LILIUM GIGANTEUM.—You were good enough to figure my *Lilium giganteum*, with nine flowers, in 1874. To my surprise, a fine columnar stem has shot up, in the same round *Rhododendron* bed, but 4 ft. from where the parent bloomed, and is now putting forth six flower-buds. I imagine it may be from a seed that has germinated; can hardly think a bulb has budded off and travelled so far from the original one that flowered.—RICHARD OWEN, *Sheen Lodge, Richmond Park*.

BILLEBERGIA MOSAICA, as we lately saw it in flower in Mr. B. S. Williams' nursery, at Upper Holloway, is really a handsome and, at the same time, a singularly interesting plant. The leathery foliage, arranged in a vasiform tuft, is beautifully marked as with mosaic characters on a bronzy green ground. The flower-spike is erect, furnished with a dense cluster of flowers coloured orange-red and white, colours though in strange harmony highly attractive.

COL. STUART WORTLEY sends us an admirable photograph of some of the fine Lilies of the Valley grown by Messrs. Hawkins & Bennett, of Twickenham. The same Lilies were drawn and engraved for THE GARDEN life size and in a very careful way, otherwise we should be tempted to reproduce this photograph, which strikes us very much by its force of colour and effect. We wish Col. Wortley had more of our fine hardy flowers to experiment with.

IRIS LÆVIGATA, now in flower at Kew, shows well what the original type of *I. Kämpferi* is, and it is still one of the loveliest of the vast number of varieties now in gardens. The flowers are large (4 in. across), the sepals all uniform in size and flat, and the colour the richest deep purple, with a conspicuous yellow blotch at the base of each sepal. The plant in question is growing in a pot half submerged in the aquatic tank, and its health and vigour fully indicate that it is a moisture-loving subject.

CAPSIUM LITTLE GEM is one of the neatest and prettiest of the various varieties of *Capsicum* grown for ornament, at least so we thought when we lately saw it so finely in fruit in the Victoria Nursery, Upper Holloway, from whence we believe it was lately distributed. The plants are dwarf, bushy, and spreading, and each twig is laden with small bright red fruits the size of Hazel nuts. For decorative purposes before the main crop of the commoner kinds come in it is invaluable, and ought to be welcomed.

BESCHORNERIA YUCCOIDES.—I send you a spray of the bloom of this curious *Amaryllidaceous* plant. The loose branched panicle from which it was taken is about 5 ft. high and 3 ft. across. It was planted on the side of a sheltered dell, where it has flourished unharmed many years, though I believe it can only be regarded as hardy in the more favoured spots in Britain.—J. M., *Charmouth, Dorset*. [A graceful and interesting plant, and valuable if hardy.]

CATALOGUE OF ROSES.—We have received a catalogue of exhibition Roses prepared by the committee of the National Rose Society. To any Rose grower it will be useful, inasmuch as it gives the name of the Rose in the first column, date of introduction in the second, the form of the flower in the third, the colour in the fourth, the habit of growth in the fifth, while the sixth is taken up with a few concise remarks. The list seems exhaustive, accurate, and simple, and, we believe, meets a want. The frontispiece is a woodcut illustration of the principal types of exhibition Roses.

NIEREMBERGIA FRUTESCENS.—We lately saw this plant growing in the open border in a garden at Weybridge, and thought at the time that we had rarely met with a plant combining so much elegance and beauty. To those who know it not it may be likened to a perennial Flax, as it resembles one in growth, being very twiggy, but compact and neat, the flowers about 1 in. across and white pencilled beautifully towards the centre with violet-purple. The great value of this plant is its hardiness, for we were assured that it had withstood the severe winters we had a year or so ago. Surely such a fine plant as this ought to become better known.

PARNASSIA NUBICOLA.—This new species is now flowering well in the artificial bog surrounding the hardy aquatic tank at Kew. It is, we consider, the finest of all the kinds in cultivation, its flowers being larger and more attractive. They are borne on stems some 6 in. high, and are about 1 in. across; the petals are pure white, the leaves are like those of the Plantain (*Plantago media*), and form a dense tuft. Like all the other Parnassias, it is a moisture-loving plant, and thrives well with the pot half submerged in water. It is a native of North India, where it is found at elevations of about 12,000 ft.

THE TRAINING OF PELARGONIUMS.—We were pleased to notice at South Kensington the other day a way in which Mr. Wiggins trains his Pelargoniums of the scarlet race. Instead of the very stiff and distorted plan of tying them all, shoots and stems, down to a flat and false ideal shape, he allows the plants to grow more natural, staking them sufficiently, but not distorting their form or habit. The flowers are even allowed to grow at different heights, as is their natural habit, and this is an improvement. Flower above flower is a constant habit of many lovely plants, and any interference with this is a vice. We trust Mr. Wiggins may advance in this direction, grow plants as fine and as large as he knows how, but cheerfully accepting the natural habit of the plant, and encouraging rather than repressing it. We feel sure he will find his reward, not only in the praise of the general and educated public, who are always repelled and even pained by the distortion above alluded to, but in that of his fellows, who will see how much better the natural form is when fairly developed.

LILIUM DALMATICUM.—Those who would like to see what a very handsome Lily the Dalmatian variety of the Martagon really is cannot do better than pay a visit to the Hale Farm Nursery, Tottenham, during the next fortnight. There it may be seen more numerous and probably finer than anywhere else, for particular attention has been paid to collecting together the finest bulbs of it. The plants are in large masses, and every one has produced a tall flower-stem, bearing from six to a dozen and even eighteen blossoms of that rich shining claret colour seen in no other Lily. In our opinion it is one of the finest of all Lilies in cultivation, and now that it has been brought among us in such quantities there is no reason why it should continue to be so seldom seen. Though considered to be but a variety of our indigenous Martagon, it is so distinct that it merits specific distinction in a far greater degree than many other Lilies so honoured. From what we can see of the expanding buds there is every promise of there being a white *L. dalmaticum* in the importation, and if it be a true white it will be even of greater value than the white Martagon.

OUR BELGIAN VISITORS made their first excursion on Monday last. Taking train to Swanley, they first visited Messrs. Cannell & Son's nursery, where they spent some considerable time, there

being much to admire and a good deal to interest them. Afterwards the principal fruit gardens in the neighbourhood were visited, and the Strawberry grounds being in full bearing, the visitors were much interested in the modes of culture and the varieties grown both in the case of Strawberries and other objects of culture. A drive of some seven or eight miles through the chief fruit growing districts took them to Mr. Philip Ladd's market growing establishments at Bexley Heath, where a few hours were spent in going through the multitude of houses filled to overflowing with various classes of things for the market. On Tuesday the visitors were at the South Kensington show, and were entertained by the council of the Royal Horticultural and Pelargonium Societies, and subsequently visited the nurseries at Chelsea. Wednesday was occupied in visiting Mr. Turner's nursery at Slough, the Royal Gardens at Frogmore, and Cliveden, and Dropmore. The following two days were devoted to visiting the chief market gardens in Middlesex and the principal nurseries about London.

BILBERGIA PORTEANA, recently flowered at Kew, is one of the most gorgeous of the genus, and, in fact, of the whole family of Bromeliads. In foliage and habit it is very similar to the better known *B. zebrina*, the leaves being rigid, from 2 ft. to 3 ft. high, handsomely mottled, and arranged in a vasiform tuft. From the centre of this tuft arises the pendulous flower-spike, which overhangs the side of the foliage about 1 ft. The spike is furnished at the upper part with about a dozen large membranous bracts, some 3 in. or 4 in. in length, of a rosy carmine hue, and extremely showy. The flowers, which are loosely arranged below the bracts, are about 3 in. long; they have pea-green perianths and deep blue stamens, which, combined with the mealy whiteness of the spike, form a strange admixture of colours. The stately and at the same time graceful habit of the plant, and the bright colours of its inflorescence, make it a very striking object, and its culture, like that of the majority of Bromeliads, is comparatively simple. Among other attractive Bromeliads in flower at Kew in the stove is *Pitcairnia bromeliæfolia*, bearing on the end of a long slender stem a dense cluster of orange-scarlet blossoms, the plant itself forming a dense tuft of narrow and elegant foliage.

TROPEOLUM SPECIOSUM.—I send you some pieces of *Kalmia latifolia* almost past bloom overrun in the most profuse manner possible by this *Tropeolum*. It is an exceptional specimen I consider for the time of the year. Owing to the mildness of the past winter the growth of last year was not killed, as it usually is, and instead of breaking up from the ground our plants here have burst into growth at once 6 ft. or 8 ft. high amongst the shrubs over which they climb, viz., *Rhododendrons*, *Kalmias*, &c. The specimen sent is taken from the top of one of the latter about 8 ft. high and the same through. Some of the leaves sent are 3 in. across; one is 3 in. by $3\frac{1}{2}$ in. I planted this *Tropeolum* about three years ago. In propagating, when they break from the ground in the spring I take up the young growths very carefully; I follow out the underground stems, divide them and place them in a shallow pan in good soil, and put them in a frame. They soon start into growth, when they are potted off, and when well established they are finally planted among the shrubs. They produce seeds freely, and they are very beautiful on the plant, being of a fine shining purple colour, but soon fall off. Visitors who have seen the plants growing here are charmed with them.—JOHN GARLAND, *Killerton, Exeter*.

* * A most interesting and brilliant specimen of the Flame Nasturtium, garlanding and flecking with a thousand blossoms one of the shrubs

that it loves to live amongst. We begin to be interested in Mr. Garland's gardening for other things than fruit.

CAMPANULA PULLA.—A spreading mass of this charming little Bellflower, such as may now be seen in the herbaceous ground at Kew, is alone worth a long journey to see, and the sight of it is enough to bestir enthusiasm in those even who do not care for hardy plants generally. We have never before seen this *Campanula* so fine, and the mass, consisting, as it does, of hundreds of drooping bells of the richest deep purple, looks as if it had been suddenly uplifted from its breezy home on the sunny slopes of the European Alps and drop down where it now is. The circumstance of its being in such fine condition is all the more remarkable, inasmuch as not a few experience some little difficulty in establishing this species, as, indeed, was the case at Kew until within the last few years. Five years ago it was a tiny tuft from a nursery; the place selected for it, and evidently the right one, was a corner of the *Campanula* bed, close beneath a tall Cypress, which kept the ground rather dry beneath it, but the plant was well exposed to sun and light on all sides except on the north. A deep bed of peaty soil was prepared, and in it was planted the little tuft, and from the first it has gradually gained size and strength till it has reached its present proportions—about a yard square. Everyone who grows hardy flowers should possess this *Campanula*, and in order to ensure success, such a position as that at Kew should be selected for it.

SOCIETIES.

ROYAL HORTICULTURAL.

JUNE 27.

THE plants submitted to the floral committee on this occasion were fewer than usual, though the council room contained some choice groups of other plants.

First-class certificates were awarded to—

RESEDA ODORATA PYRAMIDALIS GRANDIFLORA a long name for an uncommonly fine *Mignonette* remarkable for the large size of its dense spikes and their pyramidal shape. It is one of the finest varieties that has yet come under our notice. Messrs. Vilmorin, Andrieux & Co., Paris.

CROTON PRINCESS WALDECK.—A handsome, erect-growing variety, the leaves of which are broadly lance-shaped, about 6 in. long, and of a bright clear yellow, broadly margined with deep green. Mr. B. S. Williams.

GAILLARDIA PICTA LORENZIANA.—A variety of a popular old hardy plant, remarkable for the florets of the head being tubular and coloured orange and red. The flowers are some 2 in. or 3 in. across, semi-globose, and dense; therefore very showy. It is a valuable and beautiful addition to hardy border flowers. Messrs. Carter & Co., High Holborn.

LYCASTE DEPPEI PUNCTATISSIMA.—A remarkably handsome variety of this well-known Orchid, and one which differs considerably from the type, inasmuch as the flowers are much more copiously spotted, and the labellum not of such a deep yellow colour. A valuable addition to Mexican Orchids. Mr. B. S. Williams.

GLOXINIA MRS. ATKINSON.—A marvellously fine variety belonging to the erect flowered section. The wide-mouthed tubular corolla measures fully $3\frac{1}{2}$ in. across; the throat is profusely spotted, and the rim rich plum colour, while the margin about $\frac{1}{2}$ in. wide, is pure white, copiously speckled with purple. The habit of growth is good, and the plant apparently very floriferous. One of the finest sorts that has been exhibited. Mr. Hudson, Gunnersbury House, Acton.

PAPHINIA RUGOSA.—A singularly interesting and attractive Orchid. It is a small growing

species, with curiously shaped flowers of a wax-like texture. The ground colour is creamy yellow, barred and spotted with deep vinous purple. Mr. B. S. Williams.

PESCATOREA DAYANA.—A very handsome Orchid belonging to a numerous class in which there is a strong family likeness. The flowers are large and waxy in texture, the colours pure white, the petals conspicuously tipped with rich claret, and the labellum wholly of the same colour. The plant shown was a fine example of skilful culture, being in the best of health, and bearing eight fine flowers. Mr. J. Salter, gardener to Mr. Southgate, Selborne, Streatham.

ROSE LADY MARY FITZWILLIAM.—One of the new pedigree hybrid Roses, raised by Mr. H. Bennett, now of Shepperton. It is large and full, the petals being of good substance; the colour is a delicate pale pink, uniformly suffused over the whole bloom.

PELARGONIUM LADY BROOKE.—A second-class certificate was awarded to this new variety, which belongs to what is now called the decorative class, so largely grown for market. The colour is a rich purple pencilled and streaked with a deeper hue. Mr. W. Stacey, Dunmow.

In addition to the above there was a choice group of plants from Mr. B. S. Williams' nursery. It contained a new Croton named Duke of Albany, with long, narrow, bronzy-green leaves, variegated with the brightest crimson and yellow; *Amaryllis* Mrs. Garfield, the new hybrid variety alluded to in our columns last week; *Aralia Regina*, a very elegant plant, with spreading, narrow foliage; *Cypripedium Spicerianum*, a very handsome new Lady's Slipper; *Odontoglossum citrosimum grandiflorum*, the finest variety we have yet seen of this lovely Orchid; *Scuticaria Hadweni*, a singular Orchid, not often seen, having terete foliage and large blossoms; and *Promenæa macroptera*, a curious little species, not showy, but interesting.

A few uncommonly fine Orchids were shown by Mr. G. N. Wyatt's gardener (Mr. Simcoe) at Lake House, Cheltenham; among them was a plant of *Aerides Lobbi*, with a broad branching spike, for which a cultural commendation was awarded, and likewise for a plant of *Bollæa coelestis* (the best variety), which bore six fine flowers. *Galeandra Devoniana* was shown with six flowers on one spike and with two on another; *Cattleya superba splendens* (a beautiful variety) with ten flowers; *Sobralia macrantha*, a fine plant with eighteen flowers, and a big specimen of *Imantophyllum miniatum superbum*, with a dozen fine trusses of highly coloured flowers.

Mr. H. James, Castle Nursery, Norwood, showed a fine plant of *Odontoglossum cordatum aureum*, a variety very distinct from the type; *Masdevallia Harryana splendens*, a truly splendid variety, and the plant shown bore quite a sheaf of large blooms; *Trichopilia picta*, a pretty species with a deal of orange yellow in the labellum, and much spotted; and *Masdevallia vespertilio*, one of the rarest, and also one of the most singular of the chimeroid section of the genus. The flowers are rather small, but beautifully spotted and mottled, and the tiny slipper-like labellum is pure white. Besides the plant certificated, Mr. Southgate's gardener (Mr. Salter) showed cut blooms of *Oncidium macranthum* and the variety of it called *hastiferum*. The latter is superior to the type, inasmuch as the flowers are larger, the sepals broader, and the two lateral sepals are distinctly mottled with a dark colour on a yellow ground. It was satisfactory to see so plainly the distinguishing character of this much-talked-of variety, and to be able to speak of its merits.

One of the greatest attractions in the room was a large group of cut hardy flowers, chiefly Lilies, from Mr. T. S. Ware's nursery at Tottenham. In it were some fine tall spikes of the black Martagon Lily (*L. dalmaticum*), one of the handsomest of all European Lilies. A huge stem of *L. giganteum*, furnished with a fine cluster of its large white flowers, was conspicuous; also *L. pardalinum* and a dwarf and distinct variety of it called *pumilum*. *L. parvum*, *columbianum*, the new *L. Parryi*, *L.*

philadelphicum, *Washingtonianum*, *Szovitzianum* were beautifully shown. The rest of the group included English Irises in fine variety, *Papaver nudicaule*, yellow and brick-red, *Ornithogalum arabicum*, *Saxifraga longifolia*, *Calochortus venustus* and *pulchellus*, *Orchis foliosa*, several fine Carnations, *Spiræas*, *Geums*, and single Dahlias, the whole making a most attractive and interesting display, and well merited the medal awarded to the exhibitor.

A new hybrid Lily, named Scott Wilson, was the object of much interest on account of its being very handsome, and precisely intermediate between its parents, which were *L. Washingtonianum* and *L. superbum*. In the character of the foliage it partakes strongly of the first, but the flowers have more of the last parent, being turban-shaped and of a pale orange-red colour copiously spotted. It was shown by the raiser, Mr. G. F. Wilson, of Heatherbank, Weybridge.

Mr. Dean, of Ealing, showed a collection of Canterbury Bells in perfection, the flowers being uncommonly large, and represented blue, purple, rose, and in various shades as well as pure white. Most of them were of the *Calycanthemum* section, having the corolla duplicated. The same exhibitor also showed a new scarlet Clove, called Royal Marine, the flowers of which are large and full, and of the brightest scarlet-like colour imaginable. A collection of cut spikes of Foxgloves was shown by Mr. Green, from Sir George Macleay's garden, at Bletchingley. They were very fine, mostly of the *Gloxiniiflora* type, highly coloured and beautifully spotted, and showed well what a fine flower the Foxglove is when well grown. Some of the spikes had the flowers arranged all round the stem instead of being all on one side.

Mr. Green also showed a ponderous fruiting spike of *Gunnera scabra*, by far the largest we have seen; also a flowering spray of *Beleperome elongata*, one of the beautiful old Acanthaceae stove plants that are now-a-days relegated to the care of the botanical cultivator, though most unjustifiably.

Messrs. Carter & Co., High Holborn, exhibited in a fine condition a basketful of the dark crimson double Sweet William; also a new dwarf Nasturtium called Ladybird, having large flowers of a bright orange-red beautifully spotted with crimson. The old *Clivia Aitoni* was shown well by the same exhibitors.

Several new hybrid Roses were shown by Mr. Bennett, Shepperton. Besides the one certificated one called Earl of Pembroke was very fine, being of a very deep crimson; likewise another named Henrich Schulfheis, a large and full flower of a deep rose. Messrs. Wm. Paul & Son, Waltham Cross, showed among others their new Rose, Queen of Queens, which promises well for being of high merit; also a new seedling of great promise, and one called Charles Lamb, also very fine.

About a dozen Gloxinias from the R. H. S. Gardens at Chiswick were a great attraction, several of them being exceptionally fine, particularly those named Lucy Violet, Mad. Howlett, Delicate, Mrs. Barron, Boule de Feu, Nellie, Oriflamme (very brilliant), Major Mason, and Chiswick Rose.

Fruit.—Mr. C. Herrin, Chalfont Park, sent fine samples of Stamfordian Tomatoes, large, even, and well ripened, for which he obtained a vote of thanks. Mr. J. Hardy, Stour Valley Seed Grounds, Bures, Suffolk, a new Pea named Signal, a very prolific variety. Recommended to be tried at Chiswick. Messrs. John Hamlin & Co., Wood Green, sent samples of Mushroom spawn and some good Mushrooms. Mr. G. Phillips, The Deodars, Meopham, sent a dish of a new Pea, said to be a cross between Stratagem and Telephone, the pods being large and well filled; it is of medium height and prolific; also to be tried at Chiswick.

Scientific committee.—Sir J. D. Hooker in the chair.—Hollyhock fruits attacked by fungi.—Mr. W. G. Smith exhibited fruits and an enlarged drawing, showing them to be often badly attacked by *Puccinia malvacearum* and *Cladosporium*, which would probably account for the

presence of the *Uredo* noticed by Mr. Berkeley on the germinating plants at the last meeting. Hybrid Lily.—Mr. G. F. Wilson exhibited a very interesting hybrid between *L. Washingtonianum* and *L. superbum*, which accidentally appeared; it had the foliage of the former, but he had not examined the bulb, that of the former species being remarkable for its rhizomatous character. Synanthic flowers of Campanula.—Mr. G. S. Boulger exhibited a flower received from Mr. Gibbs, of Chelmsford, who believes that he has succeeded in forming a race of Synanthic plants by fertilising a common form with the pollen of a Synanthic flower. Of 200 plants raised many had Synanthic flowers, but none with a calacorolla, like the parent (female) which he had used for being fertilised. *Casalpinia* pods.—He also exhibited some pods of unknown sp. used for tanning purposes; they were referred to Kew for identification. Diseased Orange leaves.—Dr. M. T. Masters brought some leaves of plants grown in pots indoors, otherwise healthy, but with pale green and dead spots on the foliage. It was suggested by Sir J. D. Hooker that it might be due to sunstroke. *Retinospora* sport.—Dr. Masters also exhibited a specimen of *Retinospora squarrosa* which had assumed the form of *R. pisifera*. It was received from Mr. Meehan, of Philadelphia. He also exhibited a remarkably golden spray of Spruce Fir, and some virescent flowers of *Auricula*. Monstrous form of Wallflower.—The Rev. G. Henslow exhibited a branch of Wallflower covered with minute thread-like leaves or bracts. Proliferous Begonia.—Mr. Laing exhibited a double rose-coloured Begonia in which the female blossoms were in some cases single, while others formed compact double blossoms with white petals in the centre. The male blossoms consisted of a terminal mass of petals on a stalk, surrounded at the base by several axillary blossoms, all more or less double, forming a cylindrical truss, of from 2 in. to 3 in. in length. A fine fruiting spike of *Gunnera scabra* was shown by Mr. C. Green, gardener to Sir G. Macleay.

PELARGONIUM SOCIETY.

JUNE 27.

THIS society, instituted some eight years ago with the object of promoting the improvement of the various classes of Pelargoniums and introducing new varieties, held its annual show at South Kensington on Tuesday last, when the display of all kinds was so extensive as to fill quite two-thirds of the long tent.

Almost every class, about forty in number, was represented, and in many of them there was a keen competition; indeed, throughout the whole of the exhibition there could scarcely be found an inferior plant.

One conspicuous feature of the show was the want of real novelty. There were varieties in abundance which the expert in Pelargoniums would call new, but no new departure was visible; probably, however, this is the work of time. There was one very noteworthy improvement, and that was among the fringed and spotted varieties called the decorative class. These were shown numerously in grand condition and in great variety, clearly showing what a useful as well as beautiful class of plants they are, valuable for the market grower as well as for the general cultivator. As usual, the large-flowered or show class was augmented by several new sorts, very perfect and refined in form and bright and clear in colour. There was a marked improvement, too, in the other classes, particularly amongst Ivy-leaved kinds, now brought to such a high state of perfection, chiefly, however, by Continental hybridists.

Varieties not in commerce.—There were ten classes, two sections in each, provided for new varieties not yet in commerce, but several of the classes were unrepresented, and in none were there more than two or three exhibitors. Mr. E. B. Foster, the well known raiser of show Pelargoniums, was the only exhibitor in the class for three new show kinds. He had three beautiful varieties perfect in every point named Royal

Review, Veteran, and Zealot, the last very bright and attractive. A variety named Cromwell was shown by Mr. Turner in the single class. Three beautiful varieties were also shown by Mr. Turner in the fancy class, those named Florrie Thompson and Irene being prettier than any other varieties we know. The other, Indian Chief, is a dark flower similar to some others, but of high quality in other respects. New decorative sorts were shown well by Mr. H. Little, who had in the class for three, Rose Superb, Brilliant, and Aurora, all splendid sorts, the last being very bright. Among Mr. George's new three single zonals was one called Emperor, a brilliant scarlet, perfect in form, size, and other points. Mr. Little's one single zonal variety was a pretty deep pink, named Emily Little. The only award among the double zonals was one called Charles Barnard, shown by Mr. J. King, of Rowsham, Aylesbury. It has a fine truss, and is of clear, rich scarlet colour.

The following were awarded certificates of merit:—

LARGE-FLOWERED SHOW VARIETIES.—Diadem, orange, salmon, and carmine lower petals veined with dark, large white throat, rich glossy dark top petals, large and of extra fine for (C. Turner); Royal Review, orange-salmon lower petals, veined with crimson, large dark blotch on top petals, fine bold pip and truss (C. Turner); and Morning, orange-crimson lower petals, veined with dark, rich dark top petals, very fine and rich coloured, flowers of the best form and substance (C. Turner); Brilliant, Statesman, and about a dozen other new varieties were shown by Mr. Turner.

DECORATIVE LARGE-FLOWERED VARIETIES SECTION.—Princess of Wales, a semi-double variety, pale ground, veined and blotched with rosy pink, a somewhat coarse-looking variety, and rough in the truss (H. Little); Poiteau, purple, with dark spots, large and finely formed flowers, very distinct (H. Little); Comtesse de Choiseul, pale blush white, with slight rosy purple blotch on the top petals, very fine, free and distinct (H. Little and C. Turner); Madame Marie Knecht, pure white, with very slight lilac-rose spot on the top petals, very fine, free and good (C. Turner); Vesuvius, very bright crimson-scarlet, orange-crimson top petals, large bold truss, excellent compact habit (W. Brown); Little Pet, pale orange-carmine, dark top petals, a small flowered fringed variety, very free (H. Little).

FANCY VARIETIES.—Irene, blush lower petals, with slight bright rose spots, pink upper petals, with rosy blotch, pretty, delicate, and very pleasing (C. Turner); Florrie Thompson, rosy pink, changing to pale pink on the edges of the petals, conspicuous white throat, very novel and distinct (C. Turner).

DOUBLE ZONALS.—Lovely (Denny), pale ground flushed with salmon, large well-formed flowers, distinct and fine (H. Little); Gambetta (Lemoine), fine glossy rosy scarlet, large and fine (H. Little); Grand Chancellor Faidherbe, dark crimson, large and full, fine form and noble truss (H. Little); Urania, rosy pink, large finely formed pip, bold truss, good habit, and very free (Pearson & Son); Aglaia, crimson, shaded with purple, large and full flowers, fine truss (Pearson & Son); and Duchess of Albany, soft fancy pink, large bold flowers, fine truss and excellent habit (J. George).

SINGLE ZONALS.—White Clipper Improved, a very fine pure white, large well formed pip, good truss and habit, very free (H. Cannell & Son); Lynette (Denny), delicate pink, large well-formed pip, distinct, very fine, good habit. Edith Little, soft delicate pink, very beautiful, fine form, compact truss, good habit (Pearson and Son). Mrs. Gordon, clear bright orange-scarlet, white eye, fine form, large bold truss, very fine, good habit (Pearson and Son).

SINGLE NOSEGAY VARIETIES.—Miss Blanche pink, fine pip and truss, which is very large, good habit (J. George), and to Ivy-leaf, Comtesse Horace de Choiseul (Lemoine), soft pinkish rose, large semi-double flowers, somewhat loose, good

habit, though more resembling that of an ordinary nosegay than that of a variety of the true Ivy-leaf section.

Many other new varieties were staged, especially in the single zonal and decorative large flowered section; and some of the former of Messrs. Pearson and Son's raising were much admired, but it was considered they were not in good condition to admit of certificates being given to them. Doubtless the flowers had suffered through the long journey from Nottingham. It may be stated that the certificated flowers were selected from the whole of the classes, and were not confined to any particular division.

SPECIMEN PLANTS.—These necessarily made the most attractive display, and certainly on the whole they were very fine. The show and fancy varieties, though shown finely, were not superior to those exhibited a month previously at the summer show. As usual, Mr. Little and Mr. Turner contested keenly in the classes for show and fancy and decorative varieties. Mr. Little was first with six plants, having huge specimens of Claribel, Setting Sun, Victory, Prince Leopold, Illuminator, and Sultana. Mr. Turner's half-a-dozen contained some of the above besides Modesty and Amethyst, a beautiful distinct dark amethyst flower. In the class for eighteen, Mr. Turner showed a beautiful and thoroughly representative collection, among which the most conspicuous were Illuminator, Rayon d'Or, Fortitude, Martial, Ritualist, Ruth, Invincible, The Baron, Florence, Chivalrous, and Joe—all excellent sorts, as were also those shown by Mr. Little, which, though taller and rather bigger, where not so neat and compact in growth. The varieties Formosa, Faust, Dauntless, Valiant, and Hermit were very prominent.

The one class for six fancy varieties was competed in by the same two exhibitors, the Slough collection being the best and most uniform, some of the others being rather thinly flowered. The most noteworthy varieties were Mrs. Pope, Mrs. Hart, Electric Light, Lady Carington (very fine), Mrs. Pottle, Princess Teck, Lucy, Pilgrimage, and Mrs. Graham. The decorative varieties made a fine class, and the collection of six specimens was uncommonly good, particularly the first two, which contained Robinia, Duchesse de Morny, Harlequin, Duchess of Edinburgh, Mdme. Thibaut (shown very fine), Venus, Digby Grand, Duchess of Bedford (a beautiful light sort), Prince of Wales, and Triomphe de St. Mande. Smaller, but admirably grown and flowered, plants were shown by Mr. Brown for the third place, and among them those named Fascination, Attraction, Eclipse, and Mr. Dodd were very conspicuous. The same exhibitors in the previous class competed in the next for eighteen plants, Mr. Little being again first, a selection from his beautiful collection including Reamie, Lady Isabel, Defiance, Volonté Nationale, Bracelet, Mad. Thibaut, Improved Triomphe de St. Mande, Blushing Bride, Comtesse de Choiseul (very fine), and Poiteau. Mr. Turner's group included several beautiful kinds, such as Mad. Favart, Nellie Hayes, Mr. Ashby, Delicata, Dr. Masters, and Rosy Morn, all of which should be ranked amongst the best. A smaller, but good, well-bloomed plant came from Mr. Brown.

Zonal varieties made a large display, there being two classes, one for six, the other for eighteen plants, in both the single and double-flowered varieties. Mr. Catlin, as usual, was there with his huge trained specimens and took the first place for six plants. His plant of Rev. Atkinson was fully 6 ft. across, and not much inferior were those of Fanny Catlin, Ouida, Cymbeline, Alice Barton, and Fanny Thorpe, which made up the number. The second prize went to Mr. Little for a group of six plants, all perfect models of good culture, but not trained, the huge trusses only being supported. The varieties were Gathorne Hardy, Ivanhoe, Olive Carr, Hetty, Mrs. Patchett, Atala, all superb sorts. We were pleased to see the judges place this collection before trained plants, which were third, as they are not only finer examples of good culture, but most people like them better, not being contorted so

badly. There were several groups of eighteen of the single zonal class, but those from Mr. Little were much ahead of the others. In his collection was the beautiful pure white Prima Donna, North Star, Mars, Aphrodite, Polly King, Romeo, Evering Star, Guinea, and many other excellent sorts. The double zonals were shown on similarly huge trellises as the singles, the six from Mr. Catlin being the best. M. Thibaut, Gorgeous Devotion, and Dauntless were very fine in his half-a-dozen plants. Collections of eighteen double zonals were shown by several, and again Mr. Little was first. His collection contained mostly first-rate sorts, such as Gambetta, Henri Cannell, Aglaia, Jules Simon, Dr. Jacoby, Roidees Violettes, Paul Bert, Hero, F. V. Raspail, and Urania. The plants were not very large, but, like the singles, were vigorous and profusely flowered. Ivy-leaved varieties were shown well, particularly by Mr. Little, who was first with nine varieties, showing Mons. Crousse, Mrs. H. Cannell, Sarah Bernhardt, Gloire d'Orleans, Anna Pfitzer, M. Emilie Baltet, A. F. Barron, and Jean Woulers. In the next best, from Messrs. Cannell, were smaller but profusely-flowered plants of Rosa plena, Eurydice, Galilee, Comtesse Horace de Choiseul, besides several of those previously mentioned. Other good groups were shown, particularly that from Mr. Duffield.

Special Prizes.

Vegetables.—The collections of vegetables shown in the various classes were of exceptional merit, proving that the season so far has promoted growth and excellence. The chief competition was for the valuable prizes offered by Messrs. Sutton & Sons, of Reading, for twelve dishes of vegetables, not less than twelve fine collections being staged. Mr. Miles, of Wycombe Abbey Gardens, who is always to the fore in these competitions, was first with a grand lot, the only weak feature being found in his Cos Lettuces. He had splendid Nantes Carrots, flat Tripoli Onions, Snowball Turnips, Telegraph Peas, good Model Cucumbers, Leviathan Longpod Beans, Ashleaf Potatoes, Fine-apple Beet, Canadian Wonder French Beans, Walcheren Cauliflowers, and two kinds of Lettuces. Mr. Haines, of Coleshill House, who came second, had some fine Kingsholm Cos Lettuce, Tender and True Cucumbers, Woodstock Kidney Potatoes, and other kinds of vegetables already named of great excellence. Mr. E. Beckett, of Sandown House, a young exhibitor, had a collection of superior quality, and, indeed, the prize collections were very superior.

There were no fewer than thirteen lots of six kinds staged in the competition for the prizes offered by Messrs. Webb & Sons, of Wordsley, Mr. Miles again taking the first place here with Walcheren Cauliflowers, Ashleaf Potatoes, Strata-gem Peas, White Turnips, Nantes Carrots, and white Naples Onions. Curiously enough, Mr. Haines again came second, Mr. Phillips, Meopham, and Mr. Waite, of Esher, having very fine, clean examples.

There was a strong competition for the prizes offered by Messrs. Jas. Carter & Co., High Holborn, for dishes of their fine Peas, Telegraph, Telephone, Stratagem, and Pride of the Market, nine lots being put up. Some of the samples were of extraordinary size though not in all cases well filled, but those placed first and which came from Mr. Richardson, of Boston, were remarkable samples. Mr. Phillips, who came second, had perhaps the finest pods, and Mr. Miles's had the best colour. Some ten dishes of Laxton's Earliest of all Peas were staged for the prizes offered by Messrs. Hooper & Co., Covent Garden, for the best twenty-five pods of that very early variety, and it needed very nice discrimination to ascertain which were the best. Having regard to the splendid samples shown close by of such kinds as Telegraph and Stratagem, it would seem as if prizes for first early Peas should be competed for not later than the middle of June.

Fruit packing.—The valuable prizes offered by Messrs. Webber & Co., of Covent Garden, and

which were competed for at South Kensington, on Tuesday last, though bringing but four competitors, served admirably to show that improved notions as to fruit packing are beginning to prevail. The Messrs. Webber naturally wish that the fruit which come to them in the ordinary course of business should come in sound and saleable condition, for although superb fruit may be sent on its journey over the rail for perhaps fifty or more miles in the most perfect condition, yet, through imperfect packing, it may reach the salesman in a miserable state, and perhaps in transit have been depreciated to the extent of one-half its value. Then senders complain bitterly as to the small returns, when they and their careless packing are alone to blame. Messrs. Webber strongly advocate the employment of fresh-dug, well-cleaned Moss, as softer and very preferable to wadding. It is also cool and non-absorbent. In the competition, Mr. Coleman, of Eastnor Castle, who was placed first, had a good box of black Grapes in capital condition when opened, fine Peaches, wrapped in soft paper, and packed solely in Moss, and a good box of Strawberries. The finest, and certainly a perfect lot of the latter fruit, came from Mr. Waterman, Preston Hall Gardens. These had a bottom of Moss, and top of the same, and a leaf between each fruit. His Grapes were good, but had between each bunch paper and wadding, an undesirable arrangement, whilst his Peaches were packed in wadding. There were four competitors.

Cut flowers, as is generally the case, were shown splendidly in every class, though we think the arrangement of the various boxes is open to a little modification. The miscellaneous exhibits were extensive, and added much to the attractiveness of the tent. Mr. B. S. Williams sent a large group of plants, including several of his huge specimen stove and greenhouse plants. A large collection of this year's seedlings of tuberous Begonias come from Messrs. Laing & Co., Forest Hill, and, as may be imagined, were superb in every respect. Messrs. Cannell & Sons, of Swanley, made a great display with chiefly consisting of zonal Pelargoniums, single and double, and Violas in numerous variety. An extensive collection of Roses in pots came from Messrs. Paul, of Cheshunt, and a very fine collection of cut blooms from Messrs. Paul, of Waltham Cross, and all these, combined with the fine displays Mr. Barron sent from Chiswick, made a fine show.

A full list of awards will be found in our advertising columns.

TURNHAM GREEN AND DISTRICT HORTICULTURAL.

THE second annual exhibition of this Society was held on Thursday, June 22, in the gardens of the Royal Horticultural Society at Chiswick. Its most attractive features were the "Groups," the best of which was that furnished by Messrs. Hooper, of Covent Garden. Though somewhat too uniform it contained good decorative plants. Messrs. Fromow, of Turnham Green, were second with a lighter arrangement, and Mr. Brown of Richmond third. Several other good arrangements were also shown. For Ferns, Mr. Stevens, of St. John's Nursery, Putney, was placed first, having in his collection two *Davallias* not often seen in such good order, viz., *D. pyxidata* and *dissecta*. Messrs. Hooper were first with fine foliaged plants, having a well-grown example of *Phyllotanium Lindenii* and a healthy plant of *Thrinax argentea*. In the specimen class a *Clerodendron Balfourii*, shown by Mr. C. Bown, Endsleigh, Gunnersbury, was finely developed as regards colour. Several competitors entered for the prizes offered for table decorations and bouquets. Mr. Brown, of Richmond, was placed first in both classes. In the former class he had flowers of the white Water Lily and *Passiflora quadrangularis*. These looked well; but on the next tier were pink Begonias and the bracts of *Bougainvillea glabra*, the effect of which was too much sameness. Mrs. A. F. Barron showed some excellent arrangements, not for competition, espe-

cially some consisting wholly of hardy flowers. A group of new and rare plants, shown by Mr. B. S. Williams, contained some choice things. Messrs. Lee & Son also showed an interesting collection of hardy plants, chiefly such as are remarkable for their ornamental foliage; among them were also some well-grown pots of dwarf Roses. Cut Rose blooms came from Mr. C. Turner, of Slough. Gold and silver tricolor Pelargoniums, shown by Mr. Pestridge, of Brentford, were well grown and very attractive. A well-arranged group of attractive plants was shown by Mr. Roberts, of Gunnersbury Park, not for competition. In a circular tent were staged an instructive collection of the so-called kinds of Mignonette, excellent plants, but many of them closely resembled each other; Hemsley's white and the odorata grandiflora of Messrs. Vilmorin and Barr & Sugden, were among the most distinct. These were all shown from the Royal Horticultural Society's gardens by Mr. Barron. For the prizes offered for wild flowers, collected by the children attending the Board schools of the district, sixty-five collections, arranged in bouquets, were staged, showing that the children in this case had evidently entered into the spirit of competition with commendable zeal. A group of hardy plants in flower, shown by Messrs. Osborn, of Fulham, scarcely got the attention which they merited. Among them were *Campanula Scheuchzeri*, a narrow-leaved, erect-foliaged form, with deep violet flowers of the *C. rotundifolia* type, but much larger and finer in every respect, very attractive; *C. persicifolia alba plena*, fine and striking; *Geranium platypetala*, blue-purple, large trusses of showy flowers, fine and distinct; *Erigeron speciosus*, deep mauve, with a conspicuous yellow centre; *E. philadelphum*, clear pink, with yellow centre, small flowered, but very free; *E. glabellum*, pale mauve, with golden centre; *Silene alpestris* opens slightly flesh-coloured, but changes to pure white, very free, makes an excellent plant for a pan; *Tradescantia virginica azurea*, a very rich blue-purple form with large flowers of striking character; and a *Potentilla*, a large kind with double, golden-yellow and very full flowers. With these was a basket of small plants of *Hedera Helix madeirensis variegata*, the leaves deeply and handsomely edged with pure white. If this pure variegation will but stand in positions where the plants are exposed fully to the sun, it will be a great acquisition. Fruits and vegetables were also shown in this tent, but amongst them there was nothing remarkable except a very fine lot of Peas, shown by Mr. Richardson, of Boston, Lincolnshire, in competition for Messrs. Carters' prizes. The sorts were Telephone, Telegraph, Stratagem, and Pride of the Market. These closely resembled each other in the pod, though their habit of growth may be different. Had all the pods been packed indiscriminately together it would have puzzled an expert in Peas to have separated them again. J. H.

Odontoglossum vexillarium.—Two beautiful varieties of this lovely Orchid reach us from Mr. Peacock's collection, at Sudbury House, Hammersmith. They admirably show what a wealth of variety there is in this Orchid alone, which assumes so many colours. These two varieties are named *sudburyense* and *violaceum*. Their foliage has a uniform purplish tinge, without even a trace of green.

Cattleya gigas.—From Dr. Paterson's garden at the Bridge of Allan comes a gorgeous bloom of this *Cattleya*, one of the finest and richest coloured we have seen. He also sends a magnificent bloom of *Cattleya Mendellii*, known as Boyd's fine variety, for which such a high price was given last year. The doctor evidently knows how to grow Orchids well to be able to produce such flowers as these.

Rating nurserymen's glasshouses.—Is it legal for the parochial assessors to levy a rate upon glasshouses erected by nurserymen for growing plants and flowers for market and the trade over and above the ground rental of the land? The experience of some of your readers on this point will be considered a favour.—M. J.

OBITUARY.

MR. R. A. OSBORN.—It is with great regret that we have to announce the death of the last male representative of the long established and much respected house of Osborn, of Fulham. Mr. Robert Arthur Osborn died last Sunday night at eight o'clock of consumption, at the age of twenty-eight years. It is but a few years since his uncle and his father (the late Mr. Thomas Osborn represented the house) were in health and intellect—all one could desire. When they died—too soon—the management of the business fell on this young man, who unfortunately has been cut off far too early. He leaves several sisters, one of whom is married to Mr. Ewing, of Norwich. It must be a matter of regret to all interested in our older and finer nurseries that death should have been so busy among a family that has done so much to keep up the high character of the nursery trade.

MR. JOHN SHERRATT, of Spring Grove, Bidulph, died on the 20th ult., aged 53. He was for some years gardener to Mr. James Bateman, at Knypersley, and was occasionally an exhibitor of rare plants and fruits at South Kensington.

Rust in iron pipes (J. H.). If the pipes are kept always full I do not think you will be troubled with rust. This can be done with a small cistern in the same way as hot-water pipes are kept full.—B.

Worms in manure (F. J.).—Spread the manure thinly on a flat surface, when the birds will soon destroy all insects that may be in it. A poultry run would be a good place, and further enrich the manure.—B.

Churchyard gardens.—Through the kindness of Lord and Lady Brabazon, the churchyard of St. Mary's Haggerston, has been converted into a recreation ground for that thickly populated parish. The ground has been tastefully laid out by Mr. Holmes, of the Frampton Park Nurseries.

Christchurch (New Zealand) Exhibition.—Messrs. J. B. Brown & Co., Cannon Street, have, we learn, received a gold medal for their galvanised wire netting at this exhibition, and also one at Adelaide not long ago.

Ants are the most assiduous labourers we have in transporting all insect pests which infest plants and depositing them in the cylindrical petioles of *Dracena* leaves and similar places, then covering them with such material as they can find. To prevent them carrying mealy bug into the bunches of Grapes, we tied a small piece of cotton wool round the stem of each bunch, and find this to be an effectual barrier to their progress.—J. RIDDELL, *Wentworth*.

Books (J. B. E.).—Thompson's "Gardener's Assistant," Blackie & Sons.—"Glasgow" will find in the "Insect Hunter's Companion," by the Rev. Joseph Greene, 2nd edition, 1870, published by Van Voorst, price 1s. 6d., all the information he may require respecting the collecting, killing, and setting of butterflies, moths, and beetles.—G. C. G.

Names of plants.—*J. C. T.*—2, *Lychnis diurna*; 6, *Centaurea Cyanus*; 7, *Centranthus ruber*; 8, *Lychnis chalcedonica*. Our rule is to name but four plants at a time.—*J. C.*—1, *Stachys lanata*; 2, *Tragopogon major*; 3, *Dactylis glomerata*; 4, *Poa pratensis*.—*W. H.* Apparently *Lathyrus Vissolia*.—*F. F. (Newry)* and *J. Wood*.—Please send again.—*A. C. B.*—*Convolvulus mauritanicus*.—*C. D. & Sons*.—1, *Campanula glomerata speciosa*; 2, a *Mesembryanthemum* (send when in flower).—*E. W.*—*Erigeron philadelphicus*.—*J. Carter*—*Chrysanthemum segetum*.—*Mrs Wynne*. *Ornithogalum arabicum*.—*A. M. M.*—1, *Campanula grandis*; 2, *Limnanthes Douglasii*; 3, *Deutzia scabra*; 4, apparently a species of *Cotula*.—*W. S.*—Cannot name.—*E. D. E. N.*—1, *Bulbophyllum calycinum*; 2, *Anagallis tenella*; 4, *Adiantum hispidulum*.—*G. C.*—1, *Aspidium aculeatum* var.; 2, *Athyrium Filix-fœmina* var.; 4, *Asplenium filicoides*; 5, *A. bulbiferum*; 6, *Cyrtomium falcatum*.—*H. M.*—*Pernettya mucronata*.—*G. B. T.*—*Cattleya Harrisonii*; the red flower is *Alonsoa incisifolia*.—*R. C. B.*—*Sedum glaucum*.—*G. A.*—Apparently *Woodsiailvensis*.—*Pyrus*.—1, *Deutzia scabra*; 2, probably *Spirea Nobleana* (send when in flower).

COMMUNICATIONS RECEIVED.

R. G.—A. C. B.—E. A.—W. C.—G. G.—J. G.—H. H. D.—F. G.—R. J. L.—W. T. R.—J. C.—D. T. F.—J. S. W.—G. J.—J. K.—W. K. & Co.—W. W.—M. L.—A. D.—C. S.—W. D.—S. H. S.—Delta—R. C. B.—J. G.—F. R. M.—C. W. D.—C. M.—F. M.—G. C.—W. M. W.—J. C. & Co.—G. C. G.—W. T.—W. G. S.—J. B. P.—R. G.—J. S. & Sons—J. S.—G. F.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

BALL-ROOM DECORATION.

WE were interested to see recently one of Mr. Wills' decorations for a London ball, and were struck with his boldness and good taste. But this is no new quality on his part, as everybody knows. The plant that struck us most of all, and which leads us to say a few words here about it, is the new *Hydrangea paniculata grandiflora*—the fine long heads of flowers of this leaning out of the masses of green and flowers with a true and new dignity and looking well by artificial light. This is a noble shrub, fine for indoor or outdoor work, but its good qualities indoors surprised us. The tendency of all such decoration in London and elsewhere, except when the hand of J. Wills adds grace to them, is overcrowding and jumbling together, the usual vice, in fact, of the London florist, which leads his arrangement often to look tawdry and poor. Any plant that stands out boldly like this *Hydrangea*, and which will not be repressed or levelled into the "pudding" form, is a great gain. Beautiful *Coccos*, feathery *Palms* as they are, add a great charm to these evening decorations, and are indeed the best feature of them. Without the grace of the *Palm* nothing good can be done in that way. The little plants and the flowers may be rammed into any monstrosity, and so placed that they are degraded almost, from the wrong colours being packed together, and all their delicate forms crowded up, but with fine bold *Palms* this is impossible; they arrange themselves. A great charm of such decoration for the future will be the *Orchids*, not merely the rare, stiff, or costly, or because they happen to be *Orchids*, but the finer and more graceful types, which are so supreme in beauty of form. Used sparingly, and not thrown together in the usual way, they will be great aids to the tasteful gardener.

TABLE DECORATIONS.

PERHAPS the description of a few arrangements of simple table decorations may interest some of the readers of THE GARDEN. In those I am about to describe there is nothing striking or expensive, but just a few simple flowers, bought at a small cost in a florist's shop, and the vases decorated were only a centre and three trumpets rising out of a tazza, with four glass baskets and four specimen glasses grouped round. The first arrangement I shall describe was as follows: In the tazza of my stand were deep rose-tinted *Pæonies*, white *Daisies*, deep rose-tinted *Cornflowers*, French Fern (as it is termed in the market, but really *Asplenium nigrum*; if it does come from France, I have picked quite as good in Devonshire, but not so early in the season), with a few *Grasses* intermixed; then out of each of the three branching trumpets I had a light shade of *Pæony*, white *Sweet Peas*, *Ferns*, and *Grasses*, and the top was finished off with white *Sweet Peas*, *Cornflower*, a very light coloured *Pink*, *Daisies*, *Ferns*, and weeping *Oat Grass*. The baskets and glasses I dressed lightly with the same flowers just enumerated; when this decoration got faded, I next used the following flowers in the bottom dish: White *Water Lilies*, blue *Cornflower*, *Ferns*, and *Grasses*, and in the trumpet, white *Lilium candidum*, *Sweet Peas*, *Cornflower*, *Ferns*, and *Grasses*, and the same in the top trumpet, with the addition of white *Rhodanthe*. The baskets I filled with white

Water Lilies and *Ferns*, and the specimen glasses with *Cornflowers* and *Rhodanthe*. My next arrangement was in pink and white. In the lower dish were put white *Water Lilies* and pink *Gladioli*, *Ferns*, and a light pink-tinted *Grass*; in the branching trumpets *Lilies*, pink *Rhodanthe*, *Sweet Peas*, and white *Gypsophila*; the centre trumpet I dressed to match, and the baskets and glasses were in the same style. At present my decoration is in blue and orange. In the tazza I placed single yellow *Water Lilies*, *Ferns*, and yellow *Daisies*; in the trumpets a mixture of *Daisies*, blue *Borage*, *Ferns*, and *Grasses*, and the smaller glasses contain the same flowers. By re-cutting the stems and using fresh water daily, I only fill my stands on Tuesdays and Saturdays, and some of the flowers are perfectly fresh when I take the arrangement down.

ANNIE TYRRELL.

THE VICTORY OF THE LEAST BAD.

YOUR remarks on table decoration at public exhibitions will not have been made in vain, if they will only be the means of inducing the managers of such displays to reform their schedules. Judges are often sorely puzzled how to act in accordance with the schedules and at the same time so as to do justice to exhibitors. For instance, offering a prize for a dinner table decoration, either for daylight or for artificial light, makes it very difficult for the judges to decide in cases in which competition runs close; there ought to be two distinct classes. The tables shown for artificial light should have the lights or the means of lighting placed on them; many of the tables shown would puzzle anyone to find space for accommodating the lights. If the schedules were more explicit and distinct as regards what is either required or prohibited, it would be of great assistance both to exhibitors and judges. I agree with you that wiring flowers for either dinner table or drawing-room decorations ought to be prohibited, and for a drawing-room decoration flowers not placed in water should be disqualified. Only last week I saw a set of vases for a drawing-room which took a first prize; in one of them *Water Lilies* were laid on a mirror which formed the base of the vase. Under such circumstances how could flowers be expected to last? They reminded one of a fish out of water. To lay flowers down in that manner is simply wasting both them and the time taken to procure them. The practice of laying flowers or foliage on a dinner table and not in water ought to be, as I have said, discouraged. In many cases the flowers laid on the dinner table would suffice to furnish the vases in the house for a week, but when laid on the table without water they lost only one night. Next morning a fresh supply is needed, which involves a serious loss of time just when one's services are wanted elsewhere.—N.

SUMMER NOTES ON HARDY PLANTS.

THE recent notes by Messrs. Froebel will help to encourage your readers who are pursuing the culture of alpine plants, for it is now clear that no expensive rockwork is needful, and that even the rarest alpine gems can be successfully grown in ordinary gardens and by merely amateur gardeners. A great many of our most interesting alpine plants are grown here upon very slightly raised beds, the soil of which has been carefully prepared to suit peculiar plants; some portions contain lime rubbish, some are sandy, and some have a large mixture of peat and a moist situation; some are in sunshine, others in shade, and upon all are placed stones of some sort or other, but principally large boulders and flints, by which the beds are divided up into spaces, in each of which a plant nestles, and is thus kept to itself. *Saxifragas* are so placed that they can form bosses upon the stones, as they display their peculiar beauties the best when thus grown. *Primulas* and shade-loving

plants are placed deep down in a hollow, and each plant has its peculiarities cared and provided for as far as possible.

I have just been examining one of these beds for alpine plants, and it is quite a picture. The rare *Edraianthus dalmaticus* is just coming into flower in two patches. It is a most interesting and beautiful plant, allied to the *Campanulas*, having tufts of purple flowers resembling *C. glomerata*, but much smaller. These are borne at the ends of stems, which have leaves like mountain *Pinks*. One stalk, erect in the centre, bears a tuft of blooms atop; the others radiate like the spokes of a cart-wheel, and each bears its rosette at the end. The second plant is not yet quite fully in bloom, but appears to have flowers nearly white.

In other nooks there are the two varieties of *Erinus* in flower, viz., *E. albus* and *E. hispanicus*; in others there are the lovely dwarf *Campanulas*, *C. garganica* and *C. Portenschlagiana*, and some eight or ten of the smaller *Saxifragas* and *Sedums* are also in bloom. It is on miniature rockeries like these that such tiny alpine plants can be best seen and cultivated, and the boulders amongst which they nestle protect alike from cold and heat, and afford a ready means of shelter by laying a sheet of glass above the plants in wet or frosty weather. For *Androsaces* this is the very best plan of rockery, and they seem quite at home amongst the boulders. My friend, Mr. Wolley Dod, said he should cover all his borders with stones after seeing these, and I have no doubt others also will follow the example by the further aid of Messrs. Froebel's instructions (p. 421, Vol. XXI.). *Gentiana cruciata* is flowering well with us this year under the lee of a big rock, where it shows dense tufts of deep blue flowers. *Androsace lanuginosa*, which flowered badly in the early spring, is now putting forth a plentiful display of bloom. There are forty or fifty heads of bloom on one large plant. Its Himalayan cousin, *Primula rosea*, is also blooming plentifully the second time, and so is *Primula cortusoides*. *Irises* of all sorts are doing very badly this season—their leaves are yellow, and it seems as if all had suffered from the excessive rains we have had of late. The *Campanulas* are unusually fine, and are just now our most interesting plants, but there is little of novelty to remark about them. *C. macrantha* is quite 7 ft. high, with large, purple flowers; this is the grandest of all the *Campanulas*. *Oxalis floribunda* is a very beautiful object with us just now, forming a round boss of the richest pink. A large mass of *Myosotis Imperatrice Elizabeth* is also very lovely; this *Forget-me-not* is a most valuable one for summer bloom, and is of a very deep rich blue. *Silene alpestris* requires plenty of sunshine to bring out its white flowers to perfection. I see it scarcely flowers at all in the shade. It is the same with the *Dianthus*es. They all like the barest places on the rockeries where they get all the sunshine possible. In such situations they are a blaze of colour, but with the slightest shade, either of rock or bush, they flower very sparsely. The *Potentillas* are just now in their glory, and are well worth cultivation; some of the double varieties are exceedingly effective. They should, however, be placed where they cannot grow over other plants and where they have plenty of room. *Roses* are doing well with us, having come rapidly forward with the sunshine we have had lately. It is well to remind all florists that now is the time to put in cuttings and offsets of hardy plants for next season. Bear in mind also if you have a pet plant that others would like to share it with you, and get ready a reserve stock for exchanges. When the proper time comes round get a copy of the "Hardy Plant Catalogue," and mark in it a full list of your duplicates, which will enable you

to exchange with your friends to the advantage of all, and in this way your collection will increase rapidly.

BROCKHURST.

Didsbury.

FRUIT GARDEN.

RE-MAKING A VINE BORDER.

IN reply to "R. H." (p. 453, Vol. XXI.), permit me to say that he may lift and replant his Vines as soon as the wood is ripe, and before the foliage falls. If the roots have the run of external and internal borders, one of them may be taken out and remade immediately after the last bunch of Grapes is cut, provided the work is carried out with dispatch, and the house is properly supplied with warmth and moisture until new growth of the roots and laterals sets in. But in the event of the Vines having one border only, either inside or outside, then the lifting should be delayed until the foliage is losing its colouring matter, and the fruiting buds are properly made up and matured. This point having been disposed of, preparations should at once be made by obtaining a sufficient quantity of suitable turf from an old pasture, if procurable, and stacking it in the open air ready for chopping down when wanted for use; also a few loads of old lime rubble, charred refuse, or burnt earth—if burnt with wood, so much the better—and crushed bones, the latter in sufficient quantity to make twelve per cent. of the whole when mixed up. Good, clean drainage will also be needed, and as time is an important factor when the work is taken in hand, all these materials should be prepared and placed conveniently near before lifting is commenced. As the time fixed upon approaches, the first operation will be the mixing of the compost, which may be turned over once or twice to insure an equal distribution of the different materials, and thrown up into a sharp ridge or cone, when it will most likely ferment, and be in the finest condition for use after it has lain for a week or ten days. In addition to the above, thin sods of newly cut turf equal to the superficial area of the border will be needed for placing, grass side downwards, over the drainage before the compost is wheeled in to the border, and a few loads of the same will do good service in carrying up the retaining wall, provided a portion of the space originally allotted to the roots is to be left for future additions. Although the practical gardener is alive to the importance of conducting every operation when the weather is dry and fine, it may not be out of place to inform the amateur that it is always better to defer the work than to persist in carrying it on when the weather is against him.

Lifting.—All the materials, including compost, which should be protected from wet, turf, drainage and concrete for the bottom being ready and close at hand, a good staff of men armed with steel forks should commence operations throughout the whole length of the front of the old border by carefully forking out the soil and removing it to a distance. Every root must be carefully preserved and kept sprinkled with water if the day is bright and drying, and when the whole of the compost has been removed the roots may be tied up in bundles along the front of the house, well syringed, and protected with wet mats. Hitherto we have been engaged in the removal of inert matter, which has performed its work as far as Grape growing is concerned, and in the preparation of materials for building up a new border, and as the foundation of a Vine border is of very great importance, we will commence by directing attention to the drainage. If the old border has been any length of time in use, it will be well to turn the whole of the material formerly used for drainage quite out, as old roots and inert soil will have found their way into it. The cross drains running from the front of the house to the main drain along the front of the border area must next be examined, and if they are not quite clear and the fall in every way satisfactory, no time must be lost in getting them corrected, as the concrete may re-

quire mending, and time to become firm should be allowed before the drainage is put in again. I ought to observe that all the cross drains should be slightly depressed and concreted beneath the pipes, and the front or main drain should be 1 ft. beneath the bottom of the border, well concreted and filled up with clean broken stones, bricks, or clinkers. If the piecemeal system of making the border is adopted, 6 ft., 8 ft., or 9 ft. in width will be quite sufficient to commence with; and as it will not be wise or necessary to cover more of the concreted bottom with drainage than the width decided upon, strain a line parallel to the front of the house and build up the drainage all over the bottom to the height of 1 ft. or more by setting all the largest and flattest stones on their edges and cover with the finest pieces, rough gravel or broken clinkers.

Making the border.—If the day promises to be fine and suitable for working amongst new compost, commence by covering the drainage with a layer of thin turf, the Grass side being put next the stones, and with the same material raise the front or retaining wall some 6 in. to 9 in. to form the boundary; then wheel in the compost, tread it moderately firm and even all over the bottom, add another 9 in. to the turf wall, fill in again, and now the bed will be ready for the first layer of roots. The mats which have been kept moist may now be removed from the roots, as the whole of them will have to be spread out and examined before they are covered with the soil. All the strongest may be shortened back, and smaller, but not less valuable rootlets and fibres which have been twisted or in any way injured must also be cut back with a sharp knife to clean sound wood, and laying may be proceeded with; but if the roots are numerous and good, the whole of them must not be spread out in one layer like a piece of ham in a sandwich: all the lowest roots must be taken first, covered slightly, and made firm and even until all of them have been relaid, the first layer being 9 in. to 12 in. below the surface and the last quite close to it. The whole of the border may then be surfaced and made level with a slope to the front and well covered with fresh stable manure to keep in surface moisture. As winter approaches the covering must be increased to make the roots secure from frost, and old lights or shutters will do good service in throwing off cold rain and snow.

Management of the house.—If the weather is bright and dry when lifting is commenced, it will be well to shut off fire-heat and keep the house quite close, moist, and regularly syringed, and it may be shaded through the day, otherwise the root supply of moisture being cut off, the foliage will soon flag, and this, if possible, should be prevented, as the stored-up sap will greatly facilitate the formation of new roots, which should become active before the Vines go to rest. For some time after lifting it will be necessary to keep the old leaves fresh by occasional syringing and damping, and when, by their sharp, crisp appearance and the formation of fresh laterals, however trifling, it becomes evident that the roots are again at work, air may be admitted, syringing discontinued, and the Vines allowed to go to rest.

W. COLEMAN.

ABOUT PEACH GROWING.

"How are your Peaches this year?"—"Oh, bad. You remember the storm on that Saturday some weeks ago? Well, it shrivelled them all up, and very few are left. I am so fond of Peaches; it is most annoying."—"Why don't you put them under glass?"—"Look at the expense; I would if it was not so much."—"What would it cost you?"—"Oh, a lot of money. I am afraid to inquire. More than I can afford, I know."—"I don't know so much about that. Let us go and see how Jones's are getting on. Jones is a queer fellow; never does anything in the ordinary way. He has built a wall without bricks, a roof without a gutter, has gearing to open lights without iron-work, trains his trees on wires no bigger than tea twine, and grows them in boxes about the size of clothes trunks."

We find a Peach house 100 ft. long, only 5 ft. 6 in. high in front, 7 ft. 6 in. high at the back, and 6 ft. wide; you can reach any part without a ladder or even steps. The house next the boiler is the early house, 40 ft. long, and has No. 4 4-in. pipes; the other house, 60 ft. long, is the late house, and has No. 2 4-in. pipes; in the ground, 8 ft. centre to centre, are tanks of concrete slabs 3 ft. long, 3 ft. wide, and 3 ft. deep. In the bottom of each tank is a hole, and under it, in a vertical position, a common 4-in. drain pipe with a brick over the top to keep the rubbish out. In the bottom of the tank are 6 in. of broken bricks, and on that turf with the grass side downwards, the object being to keep the bottom sweet and to prevent water-logging. The tanks are filled with red turfy loam, in which the trees are planted. So much for the trees now for the house. The sides of the tanks stand about 6 in. above the ground, and on this Jones has laid his sill, bevelled so that the water cannot lie on it, only instead of being outside, as all well-regulated sills should be, to catch the wet and rot quickly, it is inside, and the rain never touches it. The bars are outside the sill and run down to the ground, or nearly so, and a slate stuck into the ground and bedded on the bars with putty, just as a square of glass would be, makes all right at the bottom. The upright bars are 3½ in. by 1½ in., rebated and chamfered; the roof bars are the same size, with struts at intervals to prevent raking; the back bars are the same section. The bars are simply mitred at the angles, like a picture-frame; the eave plate and the head at back are inside, out of the wet. By this arrangement no gutters are required, and all the rain water that falls on the roof runs down over the front glass into the border, so that the trees in front are watered by the rain, as if no roof was there. The ventilators are sashes hung to loose rails, and screwed on wherever required. A wooden rod and a wooden cog opens a length of 60 ft. with great ease, and an Oak fillet, like the joint of a parallel ruler, connects the rod with the ventilator both for the front and the roof. All is glazed with putty. Jones does not believe that putty has been beaten and some of his friends quite agree with him.

"What did it cost you?" we asked. "Well," said Jones, "the cost of this was mixed up with some other matters, but the builder was here the other day, and I told him I had been asked the cost, and I should like to know what a range like it could be erected for. He said the cost of tanks, slate back, wall front and roof, the two walls wired for trees with ventilators in front and roof, 10 ft. apart; early house, 40 ft. long, with No. 4 4-in. pipes; late house, 60 ft. long with No. 2 4-in. pipes and saddle boiler, would be £235, and it is made up by taking the front roof, two ends, and a division at £102, a wood lattice path at £13, wiring front and back at £10, heating with boiler, pipes, and valves at £50, stoke-hole at £12, and twenty-four tanks for trees at £18; the back wall of slate and bars costs £30, and if any of the above items were omitted the cost would be reduced in proportion."

"When was it built?" we asked. "Here comes the gardener," says Jones; "he will give us all the information we want respecting it."

"The house," says Jones's gardener, "was put up in 1873, and the trees planted the same autumn. I picked a few fruits in 1875; since then the trees have borne regularly about 1200 Peaches and Nectarines in all every year. The early house I started on November 1; in January it was in flower, set in February, and the fruits, about 200, were ripe in the middle of June. The late house I started January 18; it was in flower in April (and a beautiful sight it was), fruit set in May, and they will be ripe about the middle of July, and generally last through August and into September. At present there are about 1000 Peaches and Nectarines on the trees, which may be taken as the average."—"Well, but when you talk about starting in November, it must cost a lot for coke to keep up heat all through the winter. What do you suppose now the two houses with their 1200 Peaches cost you in firing for the whole year?"—"I have not," said Jones's gardener, "kept those

houses separate, but I think if I say £5 it will be about the mark."—"And how much time?" say we. "About two hours a day for one man, taking all the year round," said Jones's gardener. I fancy I hear someone saying, "I would give something to see this Peach house!" Well, take the train from either Victoria, Charing Cross, or London Bridge to East Croydon; then ask for Middleheath, Sydenham Road North—that is Jones's house; go in at the garden gate, and ask for the gardener. You may cross-examine the man as much as you like, and if you find I have overstated anything, write and say so.

W. H. LASCELLES.

Melons.—I was pleased to see High Cross Hybrid Melon favourably noticed lately in THE GARDEN. We grew a crop of it here last year, which turned out satisfactory, each plant having carried from four to six handsome, finely flavoured, but lightly netted fruits. We give some of the most noted new Melons a trial annually, and as the result we consider, up to the present, that the best three are Wm. Tillery, High Cross Hybrid (green flesh), and Blenheim Orange (scarlet flesh), each being free in growth and bearing, and of excellent flavour. Wm. Tillery is a good late as well as an early Melon.—J. R., *Tan-y-Bwlch, North Wales.*

Melons in 6-in. pots.—In answer to "J. G.'s" inquiries respecting the Melons in these at Chirk Castle, I may just state that the plants are strictly confined to their pots, and that they are grown on shelves close to the glass where pot Strawberries have been fruited in the early part of the season. The Melons have produced a very satisfactory crop, and Mr. Hutley, the gardener at Chirk Castle, informs me that they were of good flavour and very much appreciated. The fruit averaged about 2 lbs., and each plant carried one and sometimes two fruits. The kinds were Hero of Bath, Eastnor Castle, and Reid's Scarlet Flesh. Two fruits to a plant in such small pots are quite enough, though I have often grown four and five fruits on a plant in 12-in. and 14-in. pots, the fruits weighing 3 lbs., 4 lbs., and 5 lbs. each, and of good flavour.—J. CLARKE, *Brynkinalt.*

Melon (P.).—Large enough and good in flavour, but nothing that would justify it being made a "new variety" of. We have eaten much larger Melons with a perfect flavour.

EDITOR'S TABLE.

IRIS AUREA.—Very pure and fine in golden colour. Sent by Messrs. Rodger, McClelland from a specimen 5 ft. 6 in. in height.

TEUCRIUM LATIFOLIUM.—A distinct and strange bush reminding one of a Sage, but with a habit distantly resembling a Rosemary. From Messrs. Veitch.

ARNERIA ECHIOIDES.—A second bloom on this curious and pretty plant, which seems easily grown in many parts of the country. From Mr. Bartholomew, at Reading.

INDIGOFERA FLORIBUNDA.—Shoots full of pretty little rosy crimson Pea flowers. An elegant bush for wall or rocky bank. Does not last cut. From Messrs. Veitch.

COLUTEA FRUTESCENS.—Like what we used to call *Sutherlandia frutescens*; an interesting plant for a low wall, but without character to give it a place among really useful plants.

CLEMATIS COCCINEA.—Very brilliant, from Coombe Wood. We are pleased to see it so very fine—handsome bold buds of intense coral-red, and curious and good form. At the time we gave a coloured plate of this we feared it might have been exaggerated in colour, but this is not so.

Recently grown plants are rather stronger and bolder than those which we used for the figure. It is perhaps best to be under the mark; in any case it is well to draw what one sees.

SPIRÆA PALMATA.—Brilliant in its foam of rosy buds and blossoms. Sent from a specimen at Coombe Wood 4 ft. in diameter. One of the finest herbaceous plants introduced for many years.

PHYLLOCACTUS CARMINATUS.—A smaller Cactus than those mentioned recently, but no less beautiful and no less worthy of a place in gardens, as the form is good and the colour vivid.

SALVIA INTERRUPTA.—Seems a distinct species, but whether a good garden plant or not one can hardly say without seeing its habit. From Messrs. Rodger, McClelland, who have so many interesting plants.

MAGNOLIA SOULANGEANA NIGRA.—A noble kind, which has been in flower at Messrs. Veitch's Coombe Wood Nursery off and on since March. The colour is peculiarly dark and very good, especially in the bud state.

DAISY LITTLE BEAUTY.—A very pretty little double "common" Daisy, deep rose towards the centre, gradually fading away towards the edges. One of the sweetest little things we have seen for some time. From Messrs. Rodger, McClelland, of Newry.

VERONICA TRAVERSI.—A charming hardy bush. One of the New Zealand Veronics that are worth growing and which will succeed everywhere. Flowers numerous, pretty, and of a lilac and white colour. It is said to be very hardy. From Coombe Wood.

SPIRÆA PALMATA ELEGANS.—This is a poor plant which bears, with an addition, the name of a very fine one. It is really an old and poor *Spiræa*, which has been sent out again by some enterprising person with a new and wrong name substituted for its ancient one.

ESCALLONIA MONTANA.—Reminding us strongly of one of the smaller species of *Fuchsia*. Though not so attractive as a cut flower as the other species sent from Coombe Wood at the same time, it would probably have a good and distinct effect in the open garden.

AJUGA BROCKBANKI.—A dwarf pretty blue plant; the spike long and the colour intense. It would make a very excellent ground or carpet plant, and is an excellent front border one, or for creeping round the margin of a group of shrubs. From Messrs. Rodger, McClelland, Newry.

PHYLLOCACTUS GRANDIS.—The very beautiful ivory-white, free-flowering Cactus we have mentioned in previous years as so admirable for house decoration. Some nurserymen ought to collect the best flowering Cacti; they are worth having for cut flowers. From Mr. Peacock, Sudbury House.

BRODIAEA (MILLA) LAXA.—Very handsomely grown; from Mr. Elves. These plants, having a good form of flower, bold and singular habit, and fine glossy purple colour, are a distinct gain to the flower garden in midsummer and worth a dozen plants merely distinct botanically. We had nothing like them before, though they remind us a little of the African Lily.

PRIZE WHITE LOBELIA.—A very graceful little plant of the *L. Erinus*, or so-called "bedding" section. From the pretty form of its numerous white blooms we think something very nice might be made of this as a pot plant for indoor decoration, or even as cut flowers in bunches. It has the innocent look of our best northern *Violas* and other plants, while quite distinct in form.

GLADIOLUS COLVILLEI.—Messrs. Cripps, of Tunbridge Wells, send us some seedlings of this plant, to which we are glad they are paying attention, for it is well to encourage the early forms of *Gladioli*. Some of them are hardy enough for naturalisation in the warmer parts of England, and are good shrubby plants. They are also valuable for cutting, especially the lighter and more delicately coloured forms.

LONICERA SEMPERVIRENS.—How handsome this beautiful Honeysuckle is, and what a pity it is that we do not make more of it than we do in gardens! Crucifying it against the wall is not enough. Very good from Coombe Wood. Nothing surpasses our own Honeysuckle just now, but the colour of the red kind should secure it a better fate than it usually meets. Can any of our readers tell us the conditions that suit it well?

POTENTILLAS.—We have a great many of these from Messrs. Cripps, but, as we have more than once said, their curious reluctance to form good doubles or good singles makes us rather tired of garden *Potentillas*. The ones in the group which please us best are the pure yellows. We admit they are showy and free, but there is a want of refinement and decision in the forms and they are terrible runners if they get into a rich border.

THE SPOTTED ORCHIS.—Mr. C. Fowler, who grows tropical Orchids so well, sends us a beautiful series of *O. maculata* "picked in a meadow in Cardiganshire, near Newcastle Emlyn, where hundreds of similar spikes were growing." They are so beautiful, they are well worth cultivating. The variety, as regards colour, is charming. A good broad tuft of each would, in a few years after being planted in a moist border, give an excellent result.

PHYLLOCACTUS MULTIFLORUS.—One of the most valuable of the numerous species; though its flowers are somewhat smaller, they are very brilliant and produced profusely. If the plant is well set with flower-buds they will continue to expand in an ordinary dwelling room, the dry atmosphere of which evidently suits it well. Some bright blooms of it of a vivid vermilion-scarlet, from Mr. Peacock's garden, show well what a valuable flower it is.

ENOTHERA SPECIOSA.—A fine old plant that should not be lost sight of, as its large white blooms, well formed and numerous, come in so usefully either indoors or out. The canary-coloured centre contrasts well with the pure white of the rest of the flower. It comes very well grown from Mr. Beedell, of Warrington, who will, we trust, form another of the "hardy plant" nurserymen. Let him secure 500 species as good as this, and no poor ones, and he will not disappoint either himself or his customers.

ANDROMEDA SPECIOSA PULVERULENTA.—A shrub with Lily of the Valley-like bells, but about twice as large as those of Mr. Hawkins' best growth. We know of nothing more fair and singular than the rich racemes of these lovely bells and the delicate sea-green leaves which half hide them. A precious flower for

the breakfast table or any other place in the house where its rare form may be seen as much as possible. It is so quiet in colour, that it will not be "popular" if only grown for outdoor use. It should be grown for cutting if for no other reason.

DELPHINIUMS in good variety from Messrs. Cripps, who seem to be increasing their hardy flower collections. We hope they may make them as full as their collections of trees and shrubs. The flower life of the northern and temperate world is more numerous represented by herbaceous than by any other class of plants. For one good shrub there are many good flowering hardy plants. There are perhaps too many, and what is required is a careful selection and good culture to make the hardy flower departments of our best nurseries as interesting and important as those of shrubs, evergreens, or trees.

CARNATIONS FROM HOWTH.—From the Hill of Howth "St. Bridgid" sends a little box of *Souvenir de la Malmaison* Carnation flowers which seem to have gathered to themselves all the sunny air of the Hill. Mr. Douglas says he does not admire this Carnation, but while we admit its form is rather wild, surely its delicate colour and intense fragrance should make it worthy of a place in every garden. "St. Bridgid" is the lady who grows the *Anemones* so well, and we trust she will succeed a little in showing a passion for flowers instead of some other unruly passions now prevailing in the Green Isle.

ESCALLONIA PHILLIPIANA.—A charming bush, indeed; dense sprays of pretty white blooms and buds. We believe that when well grown it will be the best of all its race, handsome as some of them are. Is beautiful in the cut state, which is a distinct merit. Every hardy bush, or tree, or flower, which charms us by its form, colour, or fragrance when closely examined has the highest stamp of merit. Dinner table decoration is all very well, but the breakfast table should have the fairest flowers of the day seen in the light of day. Too much has been made of the dinner-table as compared with other ways of having flowers in the house. From Messrs. Veitch.

WATSONIA.—A plant not often noticed in the open garden, but in the cut state admirable in its brilliant colour and good form of flower; the spike, too, is elegant in habit. The species sent by Mr. Elwes is *W. Meriana*. It may stand for a type of plant which, while not thought much of in the garden, may afford the happiest effect in a room properly placed. We hope not a few readers are trying many flowers in a cut state and in various positions. We must have many different kinds of glasses and vases—the simpler in form and material the better—to get a good result. Position, height, and surroundings are most important. It may be necessary to try a flower in half-a-dozen different positions before finding that in which it looks right.

BORDER PINKS.—A few of our novelties in the class of border or cutting Pinks. This group has of late years attracted, as it deserves, more attention than formerly, with the result that many new types are being produced, not only in the flowers, but, what is more important, in the more robust and healthy habit of the plants, and also in the much longer season during which they continue to bloom, as the buds will show.—*DICKSON & Co., Edinburgh.*

[The kinds sent from Edinburgh by Messrs. Dicksons are *Mrs. Grieve*, *Tom Welsh*, *Pilrig*

Park, *Mrs. W. Walsh*, and some seedlings with good qualities. These border Pinks are sometimes called cutting Pinks, and with good reason, as they are so useful as cut flowers. To prolong the bloom of any such plants is a very great gain, and we hope Messrs. Dicksons may succeed as much as they desire in this respect.]

FLOWERS FROM DEVON.—Mr. Archer-Hind sends a few flowers, of which he furnishes a list, but he specially directs attention to a spray of the old Musk Rose, which appears to be almost lost to cultivation. In addition to this he sends the *Tutsan* (*Hypericum Androsaemum*), *Hypericum pseudopatalum*, *Mimulus cupreus*, *M. cardinalis* var., *M. aureus*, *M. varieties*, *Paris Daisies*, *Aquilegia chrysantha*, *A. flavescens* and varieties, *Lathyrus rotundifolius*, *Potentillas* (varieties), small yellow *Oenothera*, *Gladiolus illyricus* (from New Forest), *Galega* (white and lilac), *Cape Marigold*, *Dimorphotheca* (a good annual), *Anomatheca cruenta*, *Campanula garganica*, *C. garganica hirsuta*, *Solanum jasminoides* (very graceful), *Viola canadensis*, *Helianthemum* (flore-pleno), double purple *Geraniums*.

POPPIES.—"These are self-sown seedlings from last year. The plants seem weak and the blooms are small; only the blazing reds seem to come a good size. It is a pity the more delicate colours are not sold separately. All these have degenerated in form from their parents of last season, so it would seem to be useless trying to save seed, except carefully. The blush kind seems peculiarly pretty, so I am putting the flowers in muslin bags to ensure self-fertilisation, if possible; but I am afraid those minute black insects which inhabit flowers and seem to feed on the pollen have more to do with crossing flowers than any of their larger brethren. Some of the red Poppies have a better effect in the garden with their tumbled (Scottish, "touzy") heads than if more formal in outline. Some of the parents of last year were as regular in outline of concentric and crossing arcs of circles as a geometric diagram. These were sold as dwarf Poppies. They are mostly 4 ft. high, but many things become gigantic with me. My *Gloxinia*-flowered Foxgloves have mostly exceeded 5 ft., and one reached 6 ft. 3 in. before half-a-dozen blooms had fallen from the central spike."—*JAMES DUNDAS.*

BORDER PANSIES.—"Some twenty varieties of fancy Pansies composed of different shades of Wallflower colours, all of which are more attractive when grown in masses than as single plants. It is well known to growers that for exhibition the blooms must be protected from hot sun and dashing rains, and the plants fed so that they may produce the enormous size of blooms seen on the show tables. In many cases, unfortunately, these extraordinary examples are obtained at the expense of the health of the plant. The general public who wish to grow them for home decoration would do well to be satisfied with quantities of medium-sized flowers, which come naturally, are more lasting, and make a finer display than a few extra sized blooms. Those sent are taken from plants grown for seed and cuttings, quite unprotected, and, of course, exposed to the heavy thunder showers we have had lately." So write Messrs. Dicksons and Co., of Waterloo Place, Edinburgh, whose Pansy collections are admirable, and we think many of our readers will agree with them. The names of the Wallflower hued forms are as follows: *Happy Thought*, *Walter Houldsworth*, *Captain Halford Thompson*, *Mrs. James Thomson*, *Major Molesworth*, *W. E. Gumbleton*, *Evelyn Bruce*, *Mrs. M. H. Miller*, *Jupiter*, *James Whitton*, and *Edith*.

FLOWERS FROM CIRENCESTER.—I send a few flowers. 1. *L. Martagon dalmaticum*, to show how completely this form reverts to the common *Martagon* after some years' cultivation in this country. 2. *L. Washingtonianum* var., the only plant I have been able to establish out of several dozen which I have grown, first and last, and this has thrown up three stems equal to the one I send. Curiously enough, it is the only Lily left in a border I made purposely, and filled with Lilies four years ago. I have *L. Humboldtii* 7 ft. high with twenty-eight flowers in another place, a mere accident, however, for the more I see of Lilies the less I know how to grow them. 3. Various forms of *Milla* (*Brodiaea*) *laxa*, *M. ixioides*, and *M. longipes*, all raised from seed in three years, and pretty strong, as you see. 4. *Watsonia Meriana* (= *fulgens* and *iridifolia*, Hort.). All the *Watsonias* are flowering extra well this year, owing to the mild winter, both in the open ground and in frames, and capital plants they are. 5. *Orchis hircina*, a very fine plant. What a pity it smells so bad. It lasts a long time in flower, and is not more difficult to grow than other *Orchis* and *Ophrys*. I found it abundant in Brittany. 6. Three vars. of Foxglove from seed; nothing handsomer than these in my border now. 7. Three early-flowering *Gladioli* (*insignis*, *blandus*, &c.), all quite worth growing. 8. A Californian bulb, raised from seed, which at first sight seems very like *Milla ixioides* (*Calliprora lutea*), but which is very differently formed, and is new to me.—*H. J. ELWES.*

* * Correspondents should send a letter or memorandum with the flowers sent, and not the day after or the day before they arrive.

KITCHEN GARDEN.

SUMMER LETTUCES.

IT demands some forethought and considerable attention to produce crisp, well-flavoured Lettuces throughout the summer, whatever the weather may be. In very hot, dry summers partial failures and blanks in the supply are apt to occur, sometimes caused by circumstances over which the grower has but little control, but oftener through mismanagement. Where a good supply of water exists, and the necessary labour for applying it when needed is at command, Lettuce culture in summer is a labour of love; but in many, indeed in the major portion of gardens, these favourable conditions are not to be found. The Parisian market growers, under a more cloudless sky than our own, find no real difficulty in producing crisp, delicately flavoured salads, even when rain has not fallen for many days; but they have as much water as they require, and they do not grudge labour in applying it. With them the more sun the better the flavour, as the roots being in rich soil which is kept almost at saturation point, growth is made at a rapid rate. Radishes, too, are grown in like manner, mostly on spent hotbeds, so that in Paris one may get them as tender in a time of prolonged drought as they are with us in early spring; whereas the samples of this esculent that one sees in the London markets after some ten days of hot, dry summer weather are perfectly hard.

Preparing the soil.—If we cannot imitate the French growers in one respect, we may in another; if we cannot give our plants so much water as we would like, we can give them plenty of good food; and where the soil is light and parched, we can deepen it, and cover it with a mulch of some kind. It is during July and August that the greatest difficulty is experienced in obtaining well-hearted, delicately flavoured Lettuces; and it is just at that time that they are, as a rule, most needed. I have grown summer salads in a much hotter and drier climate than our own, and I

never found much difficulty in keeping up the supply when I devoted a piece of ground to them. The Lettuce likes a rich free good soil, but I am inclined to the belief that it has a dislike to rank manure. If I had to sow or plant directly after manuring, I would, if possible, use only mere rotten manure, preferring the clearings out of hot-beds, as this can be very liberally applied; and where the natural staple is close and heavy, baking hard in dry weather, it acts beneficially in more ways than one. In the case of sandy, light loamy, or free alluvial soil there is no need to touch it much before March; but where one has to deal with stiff, tenacious loam, verging perhaps on clay, I would throw it up into rough ridges early in autumn, or by the beginning of October at the latest. The good that ridging up in winter does to soils which do not crumble readily at the touch of the fork is incalculable; allowed to remain thus through March, the good effects of it are still more marked. Choosing a dry day after rain, the ground should be levelled, breaking each lump, and later on digging in a good dressing of manure. If fresh stable manure is employed, it ought to be employed in April, but in a more decomposed state any time up to June might do. Light porous soils, especially where a "pan" or layer of hard matter exists a foot or so under the surface, should be well broken up to a depth of 18 in. or more, or there will be but little chance of carrying a crop through without "bolting" in periods of severe drought.

Sowing.—After the end of May we would never think of transplanting Lettuces, as so doing involves a considerable amount of labour, for which there are no compensating advantages, excepting perhaps the saving of a little seed; and the results are in every way inferior to those secured by simply thinning out to the required distance when the young plants have got into the rough leaf. In sowing, a favourite way of mine is to draw a broad drill with a hoe about 3-in. deep, sowing the seed in the centre of it. Should the weather prove very dry, I water the drills, sow the seed immediately, and cover it in the usual manner, and then, with some litter or old mats, protect the drill from hot sun. I know then that in ten days I shall get almost every seed up—that is, if it can be relied on for freshness. Some watchfulness is of course necessary, so that the covering is withdrawn the instant the plants appear. Many thin out to the distance required for the development of full-sized Lettuces at once; but this is by no means the way to make the most of the ground and the seed. By leaving them 4 in. apart, every other one may be drawn when rather less than half grown, and, although not so tender as the heart of a matured plant, they will be found sufficiently good to prove useful in many ways. A succession is only to be kept up by continuous sowings from June to September, at intervals of ten days, the quantity sown to be regulated by the wants of the household.

Mulching.—This is almost indispensable on light soils, and is a great help in all cases, as it keeps the ground cool, and saves the water-pot. It is well to allow the plants to get several inches high before applying it, as the hoe can then be used about them. Littery manure is certainly the best kind of mulch, as it serves two purposes, protecting the roots and feeding them; but any light non-conducting material will do, the sweepings from the lawn not being at all bad for the purpose, though these must be laid on thickly.

Varieties.—There are so many kinds in cultivation now that it is impossible to indicate one as being the best. Most growers have their favourite, and possibly soil and situation exercise some influence on Lettuces as on other things. One cannot err in taking Paris white Cos for the main crop; it comes large enough, and has every other good quality. But if something more imposing is in request, there are Kingsholm Cos and Alexandra Cos; and in the way of Cabbage kinds we have All the Year Round and hardy white Dutch, both of excellent quality. J. C. B.

TOMATOES IN THE OPEN AIR.

In the case of the Tomato, training and pruning do much to ensure fruitfulness. There is, unless the growth is checked by pinching, a tendency to over-luxuriance in the Tomato, which prevents the fruit ripening in the short period available for bringing the crop to perfection. Of late years, owing to the seasons being unfavourable, Tomatoes have only paid for their culture in the warmest and sunniest spots, and sometimes even then disease has seized upon the fruit and rendered it useless. The best way of treating Tomatoes is to confine their growth to a single stem; to leave on them all their main leaves, but rub off constantly all shoots springing from the stem, and so compel all progress to take place upwards only. Pinch out the leader one leaf or joint from the first cluster of flowers. This for the time being gives extra strength to the flowers, causing a better set, and giving an impetus to the early growth of the fruit. Soon, however, another shoot breaks away from the place where the leader was pinched. If more than one shoot starts, the weaker should be rubbed off, and all growth confined to one stem. Another truss of flowers will soon appear, when the leader should again be nipped off, and so on until the stem is laden all up with regularly placed bunches of fruit. In no other way can so much be made of Tomatoes in the same space, and after all the labour is not much. Simply training the leader in without the stopping does not give so good a result. For home use I find Criterion a great favourite. Perhaps for sauce making, some of the larger kinds might be more profitable, but Criterion is both early and prolific. E. H.

Late Broccoli.—Allowing that Cattell's Eclipse and Sutton's Queen are first-class late Broccolies, they are not equal here to Carter's Summer, which is later than either, and far more compact in growth than Late Queen. We had the three during the past season growing side by side on a piece of ground occupied for years by Strawberries. After the fruit was gathered the plants were cleared away, and the Broccoli planted without any further preparation or manure. The result is, that all produced good heads, and came into use in the order named, the latter carrying us well into the month of June.—J. R.

Peas at South Kensington.—Messrs. Carter have every reason, I think, to be satisfied with the competition which they annually secure for their Peas. I was glad to see the other day such fine produce shown for their prizes, but if they wish growers to continue to take an interest in the competition, they should, I think, see that the rules laid down are strictly adhered to. It has been distinctly stated that four kinds of Peas must compete, viz., Stratagem, Telephone, Telegraph, and Pride of the Market, but in the competition last week the third prize was awarded to a collection in which there was no Telegraph, Telephone being shown in two dishes with a Telegraph label attached to one of them. No two Peas are more distinct in colour. The mistake was pointed out to the exhibitor before the judging began, and one would like to know how the judges came to award a collection thus deficient a prize. As a non-exhibitor, and speaking without any prejudice, I am sure in doing so they were not doing justice to Mr. McIndoe's fine four distinct dishes.—CAMERIAN.

SHORT NOTES—KITCHEN GARDEN.

Rhubarb and Mushrooms (R.).—Both may be shown in a collection of vegetables, except otherwise stipulated in the schedule.

Galls on Cucumber roots (Anon).—No trace of insect life could be found in the little galls on the Cucumber roots sent, though they look like the result of insect punctures. Probably the Cucumbers may yet outgrow them.—G. S. S.

Turnip-rooted Beet.—This is excellent early in the season. We have been pulling it quite large enough for use for a month past from seeds sown in March. The same thing could not have been done with the long-rooted kinds. Its flavour and colour too are excellent.—E. H.

NOTES OF THE WEEK.

APPOINTMENTS.

- July 11. — South Kensington Royal Horticultural Society Meeting of Fruit and Floral Committees.
- „ 12. — Ealing and District Show.
Frimley District Flower Show.
Cardiff Rose Show.
Ipswich Rose Show.
Woodford Annual Show.
- „ 14. — Manchester Royal Botanical Society Rose Show.
Rothsay Pansy, Phlox, and Pink Show.
- „ 15. — Birkenhead Rose Show.

A DOUBLE MARGUERITE.—I send five blooms of a double Marguerite, also a few leaves for your inspection. I believe I hold the stock of this flower, which will winter well.—H. H. H., *Darlington*. [We have seen it before, and believe it is in commerce. That sent is a semi-double form of *Chrysanthemum coronarium*.]

PERNETTYA FLORIBUNDA.—The showy *Pernettya floribunda* is just going out of flower. This variety should be more grown than it is. Several hundred bushes here have been quite covered with masses of delicate white flowers, and would be a valuable addition to beds and borders of American plants.—D. DARTWALL, *Tunbridge Wells*.

AQUILEGIA CHRYSANTHA.—This beautiful Columbine, so easy to grow, is very fine with me this season. I have a plant of it in moist peaty loam in full bloom between 5 ft. and 6 ft. high. *Dodecatheon Jeffreyanum* growing in the same kind of soil attains the height of 2½ ft. *Ranunculus cortusæfolius*, quite hardy here, in similar soil and in a shady situation, has been blooming for some weeks. It is a vigorous kind, which, when doing well, ought not to be disturbed—not broken up.—J. WHITTAKER.

GIGANTIC WALLFLOWER.—I have growing in my garden in front of one of the Orchard houses a Wallflower plant of the German strain. It bears two spikes which have attained the extraordinary height of 7 ft., and they are still flowering at the points. The plant is loaded with seed. After it has done flowering and the seed ripe, I purpose sending the whole plant to the Botanical Society of Edinburgh. Have any of your readers ever seen or heard of such a tall Wallflower?—ALEXANDER PETERSON, M.D., *Bridge of Allan, Fernfield*.

FLOWERS FROM AYE.—I send a flower and leaf of a very handsome *Spiræa* which grows here into a large bush 6 ft. high, with many flower-stems. What is it? [*S. Aruncus*.] Our plants of *Kalmia latifolia* have not bloomed since 1879, when they were finer than the blooms sent. The plants are very old. The *Azalea* which has a scent of Honeysuckle has been here more than ninety years. The blue Morocco Daisy is much admired.—M. E. C. [The blue Morocco Daisy is *Bellium rotundifolium diceruleus* and good in colour, though more a mauve than a blue.]

CHOICE HARDY PLANTS.—At the last show at South Kensington, Mr. T. S. Ware sent from the Hale Farm Nursery, Tottenham, a choice group of hardy plants, consisting chiefly of Lilies grown to perfection. Some of the most noteworthy were the old white, *L. candidum*, *L. pardalinum* in variety, numerous varieties of *L. Martagon*, including the white and black, the nankeen-tinted *L. testaceum*, *L. Browni*, *L. Parryi*, *L. Szovitzianum*. These were supplemented by a fine lot of cut blooms of *Gladiolus The Bride*, numerous *Calochorti*, *Papaver nudicaule* in variety, *Geum coccineum* fl.-pl., and various bulbous plants, the whole forming a most attractive group, and showing well what a wealth of colour and elegance there exists among hardy plants.

ROSE SHOW AT THE MANSION HOUSE.—A few days ago a great show of Roses was held at the Mansion House, under the patronage of the Lord Mayor, in aid of the funds for the Royal Hospital. The show was an excellent one, and the Egyptian Hall and the courts leading thereto were crowded with Roses and plants, all effectively arranged by Mr. Forsyth Johnson. The cut Roses, of which there was an enormous quantity, were chiefly disposed in huge masses, and none were in the ordinary lines usually seen at Rose shows. The exhibition was a great success. Besides the Roses, Messrs. Cannell, of Swanley, had a very extensive display of plants, chiefly Fuchsias, arranged so as to form canopies over the mirrors and other portions of the rooms and courts.

PHACELIA CAMPANULARIA.—I send you herewith a specimen or two of a new annual *Phacelia* of Californian origin, Dr. Gray's *P. campanularia*. Had the genus *Whitlavia* been retained, it would have ranked near *W. grandiflora* (Harvey), but, as you know, *Whitlavia* is adopted only as a sectional name in the recently published "*Botany of California*." The flowers are at least twice as broad as in Harvey's plant, and are of a most beautiful intense blue with an oblong white spot alternating with the lobes of the corolla. It forms a low branching tuft nearly 1 ft. across and 5 in. to 6 in. high, but commences flowering while still small.—W. THOMPSON, *Tavern Street, Ipswich*. [A very beautiful blue flower and a real novelty, which we propose to illustrate in colour as soon as possible.]

BORDER AND ROCK PLANTS.—Amongst those in the Vienna Botanic Gardens the following are at present very attractive, viz., *Campanula pulla*, *C. pusilla*, *C. muralis*, *C. Portenschlagiana*, and *C. Scheuchzeri*. Equally fine are *Delphinium cashmerianum* and *Centaurea Fenzlii*. Some of the *Pentstemons* are now at their best, especially *P. Digitalis*, *P. speciosus*, *P. campanulatus*, and *P. barbatus*. *Mimulus Roezli* looks as if it would make a good flower garden plant, its habit being neat and its flowers (a peculiar reddish yellow) produced in abundance. *Epilobium angustifolium* is at home in the shrubberies. *Astragalus alopecuroides* is remarkable for its elegant foliage and peculiar yellow flowers; *Spiraea arifolia* is also most attractive.—LOUIS KROPATSCH, *Laxenburg*.

A ROCK GARDEN under glass to be planted with Ferns is, we learn from *The Scotsman*, to be constructed in Prince's Street Gardens, Edinburgh, a bequest of £1500 having been left by a Mrs. Ross for that purpose. The drawing for it shows a series of three dome-shaped buildings, the central and largest of which is 60 ft. in diameter. The smaller ones, connected with the central building by corridors 32 ft. in length by 25 ft. in width, take the shape of projecting wings of elongated form, the front elevation of each being domed, so as to preserve the general character of the design. The width of the wings will be 37 ft., and the height from the level of the garden 30 ft. The central house will be 47 ft. high. The superstructure, built of iron and glass, will have a frontage of 200 ft. The rockery is to consist of winding paths, caverns, recesses, and rugged projections studded with Ferns and other suitable plants—the rock-work reaching to a height of 15 ft. Outside the covered fernery rockeries will also be formed, and furnished with hardy Ferns and plants.

GLOXINIAS AND TUBEROUS BEGONIAS AT READING.—In Messrs. Sutton's nursery there is at present one of the finest displays of these beautiful flowering plants which anyone could wish to see. Different classes of flowers are grown well here. Earlier there was a fine show of herbaceous *Calceolarias*; then come the sub-

jects now under notice, and these will be succeeded by *Cyclamens*, *Primulas*, and other useful plants, but I question if any of them will equal the *Gloxinias* and *Begonias* as regards exquisite colours and massive beauty. Low span-roofed houses are quite filled with each class, arranged on stages from 2 ft. to 3 ft. from the floor, so that the whole can be conveniently seen. Few named varieties are cultivated, the bulk being improved and carefully selected seedlings. Some of the *Gloxinias* measure as much as 2 ft. 6 in. through the leaves, and a five-shilling-piece might be easily accommodated in the inside of some of the blooms. In the old kinds the best of the colours were very much out of sight, being too far down the tubes to be easily seen unless looked into, but in the improved seedlings the richest colours have been brought up much nearer the edges, the effect of which, especially when seen from a distance, is much more striking than in the case of the old kinds. Of the *Begonias*, too, one cannot speak too highly; in every respect they are excellent.—CAMBERIAN.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The thirty-ninth anniversary dinner of this institution took place on the 29th ult. at the Albion Hotel, Aldersgate Street. The chair was taken by the Lord Mayor, and the sheriffs and other civic notables were present, together with nearly 200 visitors, including representatives of every branch of horticulture. Among those present were Comte Oswald de Kerchove, governor of Hainault, and about twenty other Belgians then in London. The Lord Mayor spoke approvingly of the objects of the institution. He remarked that it was little less than a reproach on lovers of gardens in this country, who number many thousands, that an institution of this kind was only enabled to support about ninety aged pensioners out of the very large and ever-increasing numbers who needed their sympathies. He urged gardeners especially to do their utmost to support their infirm brethren, and likewise employers, to whom gardeners add so much to the pleasures of life. Other speakers also made strong appeals in the interests of the institution. The secretary announced that the subscriptions on this occasion amounted to about £600.

AT THE ROSE SHOW at South Kensington, on Tuesday last, one of the finest and most extensive displays of plants and cut flowers was that made by Messrs. Barr & Son, 34, King Street, Covent Garden. This group occupied all the available space on one side of the conservatory, forming a massive bank of plants and flowers, amongst which the most conspicuous were *Lilies*, *Larkspurs*, *Marguerites*, early *Gladioli*, *Carnations*, *Ixias*, and other Cape bulbous plants, *Hydrangea paniculata*, and *Irises*, each of which could be seen by hundreds. In the group were also hosts of flowers with which one seldom meets, such as *Morphixias*, *Wachendorffias*, *Babianas*, *Calochorti*, and numerous other bulbous plants. We likewise noticed a fine new variety of *Hæmanthus Catherineæ* named Alice Barr, without exception the finest of the genus yet in cultivation. This exhibition formed a kind of relief from the crowds of Roses that filled the corridors on either side of the conservatory.

A GOOD MISSION.—We have had the pleasure of a call from Mr. Charles Gibb, of Montreal, and Professor Budd, of Iowa, both on their way to Russia to look after fruits and trees likely to thrive in the Northern States and the great cold and hot prairies of Iowa and the north-west. Most American fruits in cultivation have been raised from South European, or say mild European, kinds, and they are in constitution unable to endure the cold of the great central lands of Northern America, where the heat is intense in summer and the cold great in winter. The

gentlemen rightly suppose that the Russians and the Northern Germans have varieties and species of fruits and trees which are calculated to endure a colder climate. They seem to us to take a really sound view of the matter, and to do well in going to the spot to find out what is really worth growing in those latitudes. We are all too much attached to our own villages, so to say. Both gentlemen seem ably fitted for the work, and we look forward to their gleanings with much hope; and not only in the interest of the colder and more difficult regions of America, but also in those of our own country. Though the word winter-killing is not common in our language, we have the fact to a very large extent. It is quite the rule in England to plant a great number of trees which are wholly unfitted for the climate, and which perish miserably after a few years. We, too, have something to hope from turning over a new leaf as regards trying northern forms more fitted to endure our climate.

It has been proposed to hold a *Carnation* and *Picotee* show at Oxford, in connection with the exhibition of the Royal Oxfordshire Horticultural Society, on August 2, the show to be regarded as supplementary to that of the National *Carnation* and *Picotee* Society, which takes place at South Kensington on July 25. We understand that Mr. E. S. Dodwell has been requested to make the necessary arrangements for carrying out this proposal, which has our hearty concurrence, as it will provide, in consequence of the later date, a more favourable meeting ground for northern and southern growers than the meeting at Kensington will do. To provide the necessary prizes it is suggested that the two above-named societies should each vote ten guineas towards a fund to be raised for that purpose, and that the remainder, about a similar sum, shall be raised by special subscription—say one half from friends of the Oxford Society, and one half from friends of the National Society. We cannot doubt the needful aid will be forthcoming, and we are heartily glad that Mr. Dodwell's health and strength has been so much recruited by his residence in the country that he is able to undertake the supervision of the arrangements. Several donations have been already promised, and a schedule of prizes has been issued.

Hoteia japonica.—Some weeks ago you expressed a doubt whether this plant was ever seen out-of-doors equal in beauty to the forced plants. I have sent a few flowers and leaves from a plant growing in a shady nook facing north, and which gets no sun except an hour in the middle of the day.—J. D. [Good, but not so strong as the indoor plants. There is no doubt it can be well done out-of-doors in good soils.]

WE have received the following circular: 34, King Street, Covent Garden, July 1, 1882. The partnership subsisting between myself (the managing partner) and Miss Fanny Pryor, under the style of Barr & Sugden having ceased, I have commenced business under the style of Barr & Son, at the above address (34, King Street, Covent Garden, W.C.), where all orders will have my personal attention.—PETER BARR.

* * From the foregoing circular issued by Mr. Peter Barr, we learn that the firm of Barr & Sugden no longer exists, and that Mr. Barr will in future carry on business at 34, King Street, Covent Garden, under the designation of Barr & Son. The ability with which Mr. Barr (as managing partner) developed the business of the late firm, will now be transferred to the new one, and cannot fail to secure him an increased measure of success, being assisted by members of his family, who have been specially trained. We heartily wish him the prosperity he so well deserves.

FLOWER GARDEN.

POTTING AURICULAS.

I AM anxious to say a few words on this subject, suggested by the interesting remarks of my friend Mr. R. Dean (p. 441, Vol. XXI.). I fear that some growers may suffer loss by jumping to a too hasty conclusion that Auriculas do not require annual repotting. They would do well to bear in mind Mr. Dean's important proviso before de-

Now, I have always found that almost all kinds, and very decidedly those two named, give perfect blooms only on side trusses. I have seen side and centre trusses on the same plant that could not be recognised as the same variety. The side truss is slow in forming and very slow in expanding; so if the plant has experienced a severe check by being shaken out, and the "carrot" much shortened, the side truss may not either form at all or be too late, particularly with late flowering kinds. I was much surprised to hear

offsets the following year. I once saw a collection which, owing to the illness and subsequent death of the owner, had not been repotted for a year and a half. Some of the plants were in *articulo mortis*, but others which were in good health had a crown of well-rooted offsets, and that in the case of slow propagators like Taylor's Glory and Campbell's Pizarro and Page's Champion. Nevertheless, I must warn inexperienced growers that it is a risky thing to decide that they will not repot. They should be able to judge that a plant really is healthy, and they should turn out every plant to examine the drainage and see that there are no roots discoloured and swollen with moisture, an unerring indication that something is wrong with the "carrot." I fear that Mr. Dean slightly misapprehended me in the matter of spring top-dressing. I always top-dress, but it is with the same simple compost that I pot with; not the unnatural and stimulating stuff that some recommend. I certainly do not think it a matter of prime importance that every plant should be top-dressed. Those that have filled their pots with roots, which are bristling up to the surface, are benefited by a fresh supply of food, and consequent strength for the supreme effort of their existence—the perfecting of an abundant bloom. But I do not see much use in top-dressing a plant when, on stirring the surface, no roots are visible. However, on this subject, as on all other points of Auricula culture, I am open to correction and thankful for instruction.

FREDERICK TYMONS (Ck.).

Bashin Hill, Co. Dublin.

TIARELLA CORDIFOLIA.

THIS elegant little plant used to pass for a curiosity generally, and we did not think much of it till we happened to see a sparkling bunch of it last year in the gardens at Munstead. There the effect of its little, graceful, straight shoots and well formed leaves was excellent, as it grew on a broken rocky bank. Being so good in form, so free in its spikes of bloom, and so easily grown and increased, there is something in the plant likely to assist, in more ways than one, tasteful gardeners who are seeking interesting and pretty plants for quiet corners and for "carpets." It is easy to imagine various circumstances in which its delicate growth would be very welcome, either alone or beneath a bolder plant. It is more frequently, but we believe erroneously, called *Mitella diphylla*.

HERBACEOUS PLANTS IN BLOOM.

I CAN fully sympathise with Mr. Wolley Dod in his lamentation over the loneliness in which his treasures live and die, not absolutely wasting their sweetness on the desert air, but having few save their owner to gaze upon them, and rarely anyone ever entering the garden with whom he can talk over the manifold subjects of interest which a garden always presents. I have felt much the same. I hardly ever see anyone here who knows anything about herbaceous plants or alpinists; persons can admire geometric beds, ribbon borders, and carpeting, but herbaceous plants they only consider to be weeds; alpinists especially are beyond their comprehension, and thus if one is at a loss about a name for any plant, there is no one whom one can ask, and we are eventually obliged to trouble the editor of some of the gardening papers with a request to help us. A retired country place has many enjoyments, and it is perhaps well that it should have some drawbacks, and this unquestionably is one of them.

Following out the plan which I adopted in my last paper on this subject, and begging my readers to remember what I have said as to the size of my garden, and my ability to grow selections and not collections, I would give now a list



Flowers and leaves of *Tiarella cordifolia*.

ciding that they will not repot in any given year. He says that the plants should not be in unsuitable soil, the pots not deficient in drainage, nor the plants unhealthy, but have made a generous and healthy growth. When all these conditions are present, I hold that annual repotting is not as necessary as is generally supposed; nay, rather that it may with advantage be dispensed with. This is especially the case with naturally late-flowering varieties like George Lightbody and Richard Headly. Being left undisturbed, growth goes on without check after flowering, and the plant lays up a store of strength for the formation of a vigorous side truss.

lately from some first-rate growers in England that their Richard Headlys never give a side truss, and that the centre truss rushes into bloom and is worthless. This, perhaps, accounts for the fact that this variety, so almost uniquely perfect when in condition, is so seldom seen on the exhibition stage. I must, however, state that I had many other plants of R. Headly this year quite as good as that which was at Manchester, though too late for exhibition purposes, and they had been repotted last year.

There is another advantage in leaving a perfectly healthy plant alone for a season. It is much more likely to give an abundant crop of

of plants in flower with me the first fortnight in June, beginning with the herbaceous borders, and ending with my little rockery. There are, then, three grand clumps of *Lilium davuricum* (Sappho and incomparable), and most decidedly brilliant they are; each clump has from eighteen to twenty stems, and each stem from twelve to twenty blooms, so that they are quite gorgeous in their colouring, also some large clumps of a Lily which I had as *L. pomponium*, but which is, I believe, *carnolicum*, as a couple of small bulbs of *pomponium verum* which I had from Colchester are now in bloom and are certainly different. Mixed with these are some grand plants of *Delphinium* with their various shades of blue, and what can be more stately and beautiful than these plants standing some of them 6 ft. high, or more lovely than the delicate and unusual tint of blue of *Delphinium belladonna*; then there are *Aquilegias* which Mr. Wolley Dod so worthily praises, and of which I know he is so fond. I have *Aquilegia cœrulea* very beautiful, and the hybrid varieties between *chrysantha* and *cœrulea*, and between *chrysantha* and *californica*, these latter being especially brilliant and gay. *A. chrysantha* itself is in flower, and most captivating are its fine yellow, long-spurred flowers. Too much cannot be said in praise of the *Pyrethrums*, both double and single. Not only are they good for the mass of bloom they produce, but because the blooms are so persistent, remaining so long in flower; and while the single flowers are excellent for cutting for vases, the double are equally good for the base of March stands or for baskets. *Anthericum Liliago* and *A. Liliastrium* are both in flower, and although the individual flowers of the former are quaintly beautiful, yet I prefer the latter, as it is so much more floriferous and better adapted for cutting. Double purple and double white *Rockets* are a mass of fragrant blooms. I was very much amused by a very good herbaceous plant grower at Manchester asking me if I knew that, pointing to the double white. I was glad to be able to tell him that I had it in my own garden.

How gorgeous are the clumps of *Papaver orientale* and umbrosum! By-the-by, in Mr. Hammond's garden at St. Albans Court I saw a clump of the latter not more than a foot high. Is there a dwarf variety of it? All that I have ever seen have grown from 2 ft. to 3 ft. high. Both of these are excessively showy, but require to be kept within bounds, and the flowering heads of the forms cut off after they have done blooming, as they are ungainly. The little *Meconopsis cambrica* is a pleasing contrast to these more showy members of the family. *Geum coccineum* fl.-pl. is in flower. *Vernonia amethystina* is a most brilliant shade of blue, while on the front rockery a mass of *Veronica prostrata* two yards long by one wide has been very beautiful. Some of the *Irises* have been in fine bloom, especially the curious *chalcidonica*. *Phyteuma betonicaefolium* is very pretty, but not to be compared in interest to *Phyteuma comosum* which has not as yet flowered with me. *Lychnis viscosa*, *Hemerocallis flava*, *Verbascum phœniceum* are all well known common plants. *Eryngium bellidifolium* is, I suppose, the plant to which Mr. Wolley Dod alludes, and a capital plant it is, continuing a very long time in flower and very useful for cutting. It will thus be seen that my garden has been noticeably gay during a time when, if I had depended on bedding out plants, I should have it filled with a number of small plants just beginning to make their growth, from which no blooms could be had instead of the endless variety these have afforded me. There is one other plant I should mention, and that is *Tropæolum speciosum*, for instead of, as usual, the foliage dying down, it survived the mild winter, has sent out fresh foliage from the stems, and has now quite a supply of its brilliant scarlet flowers, so that its capability for our southern climate cannot be questioned. And although not strictly within my limits, I may, with a little pardonable pride, refer to a grand bed of *Ranunculuses*, 32 ft. long by 4 ft. wide, which was one mass of bloom during this period of all colours from white to black, of all shades of marking, edged and spotted, comprising some of

the best of Lightbody's and Tyso's seedlings, a bed which I venture to think nowhere in the southern counties could be matched, and yet not one who could appreciate its beauties came to see it.

I am almost ashamed to write about my rockery after having lately seen that of my friend, Mr. Hammond's; still, mine is that of a "little man." For instance, I may say that I have a nice little clump of *Ramondia pyrenaica* in bloom, but I am at once reminded of the magnificent quantity of plants that he has, and of which I hope by-and-by to say something. However, perhaps mine pleased me as much. Then at the top of the rockery a mass of *Rosa pyrenaica* was in full bloom, and this leads me to say what a glorious sight our wild *Roses* are this year; I have never seen them so fine. The *Edelweiss* has done very well wherever I have placed it, and was well in bloom. *Dianthus neglectus* and *glacialis* are two gems, but I do not think that the wet, mild winter suited them quite as well as a more severe one; they flowered well, but not so finely as I have had them. *Silene alpestris* is another delightful and easily grown alpine with pure white flowers; *Dianthus cæsius*, very full of bloom; *Campanula Allioni* I have almost lost, having been, I fear, weeded out by mistake. *C. turbinata* and *turbinata alba* are useful and easily grown plants. In the only little damp place I can manage I have had a delightful clump with ten flowering-stems of the American *Lady's Slipper* (*Cypripedium spectabile*). Last year several of the flower-stems had two flowers on each stem, but this year I find that only one has them. Near to it *Orchis foliosa*, not yet well established, has thrown up a flowering-spike. When established, as I have seen it at Mr. Backhouse's, at York, it is a grand plant. *Dryas octopetala* has been in flower, but, as I believe in all cases, its flowers are very scantily produced. Among the *Saxifrages*, *Wallacei* and *pyramidalis* have been well in flower, while the lovely blue of *Omphalodes Lucilæ* is very attractive, although the heads of bloom, as I have before said, are not full. *Menziesia polifolia* has done fairly well, while of course the little *Erinus alpinus* has sown itself in all places over the rockery. Rock *Roses* are pretty, but they are apt to be somewhat exacting, and seed so freely that one has to be constantly on the watch lest young plants springing up overpower more modest and delicate things.

I think, perhaps, it will be conceded that I have thus out of my small garden had a considerable amount of enjoyment, and I see other things are coming in, although I think the great charm of a rock and herbaceous garden is in the early spring. Yet these charming plants last all through the season, and I hope again to show that next month there are still some few things which one can praise, and that I shall not then be worse off than my neighbours whose glowing parterres will then be in their beauty.

DELTA.

SHORT NOTES—FLOWER.

Brompton Stock.—There are few things just now in the outside border that can vie with the good old Brompton Stock, and another one which I think is called the Twickenham Purple. For three years have I tried to get a good strain of these summer beauties, but have failed. I get plants in abundance, but not of the true type. —R. GILBERT.

Herbaceous Pæonies.—These have been, and still are, very fine here, but those with delicate colours have been injured by the storms which we have had. We grow them and many other perennials, such as *Phloxes*, *Delphiniums*, *Gladioli*, and *Lilies*, in large masses among choice *Rhododendrons*. Several *Lilies* also are now in bloom, notably *L. giganteum*, which quite fills the air in its neighbourhood with perfume. —JOHN ROBERTS, *Tany-Bulch*.

A Primrose said to be lost.—From the description (p. 446, Vol. XXI.) of this I conclude it is the old Primrose with double flowers. I have a dozen plants of it which I have been nourishing these six or eight years, but make but small progress with it. I have seen it advertised a few years ago, but I believe it is now very scarce. Perhaps some other of your correspondents will let us know what they think about it. The description given suits my plants exactly. —JOHN SCOTT, *Merriott, Somerset*.

HARDY PLANTS IN POTS.

"A. D." REMARKS that he is not much enraptured with the nursery practice of keeping common hardy plants in pots; but were a nurseryman who makes a speciality of hardy plants to plant them out in the open ground he would be unable for a lengthened period to execute many of his orders, owing to the risk he would entail by lifting from the ground at any and all seasons of the year. For strong growing subjects, such as German *Iris*, *Pæonies*, *Delphiniums*, Japanese *Anemones*, *Sunflowers*, *Trollius*, *Aconites*, and similar plants the plan of lifting from the ground might be adopted with advantage from six to eight months of the year; therefore, to keep a large stock of any of these in pots not only increases the cost of cultivation, but materially injures the plants themselves. Consequently it is only requisite to keep a minimum quantity in pots. This, however, must be done, as many customers, when making calls at nurseries and seeing a plant in flower, will often buy it and carry it away. If such plants, therefore, were not in pots, nurserymen would often lose their sale.

Now a word for those plants which from a variety of causes are unsatisfactory when lifted from the ground to supply orders at any season. Let us first take the *Campanulas*, which, taken as a whole, are best kept in pots all the year round (I mean, of course, from a commercial point of view), especially such kinds as *C. pulla*, *pumila* and varieties, and *nobilis*, which is unequalled by any other in point of flowering. It should be confined to a small space, however, as the rootstock is straggling, and tufts of them in pots are sure to give satisfaction, and they receive no injury even if kept in them for years. When planted the ball must be loosened. *Papaver bracteatum, orientale*, and others are not fitting subjects for removal at any moment. No plant, perhaps, suffers more from transplantation than this Poppy. *Achillea ptarmica* is another, while *A. aurea* and *tomentosa* can be safely removed any showery day in the year. *Primulas* are nearly all best supplied in pots, and also such plants as *Onosma tauricum*, *Omphalodes Lucilæ*, *Parochæta communis*, *Ourisia coccinea*, *Trilliums* in flower, *Rhexia virginica*, *Spigelia marylandica*, *Cyananthus lobatus*, the greater part of the *Gentians*, and an almost endless number of others. One great evil in lifting from the ground to supply orders is that in nine cases out of ten the plants are hurried into the potting shed and "dropped" into a pot in soil most unsuitable to their well-being; often, too, the pots are not properly drained.

After having planted many thousands of hardy plants I am of opinion that they should be well established in pots, by which means they are ready for removal at any moment, and the little extra outlay which they cost for packing and transit is of no great importance compared with the death-rate when plants are lifted out of the ground. Another drawback is the packing. The systematic packer, will in the case of small plants from the ground, press the soil into a hard ball, little thinking of the fatal results arising from such a practice. —E. JENKINS.

—As "A. D." says, keeping hardy plants in pots is a great mistake, and one that injures the sale of them more than many people think. I see no good reason for potting the majority of hardy plants. They grow much faster and travel quite as well when taken up from the open ground and packed as suggested by "A. D." When they come to hand in that way the purchaser can see that he has a nice strong plant instead of having one of those stunted, small, miserable things that one gets from nurseries in which they are kept in pots. It takes such plants a whole season to get out of the starved condition into which they have got, while, on the other hand, from the open ground just the reverse is the case. When first planted out a much larger quantity dies when turned out of pots than from the open ground. During the last five years we have bought hardy plants from various houses in the trade, and the best have always been those from the open ground. Why

pot such strong growing things as the tall class of Phloxes and Pyrethrums? Still, many in the trade do it. The best we ever bought came from a Continental house, and we also had strong clumps from the open ground of white and purple Rockets, Pinks, Carnations, and others from a house in Northamptonshire. These grew away freely and made a good show at once. It may be said that when in pots one can get plants at any season, but people do not care to order or plant in the summer time, while most kinds of hardy plants may be moved with safety at any other season. We propagate many hardy plants every year, and when rooted we plant them out in rows till the spring, when in the shape of strong plants they are planted in the borders which they are to occupy. Last autumn we made a trial of the potting system in the case of various kinds, and in every instance the turning-out system was the best. Of double Sweet Williams, of an extra good sort, we potted ten and turned out ten, and planted them out finally on the border in March, and one can tell every plant that was potted, the others being in every way so much better. They were potted in the beginning of August from where they were struck; the others were rowed out at the same time. Many things should be propagated every year in order to have vigorous plants and fine blooms; some are best the second season, but if the method of propagating every year and destroying them when two years old is carried out, the results will not fail to give satisfaction. Some double Sweet Williams struck last season are blooming well, while on old plants there is only one head of bloom. J. C. F.

THE RANUNCULUS.

A REVIVAL of the once active demand for this fine flower is sadly needed. The Scarlet Turban Ranunculus, and a few others of the Dutch varieties in a lesser degree, are grown in some of the market gardens round London for cutting and making into bunches for market, but the fine improved varieties raised by Tyso, Headly, Lightbody, and others—where are they? Indeed, it must be said there is great danger of their becoming utterly lost; and at one time, not very remote, Mr. Carey Tyso could catalogue from 200 to 300 varieties. The only collection of named varieties in existence that I am acquainted with is in the garden of Mr. Samuel Barlow, Stakehill House, Castleton, Manchester. This I saw recently; the plants were making a very free and healthy growth, and it was interesting to note the variations in the foliage of the plants; the leaves of some were broad, large, and very strong, like those of the Scarlet Turban Ranunculus; others had the foliage finely lacinated; the leaves of some were most delicately cut, and of quite a dwarf and close growth; others had a much more spreading character. This bed contains about fifty of the choicest named varieties from the collections of the growers named above. The roots were planted in April, which is a little later, perhaps, than it would be done in the south. In the month of February last the bed, which is raised about 5 in. to 6 in. above the ground level, and supported at the sides by boards, was dug out to the depth of 14 in. or 15 in., and a mixture of loam, peat, rotten manure, and sand added to the depth of 1 ft.; this was intended as a layer for the Ranunculus tubers to root into. On this was placed a thin layer of fine soil, composed of sand, fine loam, and leaf-mould; then the roots were planted, and a covering of 2 in. of fine soil laid on them. In this month of July a fine head of bloom may be looked for, and if Mr. Barlow could send a collection of flowers to one of the meetings of the Royal Horticultural Society, they would prove very attractive, and perhaps serve to beget a renewed interest in the Ranunculus.

The usual rule in cultivating Ranunculuses was to have a prepared bed lying east and west, and raised a little above the surrounding paths. Then the bulbs were planted in straight rows at regular distances apart. The plants in Mr. Barlow's bed

are about 3 in. apart in the lines, and the lines 6 in. or so apart. They were planted a little closer than usual, because for some reason the plants went back a little last season, and they are planted out this season to recoup themselves. Towards the end of the month of June the flower-stems should have risen from the centre of the plants, terminated with small round green buds of future promise. The Ranunculus has happily few enemies, the wireworm being the most destructive; the acrid flavour of the leaves prevents the insects that usually infest many plants from preying upon them, but still here and there may be found a depredator in the shape of a green caterpillar, which would, if not removed, make an expensive meal on the young buds of the flowers, but not on the leaves. When the flowers show colour, and the days are hot, sunny, and drying, a covering similar to that placed over Tulip beds should be spread over the flowers to prolong their beauty, but it should be so fixed on that air can circulate freely beneath. If this cannot be done, the covering or shading should be placed on the sunny side of the bed only, so that air may circulate on the other side.

It used to be a practice with those who grew Ranunculuses for exhibition to disbud the lateral flower-stems, so as to give strength to the leaders and secure finer blooms. Then, in dry weather, water is applied between the rows copiously, but seldom; a good soaking at intervals is preferable to giving little and frequently. As it is difficult to obtain the choicer varieties of the Ranunculus as grown by Mr. Barlow, it may be remarked that a collection of fifty varieties or so can be had from the Dutch growers of what are known as the Persian Ranunculus. It is the home improved varieties of the Persian Ranunculus that have been named in times past; and as the improvement of the Ranunculus, like that of other flowers, is an indefinite process, there is no reason why efforts should not be made to raise new and finer seedling varieties, and so take up the work carried on with so much success by Tyso, Lightbody, and others. R. DEAN.

EDINBURGH ROCK GARDEN.

THE rock garden is situated at the south end of what used to be the experimental garden, but now included in the Royal Botanic Garden. To the south and between it and the boundary wall is a narrow belt of trees, through which here and there fine views are obtained of the "city of palaces and towers." At the north end is the glass structure in which many a friendly contest took place between rival gardeners on the show days of the old Royal Caledonian Horticultural Society. In this space the late Mr. McNab "laid out" or constructed rather what is now designated the rock garden. The ground had originally a gentle slope towards the north where the glass house is, and it was here where the work commenced, which consists, in the first place, of a series of stone steps, which are continued in an undulating and semi-circular way throughout the entire breadth of the rockery, and carried up to a good height. Between the steps are introduced thin slabs crossways, so as to divide the space between the steps into suitable compartments for the plants, as well as to suit any difference that may be required in the composition of the soil that is used. This may be said to be the base of the structure, for at the top of these series of steps a path intersects the entire breadth of the rock garden, and immediately above new modifications are introduced in patches of Grass and little elevated plateaux, from which rise huge conical mounds covered with turf, and surmounted by some of Mr. McNab's favourite conifers. The base of these cones have all the same steps and cross slabs as the base of the whole. Between the cones or hills in miniature are small glens or gorges in which the Heaths, Andromedas, Kalmias, Menziesias, &c., are grown to perfection. A path is carried round the whole outside, continuous with which, for a considerable distance from the base or north end, all the spring bulbs

are grown, after which all the kinds of Hellebores are introduced, and from these in a semi-circle round and behind the highest of the cones the collection of hardy Ferns is grown. This part of the rockery has only been recently constructed, and forms a suitable finish to that made by Mr. McNab. With such an extensive collection of plants, all in fine condition and to which new introductions are being constantly added, a visit to the rock garden is at all times most interesting. The following are prominent among the many good things now in flower on it, viz., *Senecio speciosus*, the true form; *Onosma tauricum*, *Pentstemon humilis*, with its gentian blue-coloured flowers; *Meconopsis nepalensis*; *Helonias asphodeloides*, with narrow rush-like leaves and spikes of pure white flowers in the way of *Chrysobactron Hookeri*; *Gentiana lutea*, a fine specimen of a very handsome plant; *Smilacina racemosa*, with terminal racemes of pure white flowers; *Anemone alpina* and *A. sulphurea*, in fine clumps; *Dianthus alpinus* and many fine varieties raised in the garden; *Cathcartia villosa*, with pale yellow flowers not unlike the Welsh Poppy; *Oxytropis cyanea*; *Erinus hispanicus*, with pale lilac flowers, distinct, but not so bright as nicetuffs of *E. alpinus*; *Swertia speciosa*, with peculiar striped flowers in whorls on stout erect stems 3 ft. in height, a very striking plant; *Genista pilosa*, fine spreading plants covered with flowers; *Astragalus vaginalis*, with purplish flowers; *Chamaebatia foliolosa*, with fine cut leaves and large flowers, making it a suitable plant for any collection; *Enklyanthus himalayensis*, not unlike a dwarf *Arbutus*, with rose-striped flowers as sweet scented as those of the *Daphne Cneorum*; and *Clintonia Andrewsiana*, with purple-rose flowers, succeeded by beautiful blue berries. *Helianthemum* were a show in themselves. Outside the rock garden were beds of *Aciphylla squarrosa* in flower, the wild Spaniard of New Zealand, a highly ornamental-foliaged plant, umbelliferous, but the flowers are not conspicuous, however interesting they may be to the botanist. Near the pond were fine masses of *Aubrietias*, the best being seedlings raised from *Aubrietia Hendersoni*. ROBERTSON MUNRO.

HURWORTH GRANGE.

THE residence of Mr. James E. Backhouse, is about 3½ miles from Darlington. Its chief attraction is the rock garden, which is well stocked with plants. Amongst these the following were lately in flower, or otherwise so remarkable as to merit special notice, viz.: *Dianthus glacialis*, a lovely pink; *Genista pilosa*, *Potentilla splendens*, *Pulmonaria saccharata*, *Allium pulchellum*, *Thalictrum anemonoides*, *Arenaria purpurascens*, *Phlox subulata*, *Erythronium grandiflorum*, various varieties of *Primula Sieboldi*, *Cornus canadensis*, *Armeria alpina*, and *Primula farinosa* and *capitata*. In the water were *Aponogeton distachyon*, which flowers the whole year round, and *Water Violets*; whilst among the stones by which it is margined were *Erinus alpinus*, *Phlox subulata* alba, *Thymus rotundifolius*, *Astragalus monspessulanus*, *Allium flavum*, several varieties of *Iris*, *Primula sikkimensis*, *Aubrietia græca*, *Thlaspi rotundifolium*, *Trillium grandiflorum*, *Phlox setacea*, and *Andromeda polifolia*.

In a small bog close to or in the water were good patches of *Cypripedium spectabile*, *C. acaule*, *C. guttatum*, *C. pubescens*, and *C. occidentale*. These are all growing in a pure bog, with a good depth of water under them. Various Orchises found a place by their side, and I noticed a nice plant of *Iris Kempteri* growing near them; also *Andromeda fasciculata*, *Anemone Pulsatilla*, *Gentiana verna* and *acaulis*, *Myosotis rupestris*, and *Aquilegia pyrenaica*. On a ledge over the water sheltered on two sides by stone was *Darlingtonia californica*, which has been there for the last two winters, and looks now as if it meant to flower; also *Sarracenia purpurea*; and, scrambling upwards, fine patches of *Cheiranthus alpinus*, *Saxifraga alpina*, *S. Wallacei*, *S. stellaris*, and *S. palmata* were met with; also *Phlox amoena*, *Arenaria balearica*

and *A. verna*, *Lithospermum prostratum*, a fine blue; *Gypsophila cerastioides*, *Alyssum montanum*, *Draba tridentata*, *Veronica acinifolia*, *Primula japonica*, and several sorts of Heath and Iberis.

The rockwork covers half an acre, and is well sheltered on three sides by thriving plantations. The entrance walk has a rolling border on each side, dipping into water on one hand, and rising to a considerable height on the other. On the left the roll of abrupt bordering has a broader space, and then rises to a greater height than the opposite side. Underneath is a cave of irregular dimensions, in which grow various Ferns; its floor, with the exception of a few stepping-stones, being water, there is no lack of moisture. The centre space is water, and the connecting link a wooden bridge, shortly to be replaced by one of stone. The park opposite this part has been lowered to admit a view from the principal windows of the house, and from thence the view takes a turn to the south-west over a fine extent of country. On the front terrace were two large Rose beds and a Rhododendron bed, the former mixed with *Lilium auratum*; facing the east there are a few beds of hardy-flowering plants not commonly met with. Bordering the shrubberies in many parts the *Auricula* may be seen growing in quantity. This, in short, seems to be the home of the *Auricula*, about 2000 plants of it being grown here.

JOHN RICHARDSON.

ROSE GARDEN.

AMONG THE ROSES.

THE rosarian's pleasure this June has so far been of a very limited kind. The iced atmosphere—morning, evening, and at noon—has neither been good for himself nor his Roses. For nearly a month the Rose buds have remained in *status quo*, or developed into sheer deformity, and only the most fortunate rosarians have been able to stage any creditable blooms so early as the middle of June. Nor is this all or perhaps the worst, for as the season advances it is now obvious that blooms will be scarce. In many gardens and grounds there is a positive dearth of Roses. Were Rose gardens to be now let as orchards are, few of them would fetch half, many of them not a fourth, of the price of last year. Deformed flowers are bad enough, but an absolute dearth of bloom is even worse. Many of the Roses are also coming thin and poor. The blooms of cut-backs have been worse than those of maidens. The mild winter has revenged itself on us with a vengeance by sending us back December through the greater part of May and June. It is to be hoped that the cold waves in future will at least do us the favour of rolling over our Roses and our fruit trees in the winter or early spring, and not when our Roses ought to be in full bloom. Warm weather was never more needed to encourage vigorous growth and set the sap flowing for the buds and bidders than this season. The mild winter's revenge will teach rosarians one useful lesson, viz., the necessity for warm soils and sheltered sites for many of our best Roses. This season, at least, all the early honours will be picked up by those who hail from the most genial localities. The cold summer so far has also pleaded powerfully for the shelter of walls or of glass for all the best Tea Roses. No plants are more worthy of our best glass houses. In these the majority of our best Teas become in very deed perpetual. This ungenial summer also suggests the importance of growing our finest perpetuals under the same favourable conditions. For example, what could excel in floriferousness, beauty, or fragrance a whole houseful or wall covered with *La France*?

Since the foregoing was written the warm weather has come, and there has been a great flush of Roses. These sudden fits and starts, risings and fallings of temperature have most disastrous effects on the eyes of Roses. These opening too fast have a most inveterate and provoking tendency to open too far—great speed in the opening being mostly fatal to the highest quality. It seems, also,

positively to rob Roses of substance, though it may be difficult to explain how the mere act of development can limit the number or reduce the thickness of the petals unfolded. This much is certain, that many Roses have come thin and poor since the rise in temperature. Held in check so long and so severely by the long spell of cold weather, hardly have they felt the heat till they unfolded their beauty, and not till the last days of June and first of July have I seen magnificent blooms either in flower tents or private gardens. This promises to be a great year for maidens rather than cut-backs; in fact, some of the latter have gone into a decidedly bad way since the sharp, cruel knife arrested their proud growths any time in March. And yet what were we to do? Leave them to their fate. So far that answered well this season. Those who pruned early, or, seeing the wondrous shoots in the early spring, hardly ventured to prune at all, cut magnificent Roses in the early part of June, but before the end of the month they had few or no Roses left to cut. But with seasons such as may now be described as normal the chances are strongly against having any Roses in the early or any other part of June on unpruned or autumnal pruned Perpetual Roses, while a good autumnal bloom is equally problematical. Still the last mild winter and its results on cut-backs suggest the wisdom and necessity of reconsidering the whole question of when and how far Roses ought to be cut back. Some of the Teas again need very special treatment; cut back, they refuse to break at all, or break weakly. The finest shoots on not a few of the best Teas are found very near to the base of the last flower-stem. These remarks on pruning may seem out of character in the height of the budding season, but budding necessitates pruning, and hardly do we get into the middle of July before summer pruning demands attention. This is often carried to excess, and the practice now so common of cutting Roses with long stalks for marketing necessitates closer pruning than may prove good for the longevity of the Roses. D. T. FISH.

TEA ROSE ADAM.

I SELDOM see special mention made of this variety, though few Roses can equal it in general usefulness. A correspondent in THE GARDEN once proposed to place it next in order of merit to *Gloire de Dijon*, and remarked that he had just taken his sixth crop of bloom from it. This honourable position I should unhesitatingly accord it, as I know of no Rose so capable, if I except the old *Glory*, of flowering so freely for so long a period. Its value is most apparent under glass, as with gentle warmth it will bloom from February until late in autumn. If well supplied with liquid manure, and otherwise properly attended to, the plants will not be injuriously affected by this long continuance in bloom, but I should not advise their being subjected to so great a strain, the more particularly as all blooms produced after June must be at the expense of the winter or spring crop, as the case may be. I would rather pick off buds that form, so as to induce strong growth, which well ripened will be sure to yield a rich harvest of flowers at the appointed time. Were I restricted to three kinds of Roses for culture under glass, Adam would certainly be one of them, and I am not sure but I should prefer it to all others were I limited to a single plant. The half opened buds are admirable for button-hole and other bouquets, and I strongly advise rosarians to take note of this Tea Rose, as I know from experience that it is a most profitable kind to grow. J. CORNHILL.

Thinning Rosebuds.—We always thin Rosebuds where too thick, but I never knew Roses to need this so much as this season; the plants are weak, owing, I presume, to their not having a proper season of rest, and their foliage is battered and disfigured by storms and insects; therefore they are unable to sustain the usual number of flowers. I have lately gone over our best plants, and have thinned rather severely such varieties as *Madame Nachury*, *Paul Verdier*, *John Bright*,

Camille Bernardin, *Ferdinand de Lesseps*, *Hippolyte Jamain*, *Edouard Morren*, *Peach Blossom*, *Duchesse de Vallombrosa*, *Comtesse de Nassau*, and many others; but those I have named flower so freely in our strong soil, that we cannot get a good bloom without thinning out the buds. Of course I am aware that the same thing is done by others, but thinning is not so generally practised as it ought to be, especially in the case of weakly plants and those recently planted.—J. C. C.

GARDEN FLORA.

PLATE CCCXLIV.—PESCATOREA KLABOCHORUM.

PESCATOREA is a genus of South American Orchids dedicated to M. Pescatore, who at one time had a grand collection of Orchidaceous plants at St. Cloud, near Paris, with no less a horticulturist than M. Luddemann as their curator. These *Pescatoreas* may be taken as the type of the very singular and distinct section of Orchids of the *Zygopetalum* group, and to them also belong the old *Huntleyas* and the more modern *Dolleas* and *Batemannias*. When well grown they are beautiful and distinct in habit, and their great waxy petalled flowers are sufficiently striking in colour and beauty to merit attention. Unfortunately, all Orchids belonging to this group are but rarely met with in general collections, and when present they do not always lend themselves to the system of culture generally adopted for *Odontoglossums*, *Cattleyas*, or other South American genera. Now that we have amateurs who devote themselves to the culture of special genera, such as *Odontoglossums*, *Cypripediums*, or to hybrid Orchids only, it is to be hoped that some one with the means and inclination may take a special interest in this *Zygopetaloid* group, so far at least as to devote a special structure and culture suited to its requirements. Speaking of P. Roezli, Prof. Reichenbach says, "Some English correspondents, who tell me not only their pleasures, but their cares and sorrows, also deeply complain of the ingratitude of this group, which they feel inclined to place on the list of proscribed Orchids. My private experience at the Hamburg Botanic Garden is this, that these plants dislike Sphagnum, sand, wood, coal, and bricks alone. Give them good, rich wood soil in profusion, fresh air, and good water free of any manure, and they will thank you immediately by offering you numerous finger-like roots, as if they wanted to shake hands with you!"

Pescatorea Klabochorum was introduced by Messrs. Veitch & Sons, through the late Franz Klaboch. Other recently introduced species are P. Lehmanni, P. Gairiana, P. Dayana, P. Backhousiana, P. Roezli, and to these may be added the older type of the genus P. cerina. With these *Pescatoreas* may be associated the curious *Paphinias*, the delicate little *Stenia fimbriata*, and the equally attractive members of the genus *Promenaea*, including P. Rollissoni, the singular P. stapelioides, and P. citrina. B.

Flowering shrubs.—A great many of these, such as *Weigelas*, *Deutzias*, *Lilacs*, *Forsythias*, and others, may now be struck without difficulty, and so quickly as to become thoroughly established before winter. When the young shoots are from 4 in. to 6 in. long, cut them off and put several in a 6-in. pot, but with as little delay as possible, for from the succulent character of the cuttings they flag in a very short time. Open, sandy soil should be used, but still they must be made moderately firm, and receive a thorough watering when put in. Place them in an ordinary frame out-of-doors, but take care that it is perfectly air-tight; no ventilation will be necessary, unless damping takes place, when a little air must be



PESCATOREA KLABOCHORUM.

given in the morning until it is arrested; but to prevent the frame becoming unduly hot, shade heavily during bright sunshine. If attention be paid to removing all decaying matter, rooting soon takes place; then pot off as quickly as possible, and by autumn they may be planted out-of-doors. A good way is to have a single light partitioned off in some convenient place in which cuttings may be put when obtainable, for all subjects do not start into growth at once.—T.

ORCHIDS.

ORCHIDS IN NEW ENGLAND.

MR. FALCONER, Cambridge Botanic Garden, Mass., writes in the *Country Gentleman* of Orchids as follows:—

Orchids abound throughout the forest and mountainous districts of the Tropics, and in the wood, hill, and meadow lands of temperate countries, but they avoid the arctic regions and hot, dry, sandy deserts. Those from the Tropics are mostly epiphytal kinds, such as *Dendrobiums*, *Vandas*, *Cattleyas*, and *Phalænopsids*, commonly called "Air plants." They grow upon the trunks and branches of trees, and on mossy rocks, to which they fasten themselves by means of long fleshy roots. A few epiphytal Orchids occur in the Southern States, and in addition to kinds formerly found there, species like *Epidendrum cochleatum* and *Oncidium ornithorhynchum*, have recently been discovered in Florida. In temperate countries, as throughout the Northern States and Europe, Orchids also abound, but they are terrestrial, that is, they grow in the earth like plants generally, as, for example, our *Lady's Slippers*, *Rattlesnake Plantain*, *Lady's Tresses*, *Putty-root*, and fringed Orchids. For general cultivation, Orchids may be divided into three classes, namely, hothouse, greenhouse, and hardy. Hothouse Orchids include *Vandas*, *Saccolabiums*, *Phalænopsids*, and others peculiar to the most tropical parts of the world. Greenhouse Orchids are those from cooler places, as the mountains of South America and sub-tropical countries generally; for example, *Odontoglossums*, *Masdevallias*, and *Disas*. Hardy Orchids, like the *Bee Orchis*, the *Man Orchis*, and our native *Lady's Slippers* we may grow in our outdoor gardens. Orchids and Cactuses will bear more abusive and neglectful treatment and appear flourishing than any other plants I know of. Anyone having an ordinary greenhouse can grow Orchids. They will grow in company with Ferns, *Pelargoniums*, *Roses*, and other plants, by setting them in a nook by themselves, preserving them from cold draughts and hot sunshine, and growing such kinds only as favour the conditions of the greenhouse.

Culture.—All the *Dendrobiums* make their growth in summer, when they want warmth, moisture, and light; in the fall, by exposure, less water and a lower temperature their "wood" will be ripened; in winter keep them cool, dry (but not so dry as to shrivel them), and inactive; they should blossom in spring. After they finish blooming, by gradually increasing the temperature and moisture, you will encourage them to make new growth. As *D. densiflorum* and *formosum* are evergreen species, it is not well to keep them quite so dry in winter as you may the others. *Dendrobiums* should be grown in pots or wooden baskets, in moss, or peat and moss. *Cypripediums* are terrestrial Orchids, and may be grown in peat, loam, or moss, separately or mixed. Mr. Tailby, of Wellesley, who grows *C. insigne* for market, and better than any other person I know, grows it in Moss alone, and feeds it liberally with liquid manure. *Cypripediums* require to be kept moist at all times, and more especially when in active growth. *C. venustum* bears one flower on a stem; *insigne*, one to two; and *Roezli* and *Sedeni* many blossoms, one after another, on long, wand-like stems. *Bletias* are beautiful, easily managed, terrestrial Orchids. Grow them in loam. When they finish growing, and their leaves die off, lay them on their sides in a cool place till they begin to grow again, say in winter, then repot them;

gradually give them a little water, and in spring from every shoot will rise a spike of purple flowers. *Odontoglossums* are the best cool Orchids, and the success attained with them clearly demonstrates their suitability, under exceptional circumstances, for cultivation in the United States. But notwithstanding the beauty of *O. Pescatorei*, *crispum* (*Alexandra* is the same thing, and *Blunti* but a spotted variety of it), and many others, I cannot recommend them to beginners; they need special care. *Odontoglossum Rossi majus* does famously on blocks; *grande*, *Inseayi*, and *pulchellum* grow in earth like *Pelargoniums*, but I prefer growing them in peat or Moss, as I also do the others, except *Rossi*. They require to be kept as cool as possible in summer, well watered while growing, and slightly moist in winter. *Zygopetalum Mackayi* is a strong growing, free flowering terrestrial species. Grow it in loam, peat, or Moss, mixed or separate; water copiously in summer, sparingly in winter, and do not repot it oftener than once in from two to four years. The flowers are large, many, and highly fragrant, but not very pretty. *Cœlogyne cristata* is a lovely Orchid bearing many clusters of large white flowers, having a yellow blotched lip. Grow it in pots or pans in Moss or peat; give it a good deal of water in summer, very little in winter; keep it somewhat shaded while growing, but in the fall expose it freely, observing not to let it get over-wetted or be under drip. Some declare that the more you expose it the better it will flower. In the case of *Maxillarias* I have from 300 to 450 blossoms at one time on each of my plants of *M. picta* and *punctulata*. They are somewhat small, but pretty, and those of *picta* are as fragrant as English Violets; those of *Harrisonia* and *aromatica* are also sweetly fragrant. Grow them in Moss, or Moss and peat; water freely while they are growing, and quite sparingly while they are inactive. *Oncidium*s may be grown on blocks, in baskets, or pots; they like to be as near the light as possible. They should have a great deal of water in the summer and very little in winter. While growing they like warmish quarters. Their flowers are yellow, brownish, often much spotted, and borne on graceful, wand-like spikes, many of them, like *obryzatum*, being deliciously fragrant. *Masdevallias* are gems in their way. *M. tovarensis* has pure, waxy white flowers, two to three on a spike, and the same spikes, if left uncut, produce flowers again another year in like manner as will the old flower-heads of a *Hoya* or *Wax plant*. My plant had twenty-two flowers open at once this season. The flowers of the others are scarlet, and in the case of *M. Lindenii* brilliant magenta. *Masdevallias* require to be kept as cool as possible in summer, and, indeed, at all times, provided they are not allowed to get frozen. They should be grown near the glass, but shaded from sunshine, in pots in peat and Moss, and have a good deal of water at all seasons. Their leaves should be sponged over every month to keep them clean and free from insects. They should not be grown in dry, airy places, but where the atmosphere is the moistest.

Soil and pots.—All kinds of Orchids—epiphytal and terrestrial—will grow in *Sphagnum Moss*—that is, bog Moss, and in all cases it should be living, fresh, free from sticks, grass, and leaves, and the chubby mats you find in Tussocks, rather than the long, white, strawy stuff from wet bogs. The loam used for Orchids should be the turfiest kind of rotten sod, from which the fine earth has been well sifted. Peat should be very fibrous, and upland rather than lowland peat. Fern-root tussocks are used a great deal, but no matter what it is, it should be chopped up coarsely, and every particle of earthy stuff sifted out of it. If the peat is dry, it is an easy matter to sift out the earth; but if wet, then you must wash it out. The peat, after being used in potting, will be likely to get overrun by a white mould, but dipping it two or three times in lime water will destroy that. I like common pots better than those perforated around the sides, and known as "Orchid pots." Wooden cabin-shaped baskets are excellent for *Dendrobiums* and *Oncidium*s, and blocks—that is, bits of

logs, with or without the bark—of non-resinous wood may be used for some *Oncidium*s and other aerial-rooting Orchids. In potting epiphytal Orchids, use comparatively small pots; fill them three parts full with broken pots, brickbats, or charcoal, and to the brim or a little over with Moss or Moss and peat. The plants should be firmly set in this, resting as it were on the top of the little hillock, but the pseudo-bulbs, or any part of them, or the eyes at their base, should not be covered by the compost. This moss or peat is intended to conveniently retain moisture about the roots, and not to act as food. In baskets, some nodules of charcoal and crocks may rest in the bottom, and the plants should be firmly held in their places by the compost. They may be wired to the naked blocks, or a little Moss may be introduced between the block and the plant. Terrestrial Orchids, like *Cypripedium*, require less crocks and more soil in their pots. So long as Orchids keep within their pot limits, and the compost is in good condition, it is not well to re-pot them; re-potting injures their blooming for a season.

Descriptions of Orchids.—Cultivators are often bamboozled by Orchid descriptions of the hard and fast line. For example, one would like to know what the fine *Dendrobium Dalhousianum* is really like, and here are two descriptions of it—one by Williams and the other by Mr. Spyers. Williams says it is an evergreen species; Mr. Spyers says semi-deciduous—if there be such a novelty as half an evergreen. Williams says it grows from 4 ft. to 8 ft. high; Mr. Spyers says from 3 ft. to 5 ft. Williams says the petals, sepals, and lip are lemon coloured, which is yellow; Spyers says they are creamy white, which has no resemblance to lemon. Williams says it produces numerous flowers to a spike, many having fourteen flowers upon them; Spyers says from six to ten. Williams says the spots at the base of the lip are dark crimson; Spyers says they are deep purple (a wide difference); but Williams and Spyers evidently see colours with different eyes, for the first also describes the characteristic lines on the bulbs as reddish crimson, and the last as purple. Other inconsistencies could be pointed out, but the above are sufficient to show that it will not do for any one cultivator to conclude that his own variety of any particular species is the typical one in such a variable class of plants as Orchids. Otherwise one cannot sufficiently admire the ability of writers who are able, on the spur of the moment, as it were, to describe off-hand, point by point, the characteristics, not only of each species, but the varieties of each species of such a complicated family as Orchids, and without having to acknowledge the help of anyone else. Such peculiar coincidences of description as "beautifully fringed" and "beautiful fringe," "a large central blotch of claret colour" and "a large central blotch of claret," "deciduous and pendulous" and "pendulous and deciduous," "flowers produced from the maturing growth" and "producing flowers at the time of making its growth," "colour a rich yellow with a dark crimson blotch on the lip" and "colour a bright yellow with a dark red spot on the lip," and the like being, no doubt, mere accidents of expression resulting from an unanimity of opinion on the same points. I must do Williams the justice to say that he is frequently careful to say that varieties of many species differ greatly.—OBSERVER.

***Cypripedium insigne Maulei*.**—I was pleased to see the two forms of *C. insigne* figured together in THE GARDEN, as I had doubts about the difference between *Maulei* and *punctatum violaceum*. There must be two forms at least of the authentic variety of *Maulei* if the left-hand figure on THE GARDEN plate is intended for it. I speak from memory now, but when I opened THE GARDEN I at once said to myself, "that is not our *Maulei*," which is finer, and would be better described by the synonym *albo marginatum*, the upper sepal having much more white on it than the figure in THE GARDEN (about two thirds of its whole surface), and the white runs round in a narrow and lessening, but distinct

margin quite to the base of the sepal, which has no neck like the figure in the plate. But for the colour and shape of the pouch, I should have taken punctatum violaceum for Maulei. To make sure of my impression I took the plate to the young man in charge of the Orchids, and, concealing the names, asked him to point out our variety, and he at once placed his finger on the right hand figure, remarking that ours was not quite so red in the pouch and side petals. I will send "F. W. B." a flower of our plant, if only to compare with Lady Dorothy Neville's variety. I had the plant from Mr. Parker, of Tooting, who, I think, showed me a plate of it, and assured me it was that of Maulei. At all events it is acknowledged by all who have seen it to be the best form of it.—J. SIMPSON, Wortley.

NOMENCLATURE OF ORCHIDS.

IN the remarks on this subject (p. 381) it is stated that some of the names of the Orchids at Kew have been changed by Mr. Benthams, but Mr. Benthams is in no way responsible for several of the alterations attributed to him, the name *Mesospinidium* for *Ada aurantiaca*, and also that of *Bletia* for *Lælia Perrini*, being adopted by Prof. Reichenbach, whilst the alteration of *Odontoglossum vexillarium* to *Miltônia* has only been suggested, and not, so far as is known, adopted by Mr. Benthams. Mr. Benthams does not agree with Reichenbach in some of his views, as, for instance, in his converting *Bletia hyacinthina* and others into *Bletilla*, and substituting *Bletia* for *Lælia*. Mr. Benthams retains the name *Lælia* for those plants known by that appellation in gardens, expressing at the same time an opinion that there is little or no generic distinction between that genus and *Cattleya*, an opinion likely to meet with favour, as from their general resemblance to each other, as well as the readiness with which they hybridise with each other, as has been abundantly proved, there appears to be no valid grounds for keeping them in separate genera. Two species of *Brassavola*, *B. Digbyana* and *B. glauca*, are also better placed in *Lælia*, according to Mr. Benthams. The name *Thunia* is dropped for *Phaius*, with which *Limatodes* is also included, excepting *L. rosea* and *L. gracilis*, which are referred to *Calanthe*. It has been pointed out that the raising of a hybrid between *Limatodes rosea* and *Calanthe vestita* is a curious instance of two genera hybridising with each other, but the removal of this *Limatodes* into *Calanthe*, and still more the opinion that it is very near *C. vestita*, destroys such a view. *Pholidota* has been sunk in *Cœlogyne* by Reichenbach, but Mr. Benthams would retain it as a good and distinct genus. The removal of *Epidendrum bicornutum* from that genus, and the adoption of the generic name *Diacrium*, has already been noted in THE GARDEN. The placing of *Cattleya* and *Broughtonia* along with *Epidendrum*, as has been done by Reichenbach, is also objected to. Under *Zygopetalum* Mr. Benthams places *Huntleya*, *Bollæa*, *Warszewiczella*, *Pescatorea*, some *Promenæas*, and *Kefersteinia*, a wise decision surely, as there is a family resemblance in the whole of them, and they intercross quite freely, a fact proved by Mr. Spyers. *Colax* and *Paphinia* are sunk in *Lycaste*, and *Acropera* is now placed in *Gongora*. *Odontoglossum roseum* is placed along with *Mesospinidium*, now referred to *Cochlioda*, whilst *O. vexillarium* and, we suppose, the allied *O. Roelzi*, and *O. Phalænopsis* are considered to possess the characters of *Miltônia*. *Ada* is still retained for *Ada aurantiaca*. The arrangement of the genera *Saccolabium*, *Aerides*, and *Vanda* is commented upon, and several alterations suggested. Amongst them is that of *A. Wighianum* for *Vanda parviflora*. Altogether, the reclassification on the lines suggested by Mr. Benthams is such as ought to be accepted, as it tends to reduce the number of names which some authorities seem anxious to increase. The multiplication of species on insufficient grounds by some authorities must be evident to all who are in the least acquainted with what constitutes a good reliable species, and it only re-

quires common-sense discrimination to bring about a considerable reduction of Orchid names. B.

TREES AND SHRUBS.

NAMED RHODODENDRONS AND AZALEAS IN WOODS.

A number of fine single specimens of the best named Rhododendrons, planted thinly here and there in a wood near a mansion, came under my observation the other day, and much interested me. Not being willing to go to the expense of planting large tracts of these, as has been done with good effect on some domains, and not caring to invest extensively in the common variety, so often planted to the exclusion of the better sorts, the proprietor had conceived the idea of planting good named specimens more sparsely, but still in sufficient quantity to produce a good effect. The plants consisted of most of the moderately priced distinct varieties—white, crimson, red, purple, scarlet, &c., and I have rarely seen anything more effective. All the plants were 5 ft. and 6 ft. through, perfect specimens, and flowering down to the ground all round. Having light and air on all sides, they had grown in the dense bushy form so natural to the Rhododendron under such circumstances. I could not help thinking that the plan might be adopted in parks near mansions and on extensive lawns quite as effectively as in woods, although in the latter situation they look natural and prettier perhaps than elsewhere, surrounded by a wealth of foliage of other trees, and probably endure longer when in flower. Good single specimens, or masses of one colour, as I have seen them, certainly look grand in suitable situations in woods; but the situation should be chosen, and should be such as can be seen well from as many standpoints as possible—as, for example, from a slope facing another slope, or the sides of a ravine traversed by walks or drives, as are many woods near mansions.

Another effective shrub—and, like the Rhododendron, not meddled with by rabbits—is the *Azalea mollis*, a plant which is equal to the common greenhouse *Azalea* in the flower, or nearly so, but deciduous in habit. It wants the fragrance of the American kinds, and can never take their place on that account; but it is, nevertheless, a grand addition to our spring-flowering shrubs. Of the common American *Azalea*, enough of it can hardly be planted in the woods and shrubberies; but a word should here be urged against planting too many of the common yellow variety, so much planted because it is the cheapest. There are some really beautiful coloured kinds, orange and red, &c., and the whites, named sorts, most profuse bloomers, as sweetly scented as a Honeysuckle, and handsome shrubs for any situation where they are not excluded from the light. They associate well with Rhododendrons, but must be placed in front lines, or they will soon be overgrown. It is a great pity nurserymen cannot, or will not, produce the scented, hardy *Azaleas* abundantly enough from seed or cuttings to sell at a less price than from 18s. to 24s. per dozen, for nothing but the price prevents them from being planted more than they are. There is nothing to surpass them at this season of the year. Woods and parks and pleasure grounds are at the present day comparatively barren of all those pretty subjects that would render the landscape delightful. All that is needed is to plant judiciously and in sufficient quantity.

The character of the soil is not a matter of half so much importance as some people think; for Rhododendrons a chalk or lime foundation does not answer, but any soil else between loam and peat will answer perfectly well. They certainly do as well in the one as the other. No shrubs succeed better or live longer here than Rhododendrons, growing in a thin yellowish loam. They have never known the taste of peat, and have survived large plantations of the common and Portugal Laurels planted at the same time, perhaps forty or fifty years ago. Neither is the Rhododendron particular as regards a dry or a wet soil, and it is

not needful to go to much expense in drainage for it. Some plants growing on an island in a pond here for some twenty-five years have had their roots in a continually water-logged soil, and yet grow and flower famously. Indeed, both the Rhododendron and *Azalea* are perhaps the hardiest of any shrubs we possess, the severest winters failing to make much impression on them; and although they droop during prolonged drought, it does not kill them. In 1868 the shallow soil about the roots of the bushes appeared to be as dry as if it had been kiln-heated, and the leaves of the Rhododendrons fell off, but none died. Many other things suffered worse.

J. S. W.

LATE-FLOWERING MAGNOLIAS.

BESIDES the early-flowering Magnolias represented by such kinds as *conspicua*, *Soulangeana*, and *purpurea*, there are several others, mostly medium sized trees, and all deciduous, with the exception of *M. grandiflora*—the latter a noble flowering tree under favourable circumstances. Besides the grand effect produced by the fine foliage and blooms of such sorts as *M. Umbrella* or *M. tripetala*, as it is often called, most of the Magnolias are highly fragrant, the last named and *M. auriculata*, when in flower filling the surrounding air with perfume, especially during sunshine. *M. glauca* has, as is well known, also an agreeable scent, and as it does not grow very large in size, its blooms are easily gathered for indoor decoration. The Magnolias belonging to the later flowered section are all natives of North America, and, like so many other trees from that quarter, they prefer a cool, moist situation—not wet and stagnant—but such as always retains an equal amount of moisture; some of them will, however, do well in almost any soil if not too dry and sandy. Noteworthy in this respect are *M. acuminata* and *M. Umbrella*, two free and vigorous growing kinds. The following are more or less plentiful in gardens, viz:—

M. ACUMINATA.—This is the Cucumber tree of the United States, so called from the resemblance of its fruit to a small Cucumber. It forms a large, vigorous tree with spreading branches, and is less particular than any of the others in reference to soil and situation. It is comparatively deficient as regards large, bold foliage, and its blossoms are not so conspicuous as those of some of the others. The leaves are from 6 in. to 10 in. long, pointed, and somewhat pubescent on the under-surface, and the flowers, which measure some 3 in. or 4 in. in diameter, are of a yellowish hue, stained more or less with a blue tint, and but slightly fragrant. Notwithstanding, however, the few drawbacks just alluded to, it is a fine tree, and very distinct in habit and appearance.

M. AURICULATA.—This is a bold and imposing tree, remarkable on account of its huge, massive foliage, which as regards size is surpassed only by that of *M. macrophylla*, a species seldom seen in a flourishing condition. The leaves of *M. auriculata* are 1 ft. or more in length, and 5 in. or 6 in. in breadth; and the flowers, which are produced on the extremities of the shoots, are of much the same size as those of *M. conspicua*, but pure white, and looser and opener than those of that kind. *M. auriculata* when young usually requires support, or it becomes loose and straggling, a character which it will maintain for a long time if once allowed to acquire it.

M. CORDATA.—This comparatively small growing kind flowers at the same time as the preceding, but is destitute of the fragrance belonging to that species. Its habit is, as a rule, more that of a large shrub than a tree. Its flowers, which are not very showy, though interesting, are yellowish, sometimes slightly

*Magnolia Umbrella (M. tripetala).*

streaked with red, thus bearing a certain amount of resemblance to the bloom of a Tulip. In size they are the smallest of any, except those of *M. glauca*.

M. GLAUCA.—This likes a moist—indeed, a swampy—situation; yet that such is not absolutely necessary to its well-doing is sufficiently shown by the fine old specimens of it that were at one time dotted about in the old arboretum at Kew. It forms a shrub 10 ft. or 12 ft. in height, but now and then it assumes the shape of a miniature tree with an upright irregular trunk and spreading branches, a condition in which it is very suitable for small lawns, or for places in which space is limited. The glaucous undersides of the leaves of this *Magnolia* are very conspicuous, especially when stirred by the breeze. To all lovers of fragrant flowers this species will commend itself, its odour being in no way overpowering, but delicious. Its flowers are about 3 in. in diameter, white, and produced for a long time during the summer months.

M. MACROPHYLLA.—The specific name of this *Magnolia* is well merited, the leaves being large indeed, as will be seen by the accompanying illustration. Its general appearance is that of a

lar as to soil and situation, more so even than any of the others, and it is liable to be injured

*Magnolia cordata.**Magnolia auriculata.*

large-leaved form of *M. auriculata*, and like it it requires support when young. It is very particu-

lar as to soil and situation, more so even than any of the others, and it is liable to be injured by severe frosts, even in our southern counties. At Bicton it was a few years ago in a luxuriant

moist till they germinate. They may be increased by grafting, but it requires very careful manipulation, and in the case of those intended to form large trees, seedlings are greatly to be preferred, although grafted plants in common with those from layers flower more freely than seedlings, but the latter grow best. In grafting the stock usually employed for the deciduous American kinds is *M. acuminata*, and that for the early flowering section *M. purpurea* or *obovata*, and *M. grandiflora* for its varieties. Layering is also employed, but it is a slow process, rooting being difficult. Great care is necessary in transplanting *Magnolias* however small, as they make but few fibres and dislike any disturbance at the root; indeed, to facilitate removal they are kept in pots by some, but if once allowed to become pot-bound they seldom grow with their natural vigour afterwards. ALPHA.

The house sparrow and green-fly.

It requires some amount of courage to write much in favour of this audacious little bird. But I am induced by the old Scotch proverb, which says "Gie the Deil his due," to make the following admission respecting him, which may to some extent show that he is not quite so black as his detractors and the smoke generally paint him. In my town garden—a small one—some standard

Roses and a plantation of Sir Joseph Paxton Strawberry were suddenly infested with green-fly to such an alarming extent, that strong Tobacco or Quassia water never seemed to be

tainly remove the difficulty, supposing that the committee still further selected as judges men who really did know something about hardy plants. But it is just possible some person will

at Didsbury may be done by others. In showing hardy plants in pans or pots it is most likely that in all cases the exhibitor would have some, if not all, his exhibits under the shelter of a cool frame for a week or two in order that they may appear in their best garb. That is natural enough, but what would be specially valuable in a northern locality like Manchester, that is both cold and smoky, would be collections of hardy plants grown in the open ground within 50 miles of that town, and lifted from the open ground into the pots or pans within three days of the holding of the exhibition.

A. D.

THE WOOD GARDEN.

THERE are many plants which grow much more freely in the wood than on flower borders. Some clumps of the common perennial Lupine (blue and white), which were pricked out there as seedlings in the early spring in threes, are now splendid masses of blue and white, far excelling those of our drier borders. It is the same with the commoner Columbines. Here they grow into large groups, and the seedlings increase around them from year to year in infinite variety. Double and single Pæonies, banished from the borders because of rank growth, find here their proper places, and look grand with their wealth of large crimson flowers showing above the Ferns and Grass of the woodlands. The common Musk is a weed in our borders; we had a couple of wheelbarrowfuls rooted up and planted here amongst Rhododendrons and Azaleas. It has completely covered the bare ground, and nobody would recognise it but for its scent. Its stalks are 1 ft. high and covered with flowers. All our last year's *Mimulus* plants, of Clapham's and other choice strains, were removed here after flowering and planted between the groups upon the Lily bed. Here they have so thriven, that, again, no one would recognise the plants. Many of the stalks are nearly a yard high, and they will be covered with blossoms just as the Lilies come into bloom. They serve to hide the leaves and stalks of the Narcissi which are planted on the same spots, and thus one will help the other and continue the blooming season. *Anchusa italica* is another plant which likes the situation. We had more seedlings of it than were wanted for the borders, and so they were planted on the margins of the Lily beds. They are now beautifully in flower, and I have just measured the height and find them varying from 4 ft. to 6 ft.—one mass of ovely blue. *Ranunculus aconitifolius* also grows



Magnolia grandiflora.

more urgently required. In the meantime, however, a pair of house sparrows—no strangers to the premises—took the liberty of introducing their young family—a large one—which, apparently attracted by the temptingly plump condition of the aphides, gave them the benefit of their most assiduous attention, with the result that in the course of a few days not a fly was to be found. No blooms appear to have been picked from the Strawberry plants, and the Rose trees sustained no further injury than the bending down of some of the shoots by the weight of the birds.—P. G., Orchard Street, Bury St. Edmunds.

EXHIBITING HARDY PLANTS.

THE complaints made by correspondents as to the defective judging of hardy plants at Manchester, though solely referring to that show, have had not a few predecessors. When it was the custom to exhibit hardy plants in collections at South Kensington, big showy clumps, and especially of things which had been pushed on unduly in heat, invariably took the awards, and probably from the judges' point of view the awards were correctly made, as they simply had to make them to the most showy specimens without reference to season, rarity, or quality. No doubt the judges at Manchester would say that they too had simply to deal with the collections from that point of view, and as in their estimation the first prize group produced the gayest and most showy effect, they were justified in awarding it the prize. Perhaps, further, the judges were better acquainted with stove and greenhouse plants than with hardy ones, and naturally would look at them from a point of view different from that which would be taken by real lovers of hardy plants. The fault of the award rather lies with the compilers of the schedule than with the judges. Exhibition committees naturally think more of securing a brilliant display than of encouraging the culture of hardy plants, and shut their eyes to the fact that three-fourths of the plants shown in some collections have by being grown in heat really been converted into greenhouse plants, and as such should be held ineligible to compete in the hardy plant classes. If, however, it is desired to have such things as *Lilium auratum*, *Spirea Ulmaria*, &c., in bloom at Whitsuntide, why not have a class for hardy plants forced, and one for hardy plants in natural growth and season? That arrangement would cer-

say, why show hardy plants at all, as they are not in any sense exhibition specimens? To that it is fair to reply that no floral exhibition can be regarded as complete that does not include all kinds of garden plants and flowers that may at the time of holding be in season. A much stronger reason for their being shown, however, is found in the admirable opportunity thus afforded for the general public to be made acquainted with them and their various beauties. Such a group, as "Delta" shows us was exhibited by Mr. Brockbank, must have proved to the Manchester people a perfect treasury of knowledge as regards hardy plants, and, without doubt, would serve largely to promote a taste for these simple, yet lovely, things throughout Lancashire. Exhibitions serve poor uses, indeed, if they are not instructive, and to that



Magnolia macrophylla.

end nothing is more desirable than that the showing of plants of every description should be encouraged. What Mr. Brockbank can do so well

to a very large size here, and so do the Trolliuses. We have had a fine show of Orchises and Trilliums here in the earlier spring. This is the place

for both of them, taking care to have a clear sky space overhead and sunshine for half the day. All the Solomon's Seals thrive here also; indeed, the list might be indefinitely extended, but my only object is to point out that wild gardening has its pleasant surprises, and that there are many plants which only show themselves in their best characters in such situations.

Brockhurst, Didsbury. WM. BROCKBANK.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J., SURREY.

THE pure white *Gladiolus Colvillei* and the red kind of the same form are precious house flowers; a few of either put loosely in a glass with a frond or two of some common Fern, such as *Polypody* or *Hart's-tongue*, leave nothing to be desired as a table ornament. A large bouquet of good effect is made with white Foxglove, yellow *Thalictrum*, and semi-double white opium Poppies; a bowl of richly-coloured red Roses stands just under it. A white china basket is filled with cluster Roses, white tinged with pink, and yellow-green foliage of *Epimedium alpinum*, useful with many flowers. A copper embossed bowl holds branchlets of Mock Orange, with *Pentstemons* of a pink colour inclining to soft vermilion. Three kinds of Pinks, pale and deep pink and white, are grouped together with plenty of foliage, the flowers cut of uneven lengths. A round dinner table has Sweet Williams, scarlet and crimson in alternate bunches, in large and small fish globes, arranged in a ring round the lamp—a glowing mass of colour. Scarlet and salmon-coloured *Begonias* in pots are placed together in a large Venetian copper and surfaced with fresh Moss.

FLORAL DECORATIONS.

JAMES HUDSON, GUNNERSBURY HOUSE.

WHAT wealth of hardy flowers we have now in full beauty! From these any who delight in artistic decorations can draw an almost endless variety. We recently filled a stand with hardy flowers alone that would almost vie with the choicest inmates of our stoves and greenhouses. It was arranged as a centre-piece for a dinner-table; it had a base somewhat over 2 ft. in diameter, from which arose a single cornucopia with a slender stem. For the bottom we used white Water Lilies (when these are to be had, no one need seek for the Amazonian Lily), in conjunction with flowers of the German Iris, chiefly in shades of blue, two or three colours of Cornflower, some spikes of London Pride, and the same of *Spiræa japonica*. These, with the common Oat Grass, Quaking Grass, and Turk's-cap Lily, were sufficient to give a pleasing arrangement. For the cornucopia, we had *Spiræa* again with London Pride, Cornflower, and some Grasses. A few tender Fern fronds were certainly used, but had the Maiden-hair Meadow Rue (*Thalictrum minus*) been at hand, leaves of it would have been used in preference. The blooms of the Water Lily when wanted were closed; but this obstacle can easily be got over by passing the thumb and finger up each petal very carefully, and reflexing them till the flower, fully open, is exposed to view. Treated in this manner, Water Lilies will not again close at night, as is their usual custom. Since arranging this stand, I observe that several valuable additions, all hardy, have expanded, such, for instance, as *Chelone barbata* and the blue and white forms of *Catananche cœrulea*, the latter, I think, the prettier. Besides these there are *Spiræa Aruncus* (the Goat's-beard) and *S. palmata*; also Irises of many shades of colour, and than which nothing arranges better beside the blossoms of the white Water Lilies. The shrubby *Spiræa* (*S. arifolia*) is also now in bloom, and will be quickly followed by *S. Lindleyana*. Both of these are excellent while they last. An annual now in flower with us is another favourite, viz., *Gypsophila elegans*, very light and pretty. The following Grasses are also

quickly coming into beauty, viz., *Agrostis pulchella* and *nebulosa*, *Briza gracilis* and *maxima*, and other kinds will soon succeed these. The various forms of *Liliums* now in flower I have not included in the above, though all of these are beautiful; the perfume emitted by them is, however, somewhat powerful, and when used, a few only at a time ought to be chosen. They are fine subjects for large vases in entrance halls or corridors, where the whole spike can be advantageously used to good purpose.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Balsams.—These quick-growing plants very soon fill their pots with roots, and where it is intended they should grow large they must have proportionately large pots, but it is of little use shifting them when the bloom buds are much advanced; in that case all that can be done is to use manure water. A diligent outlook must be kept for aphides on all such plants, without which they are likely to get infested, and their foliage being tender does not well bear Tobacco smoke. Quassia water made by pouring boiling water on Quassia chips and letting them remain in it for a day or so is a good preventive, its bitter properties being distasteful to most kinds of insects. Aphides rarely make their appearance on plants syringed with Quassia water once a week or so.

Chrysanthemums.—These should now be in their blooming pots, and all that are strong should be stopped for the last time. It is a mistake to stop the shoots so often or so late, as is sometimes practised, as where that is done, and the summer happens to be a short one, the flowers set so late as to have insufficient time to get fairly formed before it is necessary to take the plants indoors, and where large flowers are required stopping interferes with their production. A few sticks should be placed to each plant in time to prevent its being broken by wind. As soon as the roots fairly enter the new soil, manure water ought to be used once or twice a week. The idea that Chrysanthemums should not have any stimulants given them until the flowers are set is a mistake, it being impossible to keep the lower leaves on them without it, even where the attention in the matter of water is such as to prevent their ever suffering through drought.

Dracænas.—Whatever propagation is to be yet done with these it should no longer be delayed. The crowns of all the stove varieties, as well as most of the greenhouse kinds, will strike readily in water in stove heat, and the leaves attached suffer less when they are struck in this way than if the rooting process is effected in soil or sand; the crowns to be so dealt with should be taken off in the usual way, but may be left a little longer—that is, so many leaves need not be removed. They may then be put four or six together in anything in the shape of small jam-pots, keeping the pots supplied with water until the crowns are well rooted, after which they must be potted and kept close for a week or two until they have got established. This will be found a better method of dealing with the tops of these plants than that which is usually followed. The stems composed of the hard wood are best shaken out of the pots, taking off the bottom root pieces already formed and potting them singly. The stems may then have all the roots cut off as well as the leaves, and should be laid flat down on the propagating bed, covering them entirely with about half an inch of soil. Thus managed they will push up a crop of young shoots from the eyes, that can be taken off when they have made three or four small leaves.

Greenhouse plants out-of-doors.—The system of turning free-growing greenhouse plants into the open ground in summer has much to recommend it, provided the selection made for such treatment is confined to plants naturally able to bear the root disturbance inseparable from the transfer from the open ground to pots before winter, and enough attention is given through the summer in the way of preparation, so as to avoid the check otherwise calculated to result in

serious injury. The plants chosen for this mode of summer management should be free rooters; amongst these are autumn-flowering *Veronicas*, *Salvias*, white and yellow Paris Daisies, *Solanums*, *Chrysanthemums*, and *Callas*; in all cases the soil ought to be free, open, and not over rich; the former condition is needful to admit of the plants being taken up with a thick mass of roots near home, i.e., well packed together about the collar, as opposed to the long straggling fibres which plants of most kinds have a disposition to make in heavy strong soils. Nor should the material be over-rich, as if so growth will be over luxuriant; the plants will attain too much size, which will make them less easily accommodated. To still further keep them within a reasonable size it is well to cut back the roots with a spade once or twice during the summer; this restricting operation is the more necessary in dripping seasons like the present, when all strong growing things are liable to get into an over-luxuriant condition. When the roots are in this way shortened it causes them to break back, and to make many more feeding fibres than they otherwise would. The work should be done with judgment. Where there is a disposition in the plants to get too large or luxuriant, the root severing should be carried out before too much progress has been made, or the leaves will suffer, and if the soil is at all dry enough, water must be given to prevent the leaves flagging, and in all cases where root shortening is thus effected they must be cut back, so as to keep the balls within the size of the pots they are ultimately to occupy. Where Chrysanthemums are grown in this way due attention must be given to tying the shoots up before they get so long as to be in danger of breaking with the wind. The advantage of planting out in this manner is that much less attention is required.

Ericas.—As these go out of flower the seed-pods should be immediately picked off; inattention to this until the seeds have had time to grow has most exhausting effects on the plants, interfering much with the season's growth. The favourite yellow *E. Cavendishi* requires different management from the generality of the species, inasmuch as after flowering it will bear keeping close and warm for some weeks to further growth. This treatment is best carried out in the case of old plants that have bloomed and are not over vigorous, and, unless so used for a time, would not flower oftener than each alternate year. Plants that were potted in the spring and are now getting established in the new soil should have more water, but on no account give it oftener than the soil gets dry. See that all plants now out-of-doors have the sides of the pots protected from the full force of the sun, either by standing them near enough together to give this protection to each other, or fastening pieces of old canvas or some such material on each, and if heavy rains occur means must be taken to keep them from getting too wet, either by covering with loose lights or canvas, or, these failing, laying the plants down on their sides.

Myrtles.—There are many who care for fragrant-leaved plants quite as much as flowers, and although old-fashioned, independent of their sweet-smelling foliage, the flowers of Myrtles are pretty. Myrtles strike readily from cuttings, and where the stock is deficient it is well to put some in, choosing shoots that are about half ripe and not too strong; if these can be slipped off with a heel they will root more easily. Put six or eight together in small pots, keeping them moist and close, but not in heat until the base of the cuttings are callused over, after which they will bear being warmer. Myrtles are naturally erect-growing plants, and to keep them bushy they should be well cut back every year, by which means they may be kept fully furnished with green foliage down to the base. When the plants have attained a moderate size they are better out-of-doors in the summer. The ordinary double-flowered old variety and the small-leaved Jenny Reichenbach are both good kinds; the last especially is very pretty in bouquets, and gives to arrangements of flowers of

this kind a perfume which the other materials of which they are composed are not unusually deficient.

Lantanas.—These plants, though not so much grown as they once were, can easily be made very useful in greenhouses and conservatories during the summer and autumn months at a season when there is insufficient variety. Their continuous disposition to flower causes the plants to get into an exhausted state, unless they have adequate pot room to meet the free production of roots natural to them; this can to some extent be met by the regular use of manure water. Where wanted to bloom freely late in the autumn, a sufficient number should now be stood out-of-doors with their pots plunged in ashes, in all cases keeping them freely syringed daily, and stopping any shoots that grow too luxuriantly.

Rose cuttings.—Tea Roses for pot culture of most varieties are best grown on their own roots, and where a considerable stock is required, cuttings should be put in annually. Shoots of medium strength in a half-ripened state taken off now and put five or six together in 4-in. pots, in sandy soil, and stood on a moist bottom in a close, cold frame, kept moist, and shaded when necessary for three weeks, will in this time get callused over at the bottom, after which, if submitted to a humid heat, they will soon root freely; whereas, if placed in heat without first having time to callus, many will damp off. Young stock of the Tea varieties struck in the spring should be kept under glass all the summer, as well as the ensuing winter; in fact, it is a question if this section of the Rose family is not better kept wholly under glass. It is so much their nature to be continuously growing more or less during the greater portion of the year, that they do this out-of-doors, and with a glass covering they are never quite at rest; neither does it seem that rest is necessary for them, as plants so treated go on for an indefinite time increasing in size and retaining their vigour. The great thing is to feed them well by the repeated use of manure water, and to keep them completely free from aphides, red spider, and mildew; if any of these pests are present they do injury in a very short time, which it takes long to repair.

Campanulas.—The drooping *C. fragilis* makes one of the prettiest basket plants for a greenhouse or window that can be grown; it is easily managed, and little subject to the attacks of insects. By placing a portion of the stock out-of-doors in the spring and keeping the rest in a greenhouse, the season of their blooming will be lengthened. This species will succeed in small pots—6-in. or 8-in. are large enough—and they will do two or three years without re-potting; but when thus treated they should have manure water in the spring from the time they begin to grow up to their season of flowering. *C. pyramidalis* will now be coming into bloom, and should have manure water regularly until the flowers open. Young plants raised from seed sown early in the spring ought to be pricked off in the open ground in a bed of ordinary soil to which have been added some leaf-mould and sand, keeping them well watered in dry weather, for on their getting strong before autumn depends their ability to make handsome specimens next year.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Phormium tenax (New Zealand Flax).—In form of foliage and habit of growth this may be described as a giant Sedge; the leaves, which are sheath shaped, often attain a length of 6 ft., and vary in width, according to the character of the soil, from 2 in. to 4 in. This Flax is quite hardy in the southern parts of the kingdom, and I think would prove to be so in northern districts, provided the position in which it was planted was well drained and sheltered from cutting winds. As an isolated lawn plant it has few equals, but it will not grow satisfactorily in ordinary lawn soils—deep stiff loam, well drained, is the soil in which it thrives best. It is readily increased by

division, which is best performed early in spring. The only varieties are *tenax variegatum* and *Colensoi*, all equally hardy, the last named kind only differing from the others in the colour of its leaves, which are brownish green.

Bedding plants.—The improved state of the weather has raised our hopes regarding bedded-out plants, which are now growing so freely that increased diligence is needed to keep them in neat form; peg them out to cover the ground at the earliest moment, and water liberally, but not too frequently; they will then root deeply and be uninjured by a few days' drought should circumstances prevent water being applied. Alternantheras and other delicate kinds would be greatly assisted by a syringing at sunset on warm evenings and a light surface mulching of Cocoa fibre or leaf-soil. Keep all bad and seeding flowers off Violas, Verbenas, Calceolarias, and Petunias; this attention, combined with a good watering once or twice a week, will suffice to keep these, usually quickly exhausted plants, in vigorous condition throughout the entire season. Carpeting plants and undergrowths require to be gone over once a week; Sedums and similar kinds should be pressed out with the fingers to prevent a tufty growth, while the creeping kinds should be pegged or pinched, and stronger growers, such as *Mentha* and *Veronica rupestris*, clipped.

Herbaceous plant borders.—As respects gaiety, these at the present time are in marked contrast to the bedders, and deserve all the labour as to keeping them in order—tying, weeding, and picking over—that can be afforded them. Without such attention it is needless to expect results at all proportionate to those had from bedding plants; hence their being so often, but unjustly, designated weedy and unsatisfactory. Fill up vacancies by planting out seedling biennials for flowering next year, such as Sweet Williams, Canterbury Bells, Geums, Columbines, Delphiniums, and other favourite kinds. Should the weather continue dry they will need watering about twice a week till well established. Other appropriate positions for these kinds of hardy plants are the margins of shrubberies in any part of the dressed grounds; but before planting them the shrubs should be trimmed and the ground about them freed from weeds, and the spots for the plants should be forked up, adding where convenient either well-decayed manure or fresh soil.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Vines.—Early houses from which all the Grapes have been cut may now have the ventilators left constantly open, and the syringe must be freely used to keep the foliage clean and healthy until the wood is quite ripe. Keep inside borders in a moist growth-encouraging state by the frequent use of diluted liquid, and add more mulching outside to protect the surface roots now working freely in the top-dressing. If the Vines are in a healthy state, lateral growths will soon be abundant and valuable, but they must not be allowed to run wild, otherwise they will do harm by crowding the main foliage now filling up and perfecting the buds from which the next year's crop of fruit is to be obtained. Now all the thinning is finished it will be advisable to go over the bunches in late houses with the scissors for the last time and remove a few of the smallest berries where they are likely to bind, for if once allowed to become jammed their removal cannot be accomplished without leaving marks which will be visible when the Grapes are ripe. If not already done, put on more mulching and give all the inside borders a heavy watering with warm liquid or guano water, fill the evaporating pans every morning, and damp the borders with the same after closing for the day. The agreeable change to warmer weather will at last enable us to reduce fire-heat, but nights are still cold, and a gentle circulation to admit of giving air at night and on dull days will be needful until the earth gets much warmer than it is at the present time.

When Muscats have passed the stoning process and are safe from scalding, the house may be closed early and the heat may range as high as 90° for a time to swell the berries. The ventilators must, however, be again opened for the night, and then fire-heat will do good service in preventing the temperature from falling below 70°. Hamburgs and other kinds which do well under Hamburg treatment may range a few degrees lower—say, 65° to 68° at night; but instead of trying to maintain these figures in a dull, stagnant atmosphere, it will be much the best to warm the pipes, and, with the exception of the afternoon closing, keep up a constant circulation of air by night and day. When newly-planted Vines have grown to the top of the house the leaders may be stopped, also the laterals, from the base up to the bud to which it is intended to prune in the winter; but above the pruning bud a free rambling growth may be encouraged to cover the whole of the trellis and back wall. Keep the inside borders well mulched and watered with pure water, and carefully preserve all the main leaves by a liberal use of the syringe once or twice a day. Give an abundance of air from the time the temperature begins to rise until it declines in the afternoon, then close for an hour or two, and re-open the ventilators for the night.

Pot Vines intended for early forcing will now be changing to a bright nut-brown colour, and the buds at the base of the leaves will be filling up. If the canes are very strong it is not likely that they will become too prominent, but great assistance may be rendered to them by shortening back the laterals to one eye for the present, and by keeping the main leaves clean and healthy to the last. See that the roots do not want for water, and gradually check them if they have been allowed to find their way into the plunging material. Ventilate freely, shut up with plenty of sunheat every afternoon, and maintain a circulation of air through the night.

Orchard houses.—By this time the latest Peaches and Nectarines will have passed the stoning process, and many of the early and mid-season kinds will have commenced their last swelling. As no more fruit will drop, it will be well to look each tree over and see that it is not carrying more than it is capable of bringing to maturity, and at the same time to stop all sub-laterals to increase the size, and turn aside the foliage to insure the perfect colouring of the fruit. Keep the trees regularly fed with good liquid and guano water. Mulch any that may require it with good rotten manure, and syringe well with tepid soft water about 6.30 every morning and again after the house is closed for the day. Trees growing in internal borders may also be stopped, to prevent the force of sap from passing by the fruit; mulch, and well water with water of a stimulating character or otherwise, according to the strength of the growths and the crop of fruit they are carrying. The insects to which these trees are now subject are spider and brown scale; the first can make little if any progress under good culture, and the second must be kept in check by brushing with a short, stumpy brush before it passes from the wood to the leaves.

Early houses.—The principal work here will be good syringing to keep the foliage clean and healthy, and feeding with weak liquid to plump up the buds before the leaves fall. If directions contained in my last paper have not been followed up, lose no time in getting the forward kinds potted and started into fresh root growth before they are placed in the open air. Many people are afraid to pot a fruit tree when in full leaf, but they need not hesitate, as fresh healthy trees under glass start into free root growth at once, and are fit for removal to the open air within three weeks of the performance of the operation. The principal points in the management of a newly potted tree are a close, moist atmosphere, a temperature that will not excite the prominent fruit buds, and moderate watering until the roots begin to work freely in the new soil.

Pines.—The pit in which the early started Queens have been grown may now be renovated

with fresh leaves or tan, and filled up with the most forward fruiters from the second batch. Let each plant be made firm at the base by packing with a few pieces of fresh turf; secure the fruit in an upright position by tying above and below to stout sticks, and plunge lightly at first, until it is seen whether the new material will become too hot or not for the roots now coiling round the pot's inside. The greatest length of days having been reached, a high temperature, with a corresponding supply of moisture, may now be advantageously given to them, and liberal supplies of generous liquid or guano water may be used when the roots require feeding; the evaporating pans may also be replenished, and the surface of the bed syringed with the same, in order to keep up the requisite supply of atmospheric moisture. As the rearrangement of this pit will make room in other compartments, a general turn over will bring together the next batch of starters, from which fine autumn fruit may be expected, and afford facilities for shifting strong successions still occupying small pots. See that the balls are thoroughly moistened before they are potted; use the soil in a dry, rough state, and ram it firmly to prevent water from passing through and leaving them dry in the centre. Be careful in the selection of medium sized pots, using the largest for Rothschilds and Cayennes, and the smallest for Queens, Jamaicas, and that excellent variety Lord Carington. Shade slightly from bright sun. Syringe the walls and dew the plants overhead on fine afternoons, but guard against heavy root watering until they have taken freely to the new soil.

Hardy fruits.—Although our fruit crops are not so promising as we at one time anticipated, it is gratifying to be able to say there is a great improvement in the appearance of the trees; many of the Plums and Apples, at one time nearly leafless, are now making clean, healthy mid-summer shoots. Pears in this county are much more abundant than Apples, and some few kinds of the latter, including Alexander, Golden Winter Pearmain, and Irish Peach, are carrying good crops of fruit. Where trees which are pruned in winter and pinched in summer have been hard bit, it will not be wise to risk a second check by stopping the shoots too soon, as it is more than probable that a fine autumn will ripen up a good set of fruit buds for another year, while unrestricted growth will restore the blighted trees to healthful vigour, without which fruit buds are of but little use.

Apricots are an immense crop and require a great deal of thinning, but unfortunately the Apricot is a badly treated tree, inasmuch as it is frequently burdened with such heavy loads of fruit that it is no uncommon thing to see them forcing each other off the branches. Where, after repeated thinnings, the trees are still heavily cropped, the surplus fruits should now be taken off and used for tarts; leaders should be nailed in, and laterals pinched back, but not too close on south walls; the borders may then receive a little more good mulching followed by a heavy watering, and little more will be needed until the fruit begins to ripen.

Plums and Cherries.—If any of the Bigarreau and other late kinds of Cherries are still hanging on pot trees, they will be the better for removal to a cool, airy place where they can be effectually protected from sun, rain, and birds, and, space being limited, the very early kinds of Plums may be placed out-of-doors to ripen. The finer varieties, including the Gages, Jefferson's, Coe's Golden Drop, Coe's Late Red, Ickworth Impératrice, and others, which are so much improved by being grown and ripened under glass, may then be re-arranged for the season. If any of the second growths are starting away freely, as they often do after the stoning is complete, let them be stopped at the third or fourth joint, otherwise they will rob the fruit of food, and shade it from bright sunshine, of which these kinds cannot have too much provided they are properly supplied with air and water. Look well to the mulching, add more as it is required, feed well

with good liquid, and syringe twice a day with clean soft water until the fruit begins to change for ripening. If any of the early pot Cherries from which the fruit has been gathered require potting, it is a good plan to give them a shift before they are taken out of the house, and as the latter will now be kept like a warm orchard house, the soft humid atmosphere will favour the rapid formation of fresh roots. When new growth has set in no time must be lost in getting them removed, first to a sheltered shady place for a few days, thence to a dry, open situation where they can be plunged and mulched to save watering. As stone fruit trees of all kinds enjoy a firm, resisting, calcareous soil, the compost in which they are potted should be firmly rammed and the shift should be large enough to admit of good drainage beneath the ball and plenty of room above it for a liberal supply of water.

Peaches and Nectarines.—When all the young growths actually required for forming the trees have been nailed or tied in the final thinning of the fruit will follow without delay, as it rarely happens that fairly treated trees lose many at stoning time. Where timely attention is paid to the selection of the fruit for the crop, preference should always be given to the finest on the upper sides of the shoots, and, taking the whole area of the wall covered with foliage, about one Peach to every square foot will be found quite sufficient for ordinary trees to carry. From this time forward the principal work will be keeping the foliage clean and free from insects, the most troublesome of which are black fly and red spider. The first may be destroyed by the persistent use of Tobacco water, and the second makes but little headway where the borders are well mulched and the engine is vigorously applied at the close of the day. The proper balance of the trees must also be kept in view, otherwise foreright and gross shoots, while robbing the fruit will greatly interfere with the extension of the leading branches, and as these never require stopping where there is wall space to fill, growths which will be taken out after the fruit is gathered may be shortened back to let in light and air, so essential to the proper ripening of the wood.

Strawberries.—Young plants intended for making new plantations should be taken away from the parent stools and removed to a cool shady situation as soon as the small pots are nicely filled with roots. If the ground upon which they are to be planted can be cleared of the spring crop, which generally consists of early Peas or Potatoes, lose no time in getting it well limed, manured, and broken up to a depth of 18 in. or 2 ft., add another dressing of manure, fork it in near the surface, and tread firmly. Set out the lines 2 ft. 6 in. apart, see that the balls of the young plants are thoroughly wet when they are turned out, and place them 15 in. from each other in the rows. Where new heavy soil is plentiful and can be spared, give a little, if only a 6-in. potful, to each plant, see that the balls are firmly embedded and covered to protect them from drought. Give a good watering to settle the soil, and mulch with a little short manure.

KITCHEN GARDEN.

R. GILBERT, BURGHEY.

POTATOES. I am sorry to find are once more attacked with that fatal malady which no one seems to be able to cure; the discovery of the resting spore, powdering the haulm with salus, and ten thousand other crotchets have all proved to be useless, so far as we practicals are concerned. What we must do is to lift as soon as the tubers attain their full size. I have a ton of the Ashtops lifted for seed, and to-day (July 1) I am lifting Myatt's for using, spreading the tubers in dark sheds, where they keep beautifully. I have for some years adopted this system, so that my losses are only small. To stay and see Potatoes rotting daily is to me a matter of much regret when they might in a great measure be saved. Lifting Potatoes leaves ground vacant for the earlier kinds of Broccoli, which we plant as we

clear, putting in the plants up to breakfast-time, and lifting the Potatoes when the sun gets well up. We let the tubers lie for an hour, in order that they may get quite dry and be in the best condition for use. I have assisted to lift many crops of this valuable tuber, but have never witnessed so heavy a crop as this season. Sow at once the latest crop of Peas; I grow William I. and Unique, both good early and late varieties. I have just finished planting my stock of Celery, excepting a row or two for very late use. Should the present favourable weather last, young Asparagus plantations will be very much benefited by being mulched with short litter and having a good soaking of manure water. Keep the beds clean by hoeing and weeding when any weeds appear; in fact, time may now be profitably spent in using the hoe amongst all growing crops. We have now got into July, an important month for the kitchen gardener. Eadive and Coleworts should be sown at once. That important crop, winter Lettuces and Cabbages of all varieties, must be sown this month. The land should therefore be got ready without delay. Our early Pea land is always used for seed purposes, well cultivated, but never dug at all. We put on 2 in. of burnt refuse, which freshens the soil and sweetens it, too. The young seedlings always come strong and healthy, and fine plants, all of a size, is the important question where £ s. d. is a consideration.

SOCIETIES.

CRYSTAL PALACE ROSE SHOW.

JULY 1.

As the National Rose Society held its annual exhibition at South Kensington this year, the usual summer Rose show at the Crystal Palace was entirely organised by the company, and a really excellent one it was. A very conspicuous feature of it was the uniformly high quality of the Roses from nurseries and the poor display made by amateurs; indeed, some of their Roses were scarcely admissible, and, to make matters worse, they were, for the most part, put up badly, being either too crowded, or, on the contrary, spread out so thinly as to more glaringly display their bad qualities. Among amateurs the names of Baker and Jowitt were conspicuous by their absence, for these exhibitors have generally shown Roses here in perfection. On the other hand, the nurserymen's Roses were, for the most part, exceptionally fine, particularly those from the Cheshunt and Slough nurseries, and from Mr. B. R. Cant, who secured no fewer than nine first prizes—a clear proof of the suitability of the climate of Colchester for Rose growing. There were twenty-one classes in the schedule, all of which were represented more or less numerously, with the exception of that for a dozen blooms of *Maréchal Niel*, a singular fact, as this variety is so largely grown, and of which there were some excellent blooms in the show.

Nurserymen's classes.—Each of the five classes provided for nurserymen was well filled, there being six collections of seventy-two single trusses, three of forty-eight trebles, ten of twenty-four trebles, twelve of twenty-four singles, and seven of a dozen Tea-scented varieties. The class for seventy-two was a very fine one, and the first three collections were of such uniform high quality, that the judges had no little trouble in adjudicating, and the collection from Mr. B. R. Cant was of such excellence that an extra prize was awarded; indeed, during the afternoon when Mr. Cant's blooms were more expanded it was superior to any. The first prize collection, from Cheshunt, was indeed very fine, and not a bad bloom could be seen. Where all were so good it is difficult to single out any more prominent than others, but the following were shown to perfection: A. K. Williams, Ferdinand de Lesseps, Countess of Rosebery, Star of Waltham, Captain Christy, May Quennell, Penelope Mayo, Camille Bernardin, Charles Darwin, Exposition de Brie, Marie Baumann, Magna Charta, Duke of Teck, Ferdinand Chaffotte (new), J. S. Mill, Horace Vernet, Niphotos (as fine as any in

the show), Alfred Colomb, the old General Jacqueminot and Centifolia rosea, which last was shown better than we have ever seen it. In the King's Acre collection were many superb blooms, particularly of Prince Arthur, Devoniensis, Mad. C. Wood, Duke of Edinburgh, Pierre Notting, and Dr. Andry. The collection from the Devon Roseries, Torquay, though not so fine as we have seen from that quarter, was excellent, and we have seldom seen Mdme. Berard shown so finely as by Messrs. Curtis. Auguste Rigotard, a grand Rose when fully developed, was shown to perfection in Mr. Cant's collection. In the class for four dozen treble trusses, the Cheshunt Roses were again to the front, and were but little inferior to the collection of single trusses. In Mr. Turner's second best collection were superb blooms of Dr. Sewell, one of the Slough new Roses, which was seen in its best form, and showed well what a fine dark Rose it is. Boule de Neige, Louisa Wood, Richard Laxton (a fine new Rose), Prince Arthur, Countess of Rosebery were likewise shown finely. In the next class for two dozen trebles, Mr. Turner had no difficulty in securing the first place, for he showed a splendid collection, including Marie Baumann, Sir Garnet Wolseley, Le Havre, Senateur Vaisse, Elie Morel, Penelope Mayo (very fine), Pride of Waltham, Duke of Connaught (the best blooms of this Rose in the show), A. K. Williams, Mdme. Victor Verdier, Alfred Colomb, and General Jacqueminot, all of which were uncommonly fine.

Among the dozen competitors in the class for two dozen single trusses, Mr. B. Cant was in the front rank with an excellent collection, in which we noticed some exceptionally fine blooms of Devoniensis, Mrs. Baker, Duke of Edinburgh, Madlle. Marie Cointet, Mdme. Gabriel Luizet, La France, François Michelin, Annie Laxton, and Marie Baumann. Among the Slough Roses, which were second, Penelope Mayo, a very bright and promising new Rose, was shown splendidly, likewise Boildieu, also a new variety. In the third collection, from Mr. F. Cant, the new Wilhelm Kelle, a bright red seedling from Alfred Colomb, was shown beautifully, and it promises to be a real acquisition. In the seven collections of a dozen trusses of Tea-scented varieties there was not an inferior bloom, and that from Mr. B. Cant was excellent. He had superb blooms of Souvenir d'un Ami, Mdme. Bravy, President, Devoniensis, Marie Van Houtte, Innocente Pirola, Rubens, Mdme. Caroline Kaster, Souvenir de Paul Néron, Mdme. Jules Margottin, Souvenir d'Elise Vardon. This would be a thoroughly representative collection of Tea Roses if the following were added, which were shown in other collections: Catherine Mermet, Mdme. Lambard, Mdme. Falcot, Perle des Jardins, Maréchal Niel, Rêve d'Or, Belle Lyonnaise, Adam, and Safrano.

Amateurs' classes.—As we before remarked, these were for the most part badly represented as regards quality, but not in quantity, for there were about a dozen collections of twelve treble trusses, three of two dozen trebles, eight of three dozen, and six of four dozen single trusses. There is but little to remark respecting them, excepting that the best collections came from Colchester and Romford, and these, though not remarkable, were presentable at an exhibition, which is more than can be said of many of the other collections shown. The best collection of four dozen single trusses was really a fine one, containing superb blooms of the following: Catherine Mermet, Perle d'Or, Sultan of Zanzibar (the best in the show), J. Bright, Mrs. Baker, Abel Carrière, Jean Ducher, Duke of Edinburgh, and Homère. A very fine bloom was shown of the last, the delicate tints of which were as much admired as those of any flower in the show. This collection was shown by Sir C. R. Rowley's gardener (Mr. Rushmore), Tendring Hall, Colchester. Among other Roses shown by amateurs we singled out the following as being uncommonly fine: J. S. Mill, Xavier Ohbo, Penelope Mayo, Charles Darwin, and Star of Waltham.

Open classes.—There were a dozen open classes in the schedule, but though open the

prizes were nearly all taken by nurserymen. There was no competition in any of the classes for a dozen blooms of a particular variety, except that for the variety Marie Baumann or a Rose of a similar colour. Ten competed in this class, and Messrs. Curtis, Sandford & Co. were first with a dozen splendid blooms of Marie Baumann, showing this beautiful Rose to perfection. Messrs. Paul, of Cheshunt, had for the second an uncommonly fine dozen of A. K. Williams, though the similarity of colour to Marie Baumann was not very apparent. A splendid dozen blooms of Etienne Levé, from Mr. B. Cant, were third, and the other exhibitors showed Marie Baumann. Of twelve blooms of Prince Camille de Rohan, a similarly coloured variety, there were but two exhibitors. Messrs. Paul, of Cheshunt, showed a dozen splendid blooms of Abel Carrière, and Mr. Turner similarly fine flowers of his new Charles Darwin, one of the finest of dark Roses. The class for a dozen of Captain Christy was represented by five fine blooms. La France, from Mr. B. Cant, was first; Captain Christy, from Cheshunt, second; La France third. Baroness Rothschild and Comtesse de Serenye were likewise shown in this class. The class for François Michelin, or similarly coloured variety, included some half-a-dozen exhibits. Some fine blooms of François Michelin were first, Marquise de Castellane second, François Michelin third; Madame Victor Verdier was also shown in the class. Of a dozen trusses of any Tea or Noisette variety there were Devoniensis and Souvenir d'un Ami, both the varieties being well shown.

The classes for collections of yellow, white, pink, crimson, and velvety crimson Roses were interesting, as they showed what striking similarity there exists between varieties of a colour. Such classes are unsatisfactory, however, as some varieties are neither a decided white, pink, yellow, or crimson, an illustration of which was very prominent in the collections shown on this occasion. Each of the collections consisted of not fewer than six varieties, three trusses of each. In all the classes for yellow, white, pink, crimson, and velvety crimson Roses Mr. B. Cant was first. The best collection among the yellows contained Gloire de Dijon, Marie Van Houtte, Caroline Kuster, Mad. Hippolyte Jamain, Mad. Falcot, Jean Ducher, Rêve d'Or (very fine), Mad. Willermoz, Solfaterre, Isabella Sprunt, and Perle des Jardins. There was but one other collection. There were five collections of pink varieties; in the first were Mons. Noman, La France, Mad. Marie Finger, Captain Christy, Elie Morel, Baroness Rothschild, Marguerite de St. Amand, Mdme. Gabriel Luizet, Duchesse de Vallombrosa. The best of the five collections of crimson Roses contained Alfred Colomb, Senateur Vaisse, Mrs. Baker, Marie Baumann, A. K. Williams, Duke of Teck, Dr. Andry, Dupuy Jamain, Countess of Oxford, Annie Wood. The first white collection included Niphotos, Innocente Pirola, Mdme. Lacharme, Devoniensis, Rubens, Souvenir d'un Ami, Souvenir de Paul Néron, Mad. Bravy. In the collection from Messrs. Paul, of Cheshunt, were some excellent blooms of their new white Rose called White Baroness, a lovely variety similar except in colour to Baroness Rothschild. There were four collections of velvety crimson varieties, and in Mr. Cant's first lot were Duke of Wellington, Duke of Edinburgh, Dr. Sewell, General Jacqueminot, Prince Camille de Rohan, Fisher Holmes, Charles Lefebvre, Duchess of Bedford. In the other collections were Duke of Connaught, Charles Darwin, Marguerite Brassac, W. W. Saunders, Robert Marnock, and a seedling in Mr. Turner's collection, which promises to be a fine variety.

New Roses were few, there being but two collections shown, one from Mr. Turner, Slough, the other by Mr. Bennett, Shepperton. The former had Mabel Thompson, Souvenir de Garibaldi, The Colonel, Alice Turner, King of the Bedders, and Sir Charles Ellis, all Hybrid Perpetuals. Mr. Bennett had Heinrich Schultheis, Earl of Pembroke, Distinction, Her Majesty, and Lady Mary Fitzwilliam. The two last named were awarded first-class certificates of merit. Her Majesty is a large full Rose of an uniform delicate rose colour; the

other is a fine conical flower of a beautiful blush pink; both are superb acquisitions.

NATIONAL ROSE SOCIETY.

JULY 4.

NEVER before, probably, was there such an immense gathering of Roses at an exhibition as at that at South Kensington on Tuesday last in competition for the prizes offered by this society. The exhibition throughout showed well to what perfection the Roses cultivated in England, for notwithstanding storms and blight, unusually plentiful this year, there was scarcely an inferior flower shown, though considerably more than 6000 Roses were present in the competitive classes alone. Previously the society has held its great annual exhibition at the Crystal Palace, but South Kensington, being more central, is pre-eminently better suited for such an exhibition.

The show was held in the arcades on either side of the large conservatory, which was likewise filled with an attractive display of flowers. The eastern arcade was set apart for the nurserymen's and open classes, while the western one was entirely filled with the exhibits of amateurs. Though the trays of blooms were arranged in lines in the usual way, they did not look formal, as owing to the curves of the building the whole of the display was not seen at a glance, as is the case when the boxes are disposed in straight lines.

The schedule, as usual, was a most comprehensive one, there being no fewer than thirty-two classes. The first twenty classes were ranged under five divisions—two for nurserymen, the rest for amateurs. These divisions, each containing four classes, were arranged so as to make the exhibition a representative one for all cultivators; for instance, exhibitors in Class A could not compete in Class B, and so on, an excellent arrangement, and one that ought to be more generally carried out. Every class was represented more or less numerously, and in some there were a score or more of exhibitors. Both amateurs and nurserymen showed well, but on the whole the nurserymen's blooms were superior to those of the amateurs, a circumstance, no doubt, attributable not so much to skilful cultivation as to the immense resources which the nurserymen possess. Among the amateurs two great rosarians who have contested so keenly at this society's shows in previous years were unrepresented—we mean Mr. Baker, of Heavitree, and Mr. Jowitt, of Hereford.

In such a vast assemblage of Roses as this it was very interesting to observe how invariably some varieties were represented in every one of the larger collections, a sure indication of their great value. There were about a score of Hybrid Perpetuals that were sure to be met with, and these were A. K. Williams, Baroness Rothschild, Captain Christy, Comtesse d'Oxford, Dr. Andry, Etienne Levé, E. Y. Teas, François Michelin, General Jacqueminot, Horace Vernet, J. S. Mill, La France, Le Havre, Louis Van Houtte, Mme. Gabriel Luizet, Mme. Lacharme, Mme. Victor Verdier, Magna Charter, Marie Baumann, Marie Rady, Marquise de Castellane, Maurice Bernardin, and Senateur Vaisse. Among Teas and Noisettes there were about a dozen that were so represented. These were Alba rosea, Belle Lyonnaise, Caroline Kuster, Devoniensis, Innocente Pirola, Mme. Lambard, Mme. Willermoz, Maréchal Niel, Marie Van Houtte, Niphotos, Souvenir d'Elise Vardon, and Souvenir d'un Ami. These two selections may be taken as representing the cream of the exhibition Roses, though it does not include some of the newer varieties which appear to be rapidly rising in public favour. Of these we might mention, of Hybrid Perpetuals, Charles Darwin, Duchess of Bedford, Countess of Rosebery, Penelope Mayo, Duke of Teck, Mrs. Baker, Mrs. Laxton, Prince Arthur, William Warden, Star of Waltham, and Catharine Soupert. Among the newer Teas the following are becoming great favourites: Marie Guillot, Mme. Lambard, Comtesse de Nadaillac, Anna Ollivier, Amazone, Perle des Jardins, Mme. Berard, and Souvenir de Paul Néron.

Nurserymen's classes.—Of the eight classes set apart exclusively for nurserymen, the great centre of interest was the first class for seventy-two single trusses, the first prize for which was the challenge trophy (a handsome piece of plate) and £5. Five exhibitors competed in this class, and each of the collections were marvels of perfection. The trophy was taken by Mr. B. R. Cant's collection, than which the oldest rosarian has seldom seen a finer. Among the six dozen blooms there was not one but what was as perfect as could well be; so fine, indeed, were the blooms, that two of them were singled out by the judges as the best Tea-scented and the best Hybrid Perpetual Roses in the exhibition. The collection was a thoroughly representative one, and contained a large intermixture of Tea-scented varieties with the Hybrid Perpetuals. The most prominent varieties were, of Hybrid Perpetuals, Etienne Levet, La France, Duke of Wellington, Captain Christy, Comtesse d'Oxford, Madame Ducher (very fine), Duke of Teck, Madame Lacharme, Charles Lefebvre, Alfred Colomb, Baroness Rothschild, Mad. Montet, Duke of Edinburgh, Mad. Hippolyte Jamain, François Michelin, Countess of Rosebery, Egeria, Senateur Vaisse, Louis Van Houtte, Marie Baumann, A. K. Williams, Marie Rady, Edouard Morren, J. S. Mill, Mons. Noman, Duke of Connaught, Xavier Olibo, Mad. Gabriel Luizet, Mad. Charles Wood, Mrs. Laxton, Victor Verdier, Marie Cointet, Magna Charta, Le Havre, Horace Vernet, Marquise de Castellane, E. Y. Teas, Penelope Mayo, Eugénie Verdier, and General Jacqueminot. Among Tea-scented varieties were Souvenir d'Elise, a grand bloom, to which was awarded the silver medal as the best Tea variety in the show; Innocente Pirola, Caroline Kuster, Marie Van Houtte, Maréchal Niel, Rubens, Perle de Lyon, Mad. Lambard, and Souvenir d'un Ami. Such a grand collection as this maintained the high standing Mr. Cant has as a Rose grower, for he has again this year, particularly in this exhibition, proved himself the champion. The other collections shown were all very fine, but not of such uniformly high quality as that from Colchester.

In the next class for three dozen treble trusses there were four exhibitors, the best collection, from the Cheshunt Nursery, being a very fine one, including grand blooms of Mad. Gabriel Luizet, A. K. Williams, La France, Star of Waltham, Niphetos, Marie Rady, Comtesse d'Oxford, Ferdinand de Lesseps, and many others, the whole collection showing how finely the Rose is cultivated at these well-known Rose nurseries. The class for two dozen treble trusses was represented by three fine collections, the best coming from Torquay, the climate of which seems to be peculiarly suited to the Rose, judging from the fine display Messrs. Curtis & Sandford showed on this occasion. The other class in the first division of the schedule was for eight Tea varieties, of which fine collections were shown. The finest collection came from Mr. Prince, Oxford, and certainly it was a very excellent one, as fine as could well be. The most prominent varieties were Alba rosea, Mons. Furtado, Comtesse de Nadaillac, Devoniensis, Souvenir de Paul Néron, Adam, Innocente Pirola, Amazone, Marie Van Houtte, Maréchal Niel, Souvenir d'un Ami, Catherine Mermet, Anna Olivier, Souvenir de Madame Pernet, Rubens, and Jean Ducher.

The second division of the schedule consisted of classes for nurserymen not competing in the first division. There were some excellent collections shown, though, of course, the quality was not so high as that of the previous classes. There were nine competitors in the class for four dozen single trusses, the most successful, Mr. F. Cant, Colchester, showing some very fine blooms in his stand. A similar number of collections represented the next class for eighteen treble trusses, a collection from Mr. Walters, Exeter, being exceptionally uniform in quality. The class for two dozen single trusses was a fine one as regards quality, the collection from Messrs. Laing, Forest Hill, being noteworthy in this respect. This collection contained superb blooms of Countess of Rosebery,

Comtesse d'Oxford, Horace Vernet, Victor Verdier, Baroness Rothschild, François Michelin, Niphetos, Marie Baumann, Marquise de Castellane, Mad. Lacharme, Duchesse de Morny, and Alfred Colomb. The Tea varieties in this division were good, particularly that from Mr. Mattock, Oxford, which contained as fine blooms as any in the show.

Amateurs' classes.—There were sixteen classes set apart for amateurs, and most of these were largely represented. The most important class was that for three dozen single trusses, the first prize for which was a challenge trophy and £5. None competed in this class; the trophy was won well by Mr. E. R. Whitwell, of Darlington, a not very genial climate, one would think, for the Rose. On the whole, the collection was fairly good, some of the blooms being very fine, and being arranged on black velvet they were shown to the best advantage. Among them were splendid examples of Mdme. Gabriel Luizet, Annie Laxton, Le Havre, Marie Baumann, Mdme. Charles Wood, Sir Garnet Wolseley, Mdme. Lacharme, Dr. Andry, Abel Grand, Etienne Levet, May Quennell, and Lord Macaulay. A superb bloom of Belle Lyonnaise in the second best collection was as fine as any in the exhibition, and a credit to the grower, Mr. Brown, of Reigate. There was a dozen collections of two dozen single trusses, and nine of a dozen treble trusses, the winning collections being very good. In this division the class for Tea varieties was well represented, there being nine competitors. The next division of the schedule was represented by quite a different set of exhibitors, and all four of the classes were well filled, there being twelve collections of two dozen single trusses, fifteen of eighteen singles, eighteen of twelve single trusses, and eleven of nine Tea varieties. The fifth division likewise brought numerous exhibitors, and in the class for twelve single trusses, a collection from Denne Park, Horsham, was particularly remarkable, as every bloom was simply perfection. There were numerous exhibitors in the classes for twelve, nine, and six blooms, but the quality generally of the blooms was not very high, though here and there were exceptionally fine specimens of some varieties, particularly of Tea varieties. There were extra classes provided for two dozen treble trusses of Teas or Noisettes, open only to ladies, for six suburban-grown Roses, and for six Roses to be shown by amateurs who had never previously won a prize at an exhibition of this society. The ladies' class, we believe, is an innovation, but we cannot but regard it as a farce, as in most cases no doubt the blooms were gathered from the same bushes as supplied the Roses for other classes. There were but four collections of suburban-grown Roses, and these were not remarkable. The piece of plate (the first prize) was taken by Mr. Coleby, of Wimbledon. Other Roses were shown from Roehampton, Wimbledon, and Highgate. The only collection of six Teas or Noisettes was a very poor one, to which a third prize only was awarded. There were some fourteen collections of six trusses in the class for amateurs who have never previously won the society's prizes, and very good indeed were some of the blooms shown.

Open classes, of which there were seven, were an important part of the show, and everyone, except those for new Roses, were numerous represented. The class for a dozen trusses of any yellow Rose brought about half-a-dozen competitors. Mr. Prince, Oxford, showed a beautiful dozen of Jean Ducher for the first prize. Some beautiful blooms of Maréchal Niel, Perle de Lyon, Perle des Jardins were also in this class, and a new nankeen yellow variety, called William Allen Richardson, was also a prominent and much admired variety. The best dozen trusses of any white Rose were from Messrs. Cranston, who had excellent examples of Mdme. Lacharme. Mr. B. Cant had the beautiful Devoniensis for the second, and Mdme. Lacharme also took the third prize. Other white Roses shown well were White Baroness, Messrs. Paul & Son's new variety; Marie Van Houtte, Rubens, Boule de Neige, and Marie

Guillot; ten collections were shown. There were fourteen exhibitors of a dozen trusses of any crimson Rose. The finest were some splendid blooms of Marie Baumann, from Mr. Walters, Exeter; A. K. Williams, from Mr. Cant, was second; Alfred Colomb (very fine), from Mr. Sargent, Reigate, was third; and Marie Baumann fourth. The latter variety was shown by several other exhibitors, as were also A. K. Williams and General Jacqueminot. The next class for a dozen blooms of any Rose brought out a numerous competition. The first prize was taken by Messrs. Paul & Son with some splendid examples of Captain Christy; some beautiful blooms of Catherine Mermet, from Mr. Prince, were second; La France, from Mr. Cant, third; and A. K. Williams, from Messrs. Cranston, fourth. These were all grand blooms, as were also some of those in the other collections, but which were not so uniform in quality. There were fourteen exhibitors of six trusses of any Rose. Mr. B. Cant was again first with splendid blooms of Marie Baumann, La France was second, Marie Baumann third, and La France fourth.

New Roses.—These were not very numerous shown either by nurserymen or amateurs. The most important was the open class for three trusses of any new seedling Rose not yet in commerce or announced. There were but two exhibitors and the first prize was withheld. Messrs. W. Paul & Son showed their new Queen of Queens, and gained the second prize. It is a large full Rose, excellent in form and of a delicate rose-pink. Mr. Turner, Slough, showed Alice Turner, Mabel Thompson, The Colonel, and King of the Bedders, all of which we have before alluded to. In the open class for twelve single trusses of new Roses which have been put in commerce since 1879, there were some half-a-dozen competitors. The first prize fell to Messrs. Paul & Son, Cheshunt, who had George Moreau, R. N. G. Baker, Mdme. Isaac Perrière, Mdme. Ducher, Souvenir de Mdme. Alfred Vy, Catherine Soupert, Ferdinand Chaffotte, Countess of Rosebery, George Baker, Edouard André, Jules Finger, and Rosieriste Jacobs. Messrs. Curtis, Sandford, & Co. were second, having Mrs. Jowitt, Alfred Dumesnil, Souvenir de Mons. Drouche, Duke of Teck, Mons. Alfred Leveau, Mdme. Julie Wiedman, Rosieriste Jacobs, Lady Sheffield, Masterpiece, Mons. Thouvenel, Comtesse de Camando, Marguerite Manoin. Messrs. Cranston were third with Mdme. Isaac Perrière, Crown Prince, Comte de Mortemart, Masterpiece, Mdme. Montet, George Moreau, François Levet, Jules Tergenson, Comte Horace de Choiseul, Pride of Waltham, Marguerite Manoin, and Jules Finger. Mr. B. R. Cant had Duchess of Bedford, Mad. Marie Verdier, Mad. Ducher, William Warden, Harrison Weir, Jules Finger, Mad. Montet, Duke of Teck, Mad. Alfred de Mesnet, Mad. Angel Jacquier, Countess of Rosebery, and Guillaume Gillemot. Messrs. Davidson had Mad. Isaac Perrière, Glory of Cheshunt, Alfred Leveau, Duke of Teck, George Moreau, Charles Darwin, Countess of Rosebery, Emperor de Brésil, Duchess of Bedford, and Beauty of Stapleford. The amateurs' class for six Roses sent out since 1879 was represented by five competitors. The first contained Harrison Weir, Jules Finger, Duke of Teck, Comte Horace de Choiseul, and W. A. Richardson, a new Noisette; the second included Beauty of Stapleford, Charles Darwin, Harrison Weir, Alfred Dumesnil; and the third, Dr. Sewell, Pierre Guillot, Beauty of Stapleford, Pearl, Duke of Teck, and Countess of Rosebery.

ROYAL BOTANIC SOCIETY.

THE second great summer show of this society, held in the Inner Circle, Regent's Park, on Wednesday last, was as fine in every respect as any that have preceded it. The capacious tent, so picturesquely undulated, presented a strikingly attractive appearance. The Orchid bank, though not so crowded as we have hitherto seen it, was gay with bloom; the four central mounds were taken up by miscellaneous groups of plants from Messrs. Veitch, B. S. Williams, and Laing & Co., while Mr. Turner, of Slough, made the other as bright

and attractive as ever we have seen it, his group being composed of good sized, densely flowered specimens of show, fancy, and decorative Pelargoniums interspersed with Palms and Ferns. The banks skirting the margins of the tent were lit up as usual with stove and greenhouse plants, the gay colours and somewhat formal outline of which were relieved by noble groups of fine foliaged plants. The fruit tent was well filled and the cut flowers never were finer or more numerous; in short, the exhibition throughout was a great success, and added another to the brilliant series of floral displays that have for many years rendered the Royal Botanic Society's Gardens so famous in the annals of British horticulture.

Orchids.—There were four classes for Orchids, but none were numerously represented. In the amateurs' classes there were two collections of twelve plants, one of which, that from Burford Lodge, Dorking, was as fine a collection of *bonafide* specimen plants as could well be got together at this season. It is satisfactory to see that Sir Trevor Lawrence discontinuances the now prevalent practice of "making up" specimen Orchids, and his grower (Mr. Spyers) shows that really a fine display of Orchids can be made without putting a number of plants together. The collection included a grand specimen of *Epidendrum nemorale* in a huge square basket. There were fifteen long, slender spikes, each laden profusely with delicate mauve flowers. A massive plant of *Masdevallia Harryana* carrying quite a sheaf of flower-spikes was a prominent plant, and on either side were plants of *Aerides* affine with four fine branching spikes on one break, and a specimen of *Cypripedium Stonei*, with half-a-dozen spikes with from three to five flowers on each. The other specimens were *Cypripedium barbatum nigrum*, a fine plant with about two dozen flowers; *C. niveum*, a splendid tuft carrying about a dozen-and-a-half flowers, some two on a spike; *Cattleya gigas*, with six flowers from two sheaths; *C. Mendelli*, a splendid variety with four flowers from a sheath; *Oncidium macranthum*; *Masdevallia militaris*, with nine flowers from a strong tuft; *Vanda teres*, with five spikes; and *Coryanthes eximia*, an exceedingly curious and interesting Orchid with large flowers having a slipper-shaped labellum. The other collection was shown by Mr. Cobb's gardener (Mr. E. Catt), and it likewise was very fine, and two-thirds of which were veritable specimen plants excellently grown and flowered. They consisted of *Oncidium macranthum*, *Epidendrum prismatocarpum*, a grand plant with eight spikes, the finest we have seen; *Epidendrum vitellinum majus*, a fine mass; *Cœlogyne pandurata*, a good plant of this singular Orchid; *Dendrobilum filiforme*, a graceful mass; *Cypripedium Veitchi*, with a dozen flowers (very fine); *Odontoglossum vexillarium Cobbianum* and also *Klaboch's* variety, both beautiful; *O. cordatum*; *Oncidium curtum* and *ampliatum*. There were three collections of twelve from nurserymen, the best from Mr. James, which was very good. It included a fine mass of *Cattleya Mossiæ* and a splendid variety (one of the very finest) of *C. Mossiæ* called *Southgatei*, with three huge flowers of a very rich colour; *Masdevallia Harryana superba* (very fine), *Odontoglossum cordatum aureum*, an interesting new variety; *Cypripedium niveum*, a good mass; *Odontoglossum crispum* and *vexillarium*, *Epidendrum vitellinum majus*, *Dendrobium Jamesianum*, *Cattleya Mendelli*, and *Burlingtonia fragrans* comprised the rest. The second collection, from the Kingston Nursery, contained a fine mass of *Dendrobilum filiforme* and *Thunia Bensoniæ*, and that from Mr. Cypher a splendid plant of *Dendrobium Pierardi latifolium*, literally wreathed with bloom. There was but one collection of six from nursery, that from Mr. James, which contained a good plant of *Cypripedium selligerum*, one of the best of hybrid Lady's Slippers. Of the two groups of six from amateurs, Sir Trevor Lawrence's was the best, containing, like the other, all single specimen plants. There were *Odontoglossum vexillarium*, *Masdevallia Harryana*, *Cypripedium caudatum*, *Aerides Lawrenceianum* in the way of

crispum, but finer; *Cattleya crispa*, with four flowers, and *Cymbidium Parishii* (in the way of *C. eburneum*), with two flowers. Mr. Child, of Garbrand Hall, showed in the other group a fine plant in two spikes of *Stanhoepia tigrina superba*, *Aerides Lobbi* with two branching spikes, *Cypripedium Stonei* with two spikes, *Brassia maculata superba*, and *Cypripedium barbatum*.

Stove and greenhouse plants were shown admirably. In the open class for twelve Mr. Cypher, who was first, showed a grand collection, his finest plants being *Allamanda nobilis*, well flowered; *Bougainvillea glabra*, smothered in bloom; a ponderous *Erica Cavendishii*; *E. Parmentieri rosea*, a grand plant; and *Stephanotis floribunda*. *Dipladenia amabilis*, *Allamanda Hendersoni*, *Ixora Fraseri*, *Erica depressa*, *Azalea Souvenir de Prince Albert*, and *Dracophyllum gracile* made up the other plants. In Messrs. Jackson's second lot the most attractive were two varieties of *Kalosanthes coccinea*, named *M. Duphemis* and *Phoenix*, both splendid plants, varying in the intensity of their scarlet colour. The other plants, though not large, were fresh and good, particularly the *Heaths*, and a good specimen of *Plumbago capensis*, not often seen at exhibitions, but of a beautiful and uncommon colour. The third collection, from the Norbury Nurseries, Streatham, included a grand plant of *Anthurium Scherzerianum* among others. In the nurserymen's class for six plants the best group came from Kingston, and a *Kalosanthes*, named *Dr. E. Regel*, was the most prominent plant; there were also a fine *Bougainvillea glabra*, *Statice profusa*, and *Dipladenia amabilis*. A noble and finely-flowered plant of *Allamanda grandiflora* was conspicuous in the second collection; in fact, it was the best in the exhibition, and showing this fine stove shrub well. In the third group, from Mr. James, was a fine *Erica Paxtoni*, *Bougainvillea glabra*, *Kalosanthes coccinea*, and *Anthurium Andreanum*.

The best six from amateurs was from Garbrand Hall, the most remarkable plants being a huge specimen of *Begonia Paul Masurel*, the finest plant we have seen, showing admirably what a grand object the tuberous *Begonia* is when well grown; *Kalosanthes coccinea splendens* was another fine plant in this group, as it was so large and well flowered; *Stephanotis floribunda*, *Statice profusa*, *Aphelexis macrantha rosea*, and *Erica depressa* were the other plants. A good *Medinilla magnifica* was in the other group. *Heaths* were shown well by two exhibitors. The charming small flower *Erica Parmentieri rosea*, of which there were three fine plants, also *E. ventricosa Bothwelliana*, one of the finest of the numerous varieties; *E. depressa*, tricolor, *jasminiflora*, *obovata*, and *ampullacea*, all excellent kinds.

Fine-foliaged plants.—These, as usual at these shows, were very fine. Among amateurs, by far the finest group came from Handcross Park, Sussex. This consisted of huge plants of *Areca sapida*, *Latania borbonica*, *Cycas revoluta*, two immense *Crotons* (*C. undulatum* and *Andreanum*), both well coloured, and a magnificent plant of *Gleichenia Mendelli*, some 6 ft. through, the whole collection being a great credit to the gardener (Mr. Rann). In the second group a huge *Dicksonia antarctica* and a fine plant of *Alocasia macrorrhiza variegata* were the most prominent.

The best group from nurserymen was from Cheltenham, whence Mr. Cypher brought fine specimens of *Cordyline indivisa*, *Kentia Fosteriana*, *Croton Johannis*, *Cycas revoluta*, *Dasyllirion acrotrichium*, and *Croton Victoria*. The second best, from Mr. B. S. Williams, consisted of a fine plant of *Geonoma Seemanni*, *Croton angustifolium* and *undulatum*, *Zamia Lehmanni*, *Corypha australis*, and *Aralia spectabilis*. In a smaller, but well grown, group from Messrs. Hooper, Covent Garden, were excellent specimens of *Phyllotanium Lindenii* and *Alocasia crystallinum*. Another group from Mr. James contained such fine examples of *Pritchardia pacifica*, *Alocasia macrorrhiza*, and a few others, that an extra prize was awarded. Ferns were shown grandly by amateurs, and especially by Mr. Rann, who was first with

huge plants of *Gleichenia Mendelli*, *rupestris*, *glaucescens*, and another variety called *gigantea*, and a spreading specimen of *Davallia Mooreana*. These second best six were likewise very fine, as they included grand specimens of *Microlepia hirta cristata*, *Davallia Mooreana*, both marvels of skillful culture. Two fine *Gleichenias*, and a good *Dicksonia*, some admirable Maiden-hairs, were shown in the other groups.

From nurserymen the finest six Ferns were shown by Mr. B. S. Williams, whose group was very fine, including *Gleichenia circinata* and *Mendelli*, *Davallia Mooreana*, *Thamnopteris Nidus*, and a grand pair of Tree Ferns. The second, from Mr. Cypher, contained *Alsophila elegantissima*, a graceful Fern not often met with, some good *Gleichenias*, and Tree Ferns.

Palms were shown finest by Mr. Rann, who had a grand group of six, including *Stevensonia grandifolia*, *Phoenix tenuis*, *Livistona altissima*, *Thrinax elegans*, and *Chamærops humilis*, all monster plants. The two other collections were plants of *Latania rubra vera*, a very graceful Palm, *Thrinax argentea*, *Pritchardia macrocarpa*, *Kentia Lindenii*, *K. Belmoreana*, *Cocos Weddelliana*, *Areca Baueri*, all of which are among the finest of Palms.

Begonias.—The tuberous race were shown very finely on this occasion and much better than usual. A grand collection of twelve was shown for the first prize by Messrs. Laing & Co., Stanstead Nurseries, Forest Hill, were models of what well-grown and profusely-flowered *Begonias* should be, and the group was a centre of attraction. The varieties selected were *Reine Blanche*, one of the finest whites; General Roberts, R. T. Boscawen, Hon. Mrs. Brassey, Brilliant, Exoniensis, Mrs. Dr. Duke, *Semiplena*, a very free-flowering variety; *Alba floribunda*, a very fine white; *Empress of India*, one of the very best yellows, flowers large and plentiful; *Annie Laing*, a splendid rose, very fine habit and free. The plants of this group averaged about a yard across, and were literally hung with bloom. The other nurserymen's collection was that of Mr. H. Coppin, Croydon, whose plants, though not so uniform in appearance, exemplified good culture, the most conspicuous being *Venus*, a beautiful deep rose; Sir Bartle Frere; Mrs. Hunter; Thebaïs, very fine colour and flower; Mrs. Charles Goschen, flesh colour, very fine; Flame; and Mrs. H. Coppin, a good yellow. The two groups from amateurs were likewise very fine, better than they have been on previous occasions, particularly that from Mr. Child, who was first. His best plants were *Emperor*, *Lælia*, F.W. Farrand, Miss Bertha, *Acme*, *Killista*, *Reine Blanche*, *Maud Churchill*, and *Williamsi*, all of which are excellent varieties. The other, from Mr. Tong, contained smaller, but well bloomed plants, especially of *Olympus*, *Defiance*, *Rêve d'Or*, *Mrs. Law*, *Victory*, all excellent.

Pelargoniums.—These, which were numerous, lent their brilliant hues to light up the duller parts of the tent, and on the whole the collections were good, though confined to a few exhibitors. The collection of six show varieties from Mr. Wiggins was a very good one, including *Lucie Lemoine*, *Example*, *Claribel*, *Prince Leopold*, *Duchess of Edinburgh*, and *Scarlet Gem*. The other amateurs' collections of show kinds were poor, and those from nurserymen were not very remarkable for excellence. A grand plant of *Triomphe de St. Mandé* was shown by Mr. Cypher in his first prize lot, also a smaller one of *Mdme. Thibaut*. The finest six of the fancy race were from Mr. Turner, Slough, being very fine; the varieties were *Mrs. Pope*, *Princess Teck*, *Pilgrimage*, *Roi des Fantaisies*, *Lady Carington*, and *Mrs. Pottle*. Some good half specimens were shown in the amateurs' class. Double zonal varieties were shown by three exhibitors, especially by Mr. Catlin, who had his huge trained specimens on flat trellises completely covered in fine trusses of bloom. The varieties were *Mdme. Thibaut*, *Gorgeous*, *Lively*, *Devotion*, F.V. Raspail, *Pioneer*. Some small untrained specimens

from Mr. Little's garden found numerous admirers on account of their free growth and elegance.

Fruit.—The display of fruit was not large, but it was for the most part of excellent quality. There were five collections shown, the best, from Mr. Coleman, of Eastnor Castle, being a very fine one, consisting of three splendid bunches of Black Hamburg and Muscat of Alexandria Grapes, Queen Pine-apple, Bellegarde Peach, Eastnor Castle Melon, a splendid round fruit well netted, and Elruge Nectarine. In the second, from Mr. Edmonds, were excellent Black Hamburg and Buckland Sweetwater Grapes, William Tillery Melon, Royal George Peach, and Lord Napier Nectarine. The third collection, from Mr. Coomber, contained excellent Black Hamburg Grapes, a fine Ripley Queen Pine, Royal George Peach, Elruge Nectarines and William Tillery Melon, and fine bunches of Golden Hamburg Grapes, but not ripe. An equal third was taken by Mr. Wildsmith for a good collection, consisting of excellent Black Hamburg Grapes, Crimson Galande Peach (a handsome variety), Brown Turkey Figs, Heckfield Hybrid Melon, and Queen Pines. Some Muscats of Alexandria were very fine in bunch and berry, but of course not ripe. In other collections were excellent fruits of Hale's Early Peach, first-rate sort, large and handsome, and Victory of Bath Melon. A very fine dish of Barrington Peaches was shown by Mr. Robins, gardener, Hartwell House, Aylesbury, which were the finest Peaches in the exhibition; a Queen Pine, weighing 4 lb. 8 oz., was shown also by the same exhibitor.

GRAPES were shown numerous. There were nine sets of three bunches of Black Hamburgs, the best coming from Viscount Heckfield's garden, and the bunches shown by Mr. Wildsmith were simply perfection in every point. The second from Mr. Molyneux, and the third by Mr. Hudson, were also excellent; indeed, all, except one set, were fit to compete at any exhibition. There were but three exhibitors of any black variety of Grape, the best being from Mr. Hudson, Gunnersbury House, Acton, who showed marvellously fine bunches of Madresfield Court, as fine as could possibly be in every respect, and were a great credit to the grower, especially having regard to the reputed difficult management of the variety. The second best, from Mr. Wildsmith, were three fine bunches of Black Prince. The other exhibits were three bunches of Madresfield Court Grapes, from Mr. Woodbridge, Syon House. Fine sets of three bunches of Muscat of Alexandria were shown, but none of them were ripe; in fact, it is much too early to expect a decent example of this Grape. The first lot were fine in bunch and berry, as was also the next best two sets. Eleven exhibitors showed white Grapes of any variety; the best was a fine set of bunches of Buckland Sweetwater, from Mr. Adams, which were of fair size in bunch and of a beautiful amber hue. The second prize was given to the same variety, but the bunches were a little past their best. Other varieties shown were Canon Hall Muscat, Foster's Seedling, Golden Queen, but none were ripe. Among the baskets of fruit there were some excellent examples of Gros Colmar and Black Hamburg among the blacks; Muscats, Foster's Seedling, and Buckland Sweetwater among the whites.

PEACHES AND NECTARINES.—Ten dishes of Peaches were shown; the best was a first-rate dish of Barrington from Mr. Robins, Aylesbury. Royal George was second; Barrington, third. Other varieties were Alexandra, Noblesse, Chancellor, Crimson Galande, and Bellegarde. Among the sixteen dishes of Nectarines, the best pair, Rivers' Orange and Stanwick Elruge, both fine. Lord Napier and Elruge were second, and the same varieties were third. Oldenburgh, Violette Hâtive, Humboldt, and Prince of Wales were shown by other exhibitors.

STRAWBERRIES were an excellent class. The best two dishes among nine exhibitors were those from Mr. Goldsmith, Bletchingley, who had very excellent fruits of President and Sir Charles Napier, fine in every way. The second prize was

taken by President and Sir Joseph Paxton, the third by British Queen and James Veitch, the latter an excellent new variety. Other sorts shown well were Lucas, Sir Charles Napier, and Helen Eliza. The best two dishes of Cherries among ten were from Mr. Hudson, Gunnersbury House, Acton, who had excellent fruits of Black Eagle and Bigarreau Napoleon. The same varieties were second, and Elton and May Duke were third. The best two dishes of Figs were from Eastnor Castle.

MELONS.—Eight pairs of fruits were shown. The best, from Mr. J. Bolton, Coombe Bank, Sevenoaks, were two small fruits of Victory of Bath and Scarlet Gem varieties; Harding's Scarlet Flesh and a sort called Davenham Park were second; Eastnor Castle and Read's Scarlet Flesh were third. Hero of Lockinge, Victory of Bath, Heckfield Hybrid, High Cross Hybrid, and Duchess of Cambridge varieties were also shown.

PINES.—Among seven pairs of Pines Mr. Bailey, of Shardeloes, showed the best Queen, a fine fruit about 5 lbs. in weight, and fine in every respect. A good Charlotte Rothschild was first and second in the any variety class, the only two fruits shown.

In the miscellaneous class there were three exhibits. Two fine pairs of Pine-apples from Singleton, Swansea, were first, a fine basket of Barrington Peaches from Mr. Robins second, and six fruits of Hero of Lockinge, from the last exhibitor, third.

New plants.—These, as usual at these exhibitions, were very plentiful; indeed, we do not remember having seen them shown so numerous. About a hundred were submitted to the judges, and of these a large proportion received certificates of merit.

BOTANICAL CERTIFICATES were awarded to Messrs. Veitch & Sons, Chelsea, for *Nepenthes Mastersiana*, *N. madagascariensis*, *N. Rajah*, *Sarcocolla porphyronura*, *S. melanorrhoda*, *S. Courtii*, *Cypripedium grande*, *Odontoglossum tripudians aureum*, *Lasia stipitata*, *Dracæna Thompsoniana*, *Sobralia xantholeuca*, *Pleopeltis fossa*, *Osmunda japonica corymbifera*, *Selaginella grandis*, *Croton Dayspring*, *C. aureo-marmoratus*, *Adiantum Legrandi*, *Davallia tenuifolia*, *Veitchiana*, *Osmunda javanica*, *Polypodium ornatum*, *Dicksonia chrysotricha*.

To Mr. B. S. Williams, Victoria Nursery, Upper Holloway, for *Cattleya gigas grandiflora*, *Lycaste Deppei punctatissima*, *Croton Bruce Findlay*.

To Sir Trevor Lawrence, Bart., Burford Lodge, Dorking, for *Aerides Lawrencianum*, *Cymbidium Parishii*, *Calanthe Textori*, *Coryanthes eximia*.

Mr. H. James, Castle Nursery, Norwood, for *Cattleya Mossiæ Southgatei*, *C. gigas striata*, and *Odontoglossum cordatum aureum*.

To Messrs. Low & Co., Clapton, for *Grammatophyllum Ellisii*.

FLORICULTURAL CERTIFICATES were awarded to Messrs. Veitch & Sons for *Begonia lineata*, *Rhododendron balsamiflorum* vars. *album* and *aureum*, *R. Star of India*, *Gloxinia Cordelia*, *Lobelia Finsbury Park Blue*.

Messrs. J. Laing & Co., Forest Hill, for *Begonia* *Mad. Stella* and *Mad. Comassie*.

To Messrs. Wood & Ingram, Huntington, for *Lobelia pumila* *Ingrami*.

To Mr. H. Bennett, Shepperton, for *Rose Her Majesty* and *Lady Mary Fitzwilliam*.

To Mr. Hudson, Gunnersbury House, Acton, for *Gloxinia Mrs. Atkinson*.

To Mr. Wiggins, Hillingdon Place, Uxbridge, for *Pelargonium Rose Superb*.

To Mr. E. B. Foster, Windsor, for *Pelargonium Diadem*, *Adventurer*, *Veteran*, and *Sister of Mercy*.

Messrs. Daniels, Norwich, for *Godetia* *Duchess of Albany*.

Cut flowers were shown abundantly, especially *Roses*, which were as fine as those at South Kensington on the previous day. Mr. B. Cant being again to the front in nearly all the classes. A very tasteful basket of mixed *Roses* from Messrs. Paul, Cheshunt, well merited the first prize in its class, the splendid Hybrid Perpetuals and *Teas* mixed with single *Roses* being a charming combination. *Carnations* and *Picotees* were

shown excellently by Mr. Turner and Mr. Douglas, as fine blooms as we see later in the season. Hardy herbaceous flowers were a fine feature, especially those from Messrs. Hooper's nursery. There were classes provided for cut blooms of *Orchids*, *Pelargoniums*, *Pyrethrums*, and even wild flowers, all of which were well represented.

Miscellaneous class.—There were numerous important exhibits in this class, the most prominent being the groups of various plants. That from the Royal Exotic Nursery, Chelsea, was a very extensive one, occupying one of the central banks. It consisted chiefly of new plants, and seldom have there been such a display of new plants in one group, and a large proportion of them were certificated. The whole group was most effectively arranged, and was a centre of attraction. Opposite to this group Mr. B. S. Williams had a very fine group of new, rare, and ornamental stove and greenhouse plants, with a copious admixture of flowering *Orchids*, *Nepenthes*, and similar objects, disposed in one bold and tasteful group. It also contained a large number of new plants, some of which were certificated. Some of the specimens of *Orchids* in this group were uncommonly fine, particularly a large mass of *Cattleya Mossiæ* *superba*, which was an exhibition in itself, being a splendid variety, and carrying about a score of very fine blooms. A similarly large group from Messrs. Laing & Co., Stanstead Park Nurseries, Forest Hill, occupied the other bank. It consisted of *Palms*, *Ferns*, and other fine-foliaged plants, lit up in a most charming manner by flowering plants, chiefly tuberous *Begonias*, which is the one great feature of the Stanstead Nursery. The bright group of show *Pelargoniums* to which we have before alluded occupied the opposite bank. A deal of interest was attached to a large group from Messrs. Hooper, of Covent Garden, as it contained numerous specimens of a *Hare's-foot Fern*, the creeping rhizomes of which had been worked by the Japanese into various designs, crosses, boats, and a variety of shapes, and the delicate fronds covering the whole made very pleasing objects. A great display of cut *Roses* was made by Messrs. Wm. Paul & Son, Waltham Cross, the blooms being arranged chiefly in large round baskets which, arranged on the sloping banks interspersed with *Ferns*, had a charming effect. Several new *Roses* were noticeable in the collection, particularly one named *Queen of Queens*. The whole of one side of the long corridor was taken up by a very extensive display of cut flowers, exhibited by Messrs. Barr & Son, King Street, Covent Garden. It consisted for the most part of *Lilies*, *Carnations*, *Marguerites*, early *Gladioli*, and various other kinds of flowers in quantity, while the group abounded with a profusion of individual specimens of many choice hardy plants; in short, the exhibit was a very fine one, and one of the most extensive collections of hardy flowers that has been made in London for many seasons, and well merited the silver medal awarded. An excellent group of hardy plants from Messrs. Osborn won many admirers, as did also other groups shown.

RICHMOND, JUNE 29.

THE annual show held by this society is rapidly rising in importance; already it is the best about suburban London, and more than ordinary interest attaches thereto, as a goodly number of classes are set apart for all comers, and these for the most part are well represented. The show held last week was finer than any that have preceded it, and was of more general importance than usual inasmuch as the trustees of the Veitch Memorial prize fund, selected this exhibition at which to invite competition for the usual prizes. The show was a large one, the arrangement of one of the tents was admirable, but faulty in the other. There were excellent little groups ranged around the margin of the large tent in crescent-shaped masses, which had a good effect, and a few, particularly those from Messrs. James Frow and Hooper, possessed merit, and differed widely in style. There were excellent plants of all

kinds, better than is often seen at the great London shows, and the comprehensive schedule admitted many beautiful classes of plants that are generally overlooked. The fruit made a good display, so did cut flowers and vegetables, and those who are only acquainted with market garden grown Peas were no doubt astonished to see the marvellous display of Peas shown by Messrs. Carter & Co.

The Veitch Memorial prizes were offered this year at Richmond in the form of a single prize of £5 for the best stove or greenhouse plant in flower, and another of the same amount for the best two bunches of black Grapes. The plants were somewhat poor in quality; the huge *Erica tricolor dumosa*, which was awarded the coveted prize, though as globular as the most ardent lover of hard-wooded specimen plants could desire, was quite over-blown, and, indeed, the flowers had lost all freshness and colour. It was shown by Mr. Hinnell, gardener to F. A. Davis, Esq., Surbiton. This same exhibitor had, as a single specimen in another class, a plant of *Erica ventricosa Bothwelliana*, about one-third the size, that was superbly bloomed, and for decorative purposes worth any two of this ungainly big plant. The most showy specimen was the *Bougainvillea glabra*, shown by Mr. Bates, of Powlett Lodge, really a handsome decorative plant. Only five lots of Grapes were staged in the Grape class, and but for the superb bunches shown by Messrs. Hudson and Wildsmith, the competition would have been poor indeed. Mr. Hudson had good sized bunches of Madresfield Court, having superb berries, perhaps the finest ever seen, and to these the prize was awarded. Mr. Wildsmith's Black Hamburgs were remarkably good; also, so well formed and so finely coloured and finished, that it would have been difficult to have beaten them as Hamburgs anywhere. Under such circumstances it is to be regretted that the trustees should have placed all the money in one prize, when by dividing it more satisfaction would have been given.

Fruit.—In the class for six dishes of fruit Mr. Wildsmith proved an easy winner of the first prize, his exhibits being quite first-rate. He had fine Black Hamburg and Muscat Grapes, fine Peaches, Figs, Pines, and Melons. Mr. Hudson, who was second, also had good Grapes and some Lord Napier Nectarines of remarkable colour. Some very good Black Hamburgs came from Mr. Feist, of Bishopsgate House, Englefield Green, and Mr. Bates, Powlett Lodge, Twickenham, both taking first prizes in the respective classes. White Grapes generally were but moderately good, and the finest Peaches were *Téton de Venus*, from Mr. Attrill, Bank Grove, Ham. The finest Strawberries (Sir J. Paxton and Sir C. Napier) came from Mr. Heible, gardener to Sir B. Cunard, Twickenham. Mr. Wildsmith had remarkably handsome samples of Heckfield Hybrid, the best Melons in the competition for the Messrs. Sutton's prizes. Sir Henry Meux's gardener, Mr. Coombs, was second best with Hero of Lockinge. Singularly attractive were the truly grand Cherries which were sent by Mr. Rivers, of Sawbridgeworth. They consisted (of whites) *Blanche d'Espagne*, Ludwig's Bigarreau, Bigarreau Napoleon, Bigarreau Monstrueux de Mezel, remarkably fine, and Frogmore Bigarreau, small and pale; of blacks, Black Hawk, Bigarreau, de Schreken, Black Bigarreau, Early Rivers, Early Lyons, Bedford Prolific, and May Duke (red).

Vegetables.—Seldom have such admirable vegetable been seen at Richmond as on this occasion. The collection of twelve kinds which was placed first, staged by Mr. E. Beckett, Sandown House, Esher, was good at all points, and was well ahead of the rest. There was a good competition for the Messrs. Carter & Co.'s special prizes for their four kinds of Peas—Telegraph, Stratagem, Telephone, and Pride of the Market. The chief prizes were awarded to Mr. Williams, gardener to E. Liddell, Esq., Peasmarsh Place, Sussex; to Col. Rous, Norwich; and to Mr. Beckett.

Mr. C. Waite, of Glasshurst, Esher, had the handsomest pair of Victory of Manchester Cucumbers in competition for prizes offered by the Messrs. Sutton & Sons, and was also first with a fine brace of Defiance in a similar class for prizes, offered by the Messrs. Daniels & Sons, of Norwich.

Roses.—Cut Roses were shown in unusually large numbers, several of the trade growers having fine collections. In the open class for thirty-six trebles, Messrs. Paul & Sons, Cheshunt, were first with superb flowers, and they were also first in the class for twenty-four blooms. Messrs. Veitch & Sons, Messrs. C. Lee & Sons, Messrs. Osborn & Sons, Mr. Rumsey, of Waltham Cross, and other well-known growers were in strong force. Amongst the most taking flowers were Mad. Prosper Laugier, rosy red; Mons. E. Y. Teas, Etienne Levet, Marie Baumann, La France, Duke of Edinburgh, and Penelope Mayo.

Pot Roses were finely represented in the large collections sent by Messrs. Veitch & Sons and Messrs. Lee & Sons. The former had over 100 dwarf plants richly flowered. These were associated with plants of the elegant cut-leaved *Acers*, and the latter firm's smaller group was dressed with one of the finest collections of ornamental hardy shrubs and trees that has ever been seen at this show. The leaves of many of these were so fine and so well coloured, as to vie with stove plants as regards beauty and effect.

Orchids and other plants.—The best collection of Orchids yet seen at Richmond came from Mr. James, Castle Nursery, Norwood. It consisted of a fine *Odontoglossum vexillarium*, *Cattleya Mossie*, *Masdevallia Harryana*, *Lælia purpurea*, and *Oncidium crispum*, and was well worthy the first prize which was awarded it. It was probably largely due to having some small, but choice Orchids in his decorative plant group that Mr. James secured the first prize in that class. In other respects the arrangement was wanting in taste and effect. Messrs. Fromow & Sons, Turnham Green, and Mr. Bruckhaus, manager to Messrs. Hooper & Co., Twickenham, who came second and third, had effective arrangements. As showing the divergent judgments found in group judging, we may mention that these two latter exhibitors, with almost identical groups, were, at Chiswick in the preceding week, placed in the reverse order, Mr. Bruckhaus being first and the Messrs. Fromow second. Finer and better flowered Fuchsias have not been before exhibited at Richmond; the nine plants of free pyramidal growth, young and well bloomed, which came from Mr. Morrell, gardener to J. S. Rutter, Esq., Richmond, were truly first-rate; the kinds included *Aurora superba*, *Galatea*, *Marginata*, *Albert Memorial*, *Emperor of Germany*, *Baroness*, *Princess of Wales*, *Arabella*, and *John Gibson*. Mr. Beckett had fine plants, more vertical in form and just a little over, but still making a good group; and in the third prize collection, which came from Mr. Bond, of Teddington, was one of the most perfect plants of Lord Beaconsfield that we have yet seen. It was a good pyramid, 5 ft. in height and superbly bloomed.

Table decorations.—These were of most taking forms, varied, and exceedingly pleasing, the styles of dressing varying considerably, according to the taste of the arranger and the build of the stand or vase. On the other hand, nothing would have been more charming for drawing-room tables than three baskets of cut flowers, shown by a lady, but these had no chance against the regulation glass stand. In one case stands dressed with *Nymphæas*, and to which a first prize was awarded, were later on found to have only a front to each. Such a style of dressing as that should hardly have encouragement by awarding prizes to it.

SCOTTISH PANSY SOCIETY.

THE thirty-eighth annual exhibition of this society was held in Edinburgh on the 23rd ult. There was a fine display of show and fancy Pansies, and the quality of the blooms was equal, if not superior, to that of previous exhibitions. In the nursery-

men's class (twenty-four show Pansies, dissimilar) the first prize (the society's silver medal) was awarded to Messrs. William Paul & Son, florists, Paisley, whose blooms, which were of superior merit, consisted of the following varieties, viz., *Artemise*, Captain Knowles, Alexander Watt, J. P. Barbour, Peter Lyle (seedling), John Stewart (seedling), dark selfs; Mrs. Galloway (seedling), Silverlight, white selfs; George Rudd, Dr. Campbell, yellow selfs; Miss Barr, Miss Baird, Gertrude, Mrs. James Millar (seedling), Miss Meikle, Mrs. D. Wallace, Mrs. Mackenzie, white grounds; Robert Pollock, William Robin, Dr. Livingstone, James Buchanan, A. Cameron, A. Henderson, yellow grounds. Second prize, Mr. W. Dickson, Paisley, who had good flowers of H. A. Hawkins, Rev. J. Morrison, Mauve Queen, Robert Black, dark selfs; D. Dalglish, Sir W. Collins, Thos. Richie, D. R. Barr, J. B. Robertson yellow grounds; Tickler, Jeannie Grieve, Capt. Speirs, Mrs. Mackenzie, white grounds. Third prize, J. Ormiston, Jedburgh. For twenty-four fancy Pansies, dissimilar, the first prize (the society's silver medal) was awarded to Messrs. Downie & Laird, Edinburgh, for very fine flowers of the following, viz., Countess of Home, Jas. Gardner, May Tate (seedling), Mrs. W. Brown, John Murray, Mrs. Forsyth, Miss Tofts, Miss Bliss, W. Cuthbertson, Maggie Bell, Mrs. J. Cocker, General Grant, Mrs. J. Watt, Mrs. Barrie, Ruby (seedling), Peter Nicol, Mrs. Wolff Murray, Robert Laird, Mrs. Taylor, Catherine Agnes, Mrs. G. Grant, and three seedlings. Second prize, Mrs. Taylor, Woodbine Nursery, Corstorphine, with good blooms, amongst which were Mrs. Mitchell, Jas. Grieve, Mrs. E. H. Wood, R. Dunlop, Geo. Ross, Mrs. A. Cuthbertson, Mrs. Jamieson, Maggie Taylor, W. Lawrie, Mrs. Taylor, Jupiter, Nancy Lee, and several seedlings. Third prize, Mr. John Ormiston, who had fairly good flowers of Miss Reeve Mrs. Ogilvie, Prizetaker, Mrs. Taylor, Catherine Agnes, Robt. Cowan, J. H. Borrowman, Mrs. J. Watt, James Grieve. For six seedling show and six seedling fancy Pansies a silver medal was awarded to Messrs. Wm. Paul and Son for blooms of very superior merit. Twenty-four bunches bedding Violas.—First prize, Messrs. Downie and Laird. These made a grand display. Mr. Geo. Ross, Laurencekirk, secured the president's medal as the winner of the greatest number of prizes. Capt. Thompson, Exeter, had a fine collection of Pansies in pots. The plants were very dwarf in habit, and the blooms of fair merit. First class certificates were awarded to Capt. Thompson for Ralph Sanders (show), Downie and Laird for May Tate (fancy), Dicksons & Co. for Jessie Dunlop (fancy), and T. McCombe, Montrose, for Mrs. McCombe (fancy).

Names of Plants.—*A. Bartholomew*.—*Convolvulus mauritanicus*; *Eurothera fruticosa* var.—*W. C.*—Common Borage (*Borago officinalis*).—*Bourness*.—1, *Cymbidium sinense*; 2, *Oncidium crispum*; 3, *Odontoglossum Lindleyanum*.—*T. Smith*.—1, *Limnathes Douglasi*; 2, *Hieracium aurantiacum*.—*A. Elder*.—1, *Veratrum* species, cannot name without flower; 2, *Solanum crispum*.—*J. Wood*.—*Lilium Washingtonianum*, apparently *Balsamita virgata*.—*T. S.*—If you will send better specimens of the Grasses, will try to name them.—*G. M. G. C.*—It looks like a *Cratægeus*. Can you not send better material?—*A. K.*—Apparently *Lilium medeoloides*, but cannot be certain without seeing a more complete specimen. *M. E. C.* The "Blue Snapdragon" is *Linaria alpina*.—*M. G. F.*—*Sagina apetala*.—*T. W.*—Apparently *Thalictrum minus*, *Inula glandulosa* (composite).—*Tea Rose*.—All varieties of *Orchis maculata* except the green-flowered one, which is *Listera ovata*.—*Alpha*.—We cannot undertake to name Roses, send to one of the large Rose nurseries. *T. T. L.* 1 and 2, varieties of *Xiphium vulgare* (English Iris); 3, *Spirea Filipendula*; 4, *Eurothera fruticosa*.

COMMUNICATIONS RECEIVED.

J. C.—A. M.—C. P.—W. C.—G. C.—P.—A. W.—R. H. S.—T. S.—J. C. C.—C. & Co.—A. W.—A. D. W.—E. H.—T. B.—J. R. P. & Co.—G. J. C. P.—N. G.—G. P.—J. C. B.—W. W.—J. S. W.—Cambrian.—G. S. S.—R. H. S.—J. S. J. L.—C. P.—W. S.—A. F.—R. D.—J. S. C. N.—L. K.—W. C.—J. C.—W. J. M.—W. H. L.—J. H.—D. T. F.—R. and C.—G. A. P.—T. R.—J. S.—W. P.—C. P.—T. W. T.—J. S. & Sons.—J. C. S.—A. D.—G. C. G.—S. & Sons.—J. W.—A. P.

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

VICTORY OF THE LEAST BAD.

PERMIT me to express my concurrence with most of your views respecting dinner table decorations. The vagueness of schedules, the interests of trade, the prejudices of judges, and the public craze for elaborate profusion, prodigal expense, and sensational effects are chiefly responsible for the victories scored by the least bad. As far as most gardeners are concerned, they are the victims rather than the leaders of fashion in this matter. In not a few places where labour is scarce and material very limited the elaborate decorations have put a stop to all solid progress in horticulture. So much time and energy are expended on wiring, mounting, and other horticultural millinery, that none can be found for the more weighty matters of proper culture. No one has a higher interest in a more natural, artistic, and better style of decoration than the practical horticulturist. But while dukes and duchesses, earls and countesses insist on having gardens, snow-storms, lakes, swans, and all the rest of such barbarous, impossible, and, therefore, inartistic paraphernalia on their dinner tables—and I have seen them all there—gardeners have to waste their precious time as well as lose credit in carrying out such useless whims and perverted fancies. Greater definiteness in the schedules would help to get rid of many of the difficulties in the way of simplicity. The best table decoration is held by many to include not only the form and size, which should be quite legitimate, but the number and even value of the baskets, glasses, cups, &c., used for the flowers. I once had a severe contest with a fellow judge on this very point, and an elaborate silver epergne was awarded a few points over a simple March glass, quite sufficient to carry the prize to the silver. Now all this might readily be avoided by allowing the butler to finish his work before the decorator began. In other words, let all the tables be laid alike as far as plates, silver, dessert dishes, baskets, vases, epergnes (if any), &c., for receiving fruits or flowers are concerned. The results of the mere decorative effects of flowers and fruits can then be at once seen. The competition in the mere dead material of dinner tables might very well be left to cutlers, china and glass merchants, and butlers, but prizes for table decorations offered by botanical or horticultural societies ought to relate wholly to horticultural material. Visitors go to horticultural shows to learn the high and useful art of the most tasteful and skilful disposition of fruits and flowers, and not the latest fashion in glass, china, plate, or napkin folding, or setting up. All these are doubtless more or less important in their place, but that place is not to exert a disturbing or distracting influence, as they often do, in determining the merits of competing floral or fruit decorations. And then why should decorations at our great shows be confined to dinner-tables? Why should not prizes be offered for the most prettily decorated boudoirs, drawing-rooms, entrance halls, staircases? These often stand far more in need of the enriching and mellowing touches of taste than even dinner-tables. And after all, surely it is a somewhat barbarous taste to expend so much more time and lavish so much more expense in decorating dinner-tables than on the rooms in which we live. Such competitive decorations of the more important portions of our households ought not to be beyond the resources of such bodies as the Royal Horticultural Society or the Royal Botanic of London or Manchester, or such companies as the Crystal and Alexandra Palaces. No doubt the interests of the trade are partly responsible for the present excessive redundancy and elaborateness of most of our table and other decorations. In saying this much not the slightest reflection is meant to a most honourable and deserving class

of men who have done much to popularise decorations of all sorts, and thus bring natural objects into closer fellowship with all classes of the community. Still, it is only natural that the trade should employ as much material as may be used, and it is very certain that many of their decorations are very much overcrowded, and their example has only been too readily copied. The trade, however, have been powerfully tempted to excess by their patrons, the public.

The prejudices of judges have also been another powerful factor in causing table decorations to run into all sorts of crowded and confused deformities. Some of these censors have acted as if the whole decorations from floor to ceiling must be taken into account. No doubt had the floor been found to be of polished oak, the tables of solid mahogany, the ceiling elaborately carved, all these factors would have been found to have received a point apiece. And this would hardly have been more absurd than allowing for elaborate chased knife handles, antique china, specially valuable glass, and gold or silver plate, all of which have been permitted to affect the merits of the decoration.

Another and more glaring and almost universal failing among judges is the attributing undue importance to the intrinsic value of the flowers used. Orchids, for example, act on many judges as a red rag is said to affect a bull. They are down on these at once, and nothing seems visible but the rarity, money value, and cultural difficulty of growing such fine plants. In numerous cases such irrelevant considerations as these have carried the judges not merely to the least bad, but to the very worst decorations in the exhibition. Such awards not only fail to encourage, they put down taste; for it is a fact with which those most conversant with exhibitions are perfectly familiar that the possessors of the most costly flowers have by no means a monopoly of taste. Why, indeed, should they? They have, in fact, little inducement to exercise it. Finding that cost wins, they have only to crowd in as many valuable flowers as they can to make sure of the prizes. But public sentiment sadly needs educating in this matter. It is too readily taken for granted that capital and taste must needs be twins. On the contrary, there is no necessary connection between them. Wealth destitute of taste is sure to run into extremes. It is no uncommon thing to hear in society what certain decorations cost, as if their money value were the measure of their artistic worth. This is worse logic and more execrable taste than estimating the quality of the soup by the cost of the turtle, or the value of a picture by the price of the paint. The artistic merit of table decorations is often in the inverse ratio of their cost. One may pay a hundred pounds for what in an artistic point of view is not worth a hundred pence. It is this love of mere display in certain classes that has led to the expensive abortions and tasteless extravagance that you have so justly condemned. Each table decoration should be a monotone—one idea, and as far as possible one flower only should be used. The idea might be carried even further, and only or chiefly one flower used in the house at one time. Why, for example, should not the dinner table be decorated only and wholly with Roses? Three or more simple vases or bowls, as you suggest, or a bank of Roses on green Moss down the middle with groups or single Roses and sprays of wild Briers artistically displayed over the cloth, and furnishing the finger or other flower glasses. Or the bank might be dispensed with, and three March or other glasses furnished with Roses. All the rooms might also be decorated with Roses, and all the button-holes made of, say, Niphetos set in its own foliage. Camellias, Azaleas, Heaths, Pansies, Valley Lilies, Spireas, Lilacs, Syringas, Clematises, Primulas, Passion-flowers, &c., might all thus be used in season or out of season, singly or in pairs. White Syringas and bright pink China Roses, or the smallest half-opened buds of Coupe de Hebe look admirable strewn over the table-cloth, with three bowls or March glasses of Coupe de Hebe profusely intermixed with its unequalled foli-

age in longish branches or sprays. The late large flowered variety of Syringa and some of the brighter tuberous rooted Begonias make a nice dual decoration, as do also Stephanotis and the deep blue of the blue Forget-me-not (*Myosotis dissitiflora*). But already I have got to a dual instead of a single note. Rose decorations furnish material enough for an almost unlimited supply of form and colour; the Banksian and some of the climbing Roses are most valuable for such purposes. It is to be hoped that your condemnation of wiring will arrest a practice in house and table decoration that has already run to seed in button-hole and other bouquets. In some of the former there are already almost more wire than flowers. In a first rate town-made button-hole now before me there are no fewer than twenty wires; each flower is wired many times and every leaf is wired. One shudders to think what this stilted system may grow to on the dinner table and in other decorations. Unless it is promptly checked, there seems danger that half the craft may degenerate into mere wire-pullers, and that horticultural art will be robbed of its natural elegance and simple charms, and metallicised into iron-bound stiffness and sheer deformity.

D. T. FISH.

ORCHIDS.

ORCHIDS AT DOWNSIDE, LEATHERHEAD.

MR. WILLIAM LEE's collection certainly stands in the front rank among good collections of Orchids, an amount of thought and care having been bestowed on the arrangement of the houses, stages, ventilation, &c., which, aided by good management, has led to very beneficial results with many difficult plants. Two very noticeable improvements adopted here are being made in many other places, and should be generally adopted. The first is the flooring; this in all the houses is made of stable brick, which, when set, gives a channel on every side of each brick, and thus allows of an unlimited supply of water being thrown about without objectionable puddles being formed, the visitor being enabled to go about the houses at all times with comfort. The second best feature in the place is the staging; this is composed throughout of ordinary close staging, with shells to hold moisture, and the dwarf open woodwork staging above it, the legs of the wood stage being planted in tin pans of water, each about 6 in. across; thus isolated, this must act very beneficially in preventing the passage of insects, the plants being only liable to be attacked by those bred on the upper stages, thus considerably diminishing the risk of injury from all insect pests.

Passing through a pretty little house of grand Filmy Ferns, one comes to what may be called the Lycaste house, as it is chiefly furnished with this lovely, but generally maltreated, plant. The whole contents of the house are in grand health, and many fine examples of the rare white variety are doing well. The Lycaste house is kept cold, only 5° more than the *Odontoglossum* house being given. This treatment, with plenty of light and moisture, is the only way to keep this plant in good health. In heat it is soon gone, and now that we are favoured with a large importation it will be well for purchasers to observe this fact. In this house also doing well are the bulk of the *Cœlogynes*, *Dendrobium Jamesianum*, and other nigro-hirsute varieties, the true *Epidendrum vitellinum majus*, all the *Zygopetalums*, *Oncidium ornithorhynchum* and its variety album, which latter Mr. Lee tells me will not stand nearly so much cold in winter as the common variety, a fact worthy of notice, as it is a very dear plant to experiment with.

The Dendrobe house contains plants of such vigour, that already the plans are laid for a new one on a much more extensive scale. The plants in this house are given more sun than they generally get in other places, and Mr. Lee attributes the great vigour of the *Dendrobium thyrsiflorum*, *Dendrobium bigibbum*, and other strong growers to this fact. The almost perpetual blooming *Epidendrum raniferum*, with its tall evergreen

growths and large panicles of greenish white, crimson-spotted flowers, is an attractive object in this house.

The East Indian house contains a fine general collection, all in good health and many in bloom. Here are good specimens of that rare, lovely, and sweet-scented *Aceris falcatum* Leonie, one of the finest of recent introductions of the rose-coloured *Vanda Parishii* Marriottiana; *Phalenopsis Stuartiana*, *P. violacea*, *P. tetraspis grandis*; the lovely little *Saccolabium Hendersonianum*, which I had the pleasure of blooming for the first time (this plant will not bear much material about it, so growers of it had better be mindful); *Saccolabium guttatum* Turneri and Holfordi; *Brassavola Digbyana* with its large fringed flowers; some splendid pans of the beautiful violet-rose *Utricularia Endressii*. These and many others in bloom or bud.

Passing through a pretty Heath house containing a good collection, notably a fine plant of the beautiful, but almost extinct, *Erica splendens*, with its large, soft, scarlet flowers, we come to the *Cattleya* house. Here the plants are kept well up to the light, and are in a very sturdy condition. Mr. Lee tells me that they do not use so much peat, &c., for these plants as some do, but a plentiful supply of crocks and charcoal, and only a thin layer of peat on the top; this is as it should be, as the free drainage admits of more frequent waterings than when a bulk of peat is round the plants. This house, with its hundreds of blooms of *Cattleya Mossiae*, all varieties being lovely and scarcely two alike, is in itself worth a visit. Here, too, are in bloom some strong *Cattleya gigas*, C. Mendellii, the priceless *Lælia Perrini* alba, L. elegans alba, C. Mossiae alba, *Batemannia Burtii*, *Pescatorea Roezli*, *Vanda Dennisoni* and other fine *Vandas*, *Calanthe veratrifolia*, &c. *Odontoglossum Roezli*, *Cypripedium niveum*, C. concolor, and the *Anæctochili* have a little warm house to themselves; here they are all plunged in living *Sphagnum*. The only way they succeed in keeping *O. Roezli* clean and healthy is by constant dippings in weak Tobacco water in the manner I recommended in THE GARDEN a few years ago. The *Calanthes* also have a house to themselves, their vigorous growth promising well for a good winter display of their blooms.

The first *Odontoglossum* house contains a very healthy and valuable collection, rich in those almost unattainable kinds, such as *O. lyroglossum*, *O. pricnopetalon*, and many famed varieties of *O. Alexandræ*, notably the fine *Trentham* forty guinea plant, *O. hebraicum*, in quantity, *O. Leeanum*, *Oncidium macranthum hastiferum*. These and the occupants of the other *Odontoglossum* house are in grand health, grown cold as possible in summer, and at from 45° to 55° in winter. The second large *Odontoglossum* house presents a splendid sight, with a great part of its stronger plants of *O. Alexandræ*, and a quantity of very large and healthy plants of *O. vexillarium* in full bloom, many of them with fifty or sixty blooms on each. Here also are good plants of the quaint *Nanodes Medusæ*, which so often loses its life in heat. Next one comes to another good house of *Cattleyas*, and then to a vinery, in which Mr. Lee is experimenting as regards starting a large lot of recently imported *Cattleya labiata* *Percivaliana*, *C. Triana*, *C. gigas*, &c., and they have certainly produced in the cool, rather shady vinery many more breaks, and of a better quality, than they would have done in a hot house.

Last of all comes the finest sight, the *Masdevallia* house, all aglow with thousands of brilliant flowers on their graceful stems—*Harryanas* in endless variety, tempting every one to name them according to their own fancy; this has been carried out to such an extent, that already we are in sad confusion with them, and the difficulties increase each year. As *M. Harryana* flowers at the same time all over the country, it would be well to get everyone who possessed a distinct variety to exhibit it before a committee on the same day in order to get the names put right. This would lead to a set of drawings being prepared, which could be printed and circulated, and

thus keep the varieties right afterwards. In this house (a long lean-to) were also in flower many fine varieties of *M. Veitchiana*, *M. macrura*, *M. trochilus*, and another which will soon become a favourite, *M. Chelsoni*, a *Veitchian* cross of great merit. A high, broad shelf in this house is laden with a great quantity of freshly imported *Odontoglossums* in small pots plunged in Moss, treatment which they evidently like. A fine collection of Orchids (speaking much for Mr. Woolford's care), situated in a large and well kept garden, will be found by the visitor to Downside, and if he can obtain a sight of the valuable collection of pictures with which the house, as well as the gallery is stocked, he will have seen something worth seeing.

Harrow-on-the-Hill.

JAMES O'BRIEN.

EDITOR'S TABLE.

A DISTINCT DELPHINIUM (*D. Glynni*).—Distinct among the many charming flowers of this class, on account of its dressy white centre. The effect of a bold group of it would be admirable. From Mr. J. Stevens.

THE DOUBLE PANSY.—This we had no hope of from the description, but it really proves a good thing. We have not seen the plants growing, but the flowers are much better than we should have expected. From Mr. Cannell.

DESFONTAINEA SPINOSA.—I enclose flowers of this handsome shrub which I saw at Mr. C. Trelawney's, Coldrinnick. The plants are very large and a mass of bloom. It is one of the handsomest plants in the shrubbery.—J. D. NAUSCAWEN.

THE CROWN DAISY (*Chrysanthemum coronarium*).—A very bold "Daisy," with yellow and cream-coloured rays. It is, we believe, better than any of the varieties raised from it. It is a native of North Africa, whence Mr. Kingsmill brought some of the wild type. It is extremely ornamental in a cut state if properly placed.

THE BLUE PEA.—From the Isle of Wight comes the pretty Blue Pea, a graceful and distinct plant. Mr. Wood says it produces one flower at every joint, and is very robust in the open ground. Interesting; but the beautiful varieties of the Sweet Pea which now vary so much in colour throw this into the background.

ITEA VIRGINIANA.—A very graceful bush with close racemes of white flowers, one terminating each little twig of the current year's growth; said by Gray to grow in wet places in New Jersey and southwards near the sea, flowering in June. At Coombe Wood, whence it comes to us, it flowers a little later. All good flowering bushes that come in so late are valuable.

THE WHITE MUSK MALLOW.—A charming British wild flower. We know nothing more delicate than its spikes of blossom, beautifully formed, and having the delicate scent of Musk—better, in fact, than the Musk itself, in the sense of being more agreeable. The form of the flower is admirable, and the colour very pure. Good in border, or in a cut state. From Mr. Kingsmill.

LONICERA HALLEANA.—A most graceful and fragrant bush, the slender shoot liberally set with flowers in small bunches, but close together, so as to form an almost continuous raceme. Our American friends have often spoken of the beauty of this Honeysuckle, which they appear to have got from Japan, and now Messrs.

Veitch send it nicely grown from Coombe Wood. We believe it will be a welcome guest everywhere in our English gardens, rich as we are already in Honeysuckles. It seems like a green form of our variegated Japan Honeysuckle, but is, we believe, distinct.

CYPRIPEDIUM SPECTABILE.—I have a large patch of this, 6 ft. by 6 ft., finely in flower, mostly in twos, on stout stems 18 in. high, but the continuous rains of just a week have completely spoiled them, as you will see by the pieces sent herewith. My object in sending these is to show that they can be grown, as I believe, as easily as common herbaceous plants, provided they are put into proper quarters at once, and not weakened by cutting up the roots to single eyes. Mine are grown in sand and peat, kept moist in a shady situation.—J. Wood, Kirkstall. [We never before saw the plant of so fresh and healthy a green.]

PANSIES AND OTHER PLANTS.—I send a bunch of Scotch Pansies grown here in the south, and also some Pinks sent to us from Pilrig Park last autumn, which our Irish soil seems to suit. I also send a flower of an almost semi-double *Papaver bracteatum*, also a spray of *Adlumia cirrhosa*; though the flower is not pretty, the plant, which has grown many feet high since spring, is very light and graceful in habit. Will you kindly name the enclosed yellow Foxglove? I add a spray of *Campanula Van Houttei*, as it seems to me to be one of the finest of the large *Campanulas*.—C. M. OWEN, Knockmullen, Gorey, Ireland. [The Foxglove is *Digitalis grandiflora*.]

SPIRÆA DOUGLASI.—Bushes of this type are very beautiful, owing to their fine rosy plumes of flowers and small round rosy buds. Flowers and buds of the Hawthorn type are many in early summer, but the delicate little roseate buds of these are quite fresh and very charming at this time of the year, and excellent either out-of-doors or in a cut state. The various forms near this species are well worth growing, and even pruning or thinning sensibly, so as to secure a fine bloom. In other words, they, living in the open air and requiring little attention, would repay tenfold for a tithe of the attention given to hothouse plants.

KALMIA LATIFOLIA IN A CUT STATE.—We have just noted a remarkable instance of the endurance of this shrub in a cut state. About a fortnight ago Mr. Henry Stevens brought from his garden at Addlestone Lodge a beautiful branch, every twig of which was covered with clusters of flowers. Previously he had it in a room for eight days. We still have the same branch in a cool room, and it is as fresh as ever, every bud which was half expanded when Mr. Stevens brought it being fully expanded now. The fact that cut sprays of such a beautiful shrub as this last in perfection for upwards of three weeks is worth knowing. There are very few fairer flowers for a vase than the American Mountain Laurel, the delicate pink, waxy flowers being very attractive by candle-light.

VANDAS FROM BRIDGE OF ALLAN.—Two glorious spikes of *Vanda suavis* *Rollissoni* and *V. tricolor* *Patersoni* come fresh and good from Dr. Paterson. The first is a grand spike, carrying seventeen large flowers, remarkable for their very distinct spotting and highly coloured labelum. The other, bearing ten flowers, is a superb variety, one of the finest forms of *V. tricolor* we have seen, the markings of the sepals being very pronounced, and the colour of the broad lip a

deep amaranth. Both emit a fine perfume, and afford additional evidence of Dr. Paterson's skill as an Orchid cultivator and of the wealth of his collection. We wish the learned doctor would tell us how he grows Orchids so freely and so well, for, as a rule, Vandas are poorly grown even in the best collections.

SEEDLING DELPHINIUMS.—A beautiful series of these from Mr. Crook, Farnborough Grange. It is surprising how fine and how varied these seedlings are. We believe that all the nobler types have been raised by the many who have paid attention to the plants. Still, it is well to know that so much can be done by the seedlings only. As in the case of many other plants, the next thing we have to do when we have secured wholly distinct and beautiful races of these is to increase each, so that it may be a decisive aid to us in getting away from the weak mixtures so common. There is such wonderful diversity of habit and colour, as well as form of flower, that a whole garden of beauty might be made with Delphiniums alone. But the beauty and distinctness can only be realised if each fine form is allowed to tell its own story, either by itself or with some simple suitable mixture.

A NOBLE HARDY PLANT (MECONOPSIS WAL-LICHT).—This Poppywort may well be reckoned amongst the best of the hardy plants introduced of late years, both as a dwarf fine-foliaged plant in winter when well grown, and in summer as a tall pyramidal plant, hung with drooping pale blue blossoms with a golden tassel in each flower. The plants now in blossom were given to us by Mr. Burbidge as small seedlings the autumn before last. They were kept in a cold frame the first winter; since then they have received no protection. The soil in which they are grown on the rockery is not very rich, but of good depth. The tallest plant is 6½ ft. high, two other plants are 6 ft. high, and some of the leaves are over 1½ ft. long by 8 in. or 9 in. wide. The flower-buds continue about 4 ft. down the stem, the terminal blossoms on each spray opening first. The peculiar shade of blue looks almost more beautiful in twilight than in the daytime. It would be interesting to know whether these blue Poppies are of larger or smaller growth in their Himalayan home than with us.—C. M. OWEN. [This plant has been figured in THE GARDEN. A leaf sent by Miss Owen measures 20 in. long. The specimen described must be very beautiful.—ED.]

FRUIT GARDEN.

APRICOTS.

"J. C. C." will find the Hemskirke and Peach Apricots quite equal to the Moorpark; indeed, the first named is in my opinion superior to it, as it is larger and quite equal to it in flavour. The Peach is also a hardy, free bearing sort, and, although both occasionally lose branches, neither cankers nor goes off to anything like the extent to which the Moorpark does. The Royal I have long discarded, as it seldom ripens well and is subject to mildew, and will not compare with those just named. Musch-Musch I regard as almost worthless, except for its earliness, as the fruit is very soft and little better than sweet water; but as it ripens at least a month before any other, it comes in well sometimes for making up a dish or for culinary purposes. The Orange is a useful kind for preserving, but small, and has not the quality of Hemskirke and Peach, which are good in every way, and should be planted in preference to all others, as they are sure to give satisfaction. What affects Apricot trees and causes them to go off so much is the cold in the spring, which, from the injury

it works on the vessels, brings on gumming; as the cells of the bark get ruptured, the sap cannot flow and whole branches often die away in the short space of a day. The only remedy against this is protection by means of wide glass copings; with these roller blinds may be made use of in front and frost warded off. When the blinds are up by day, old fishing-nets may be so strained and arranged as to break the force of cold winds. Trees sheltered in this way are fruitful, and seldom canker, unless the seasons are very bad or the soil in which they are growing is stiff and undrained. The kind of border that suits Apricots best is that composed of fair average loam resting on a chalk or gravelly bottom. If there is no calcareous matter in the soil, it is a good plan to trench and work chalk in, as all stone fruits need a certain amount, and Apricots never do well unless they can have some of it to feed on. As to pruning, the less of the knife they get the better, and to save having to use that instrument summer pinching and stopping of the breast shoots should be resorted to, as by doing that the spurs may be kept close to the wall without any wounds being made. To prevent the trees from suffering at this season from drought, the border near the stems should be mulched with half rotten manure, which will keep out the great heat of the sun and retain the moisture. S. D.

SUNSHINE FOR PEACHES.

IN the culture of Peaches in this country, whether indoors or outdoors, it is of the utmost importance to make the very most of sunshine and light on the fruit. Numbers of fruit gathered are paler and sourer than they ought to be from being insufficiently exposed to the light while growing on the tree. On trellised trained trees under glass they are apt to suffer from shade; against a wall they are not so badly off, but there is no reason why they should not be exposed fully to the sunshine in both cases more than they are. It is a mistake to suppose that it is time enough to put the leaves aside when the fruit begins to ripen; it should be exposed from the very beginning, or at the latest from the time when it begins to stone. It needs the light to enable it to perform its functions just as much as the leaves do, and the exposed fruit is always the largest and best, as well as the best looking. First, it should be on the upper side of the branches, and next the shoots should be laid in thinly, and the foliage should be picked off wherever it overlies the fruit. Merely pushing it to one side will not do when a syringe has to be used. You may complete the ripening of a Peach off the tree, but you cannot colour it, and colour means high flavour and sweetness. We have just finished a heavy crop from a Royal George tree, and one could not help remarking the superiority of the quality of those fruits which had had the most sun, those fully exposed being rosy crimson all over, while in others the intervention of a single leaf left its mark in the paler skin on the covered spot. The tree was gone over at an early stage and all leaves clipped off round each fruit where it did not seriously interfere with the buds for next year, and there is not much danger of that. Outdoors in our dull climate the importance of full exposure can hardly be sufficiently realised. The shade of the foliage makes many degrees difference to the temperature, and early and perfect maturation is entirely a question of the accumulated heat of the summer. Cultivators should now go over the trees on walls, select all the finest fruit, and either press the foliage aside from off it, or remove it altogether, only see that it is kept off. Tying in the shoots in time is another matter that should be attended to for the same reasons, and in order to ripen the wood. The shoots on outdoor trees always grow rankest when not tied, and as rank shoots are not wanted on Peaches, and are always difficult to ripen, the sooner they are tied to the wall the better. The fear of thinning the shoots out too much is the great bugbear of inexperienced cultivators, but leaving plenty of shoots is not of so much importance as leaving them in the right place. Take care to do that so as to pro-

vide well furnished branches in all parts, but do not hesitate to remove a shoot whenever it interferes too much with its next neighbour. A very thin sprinkling of young wood will produce flowers enough to guarantee plenty of fruit, and the thinner the shoots are the better ripened they will be, and the more certain the crop. J. S. W.

PROPER DISTANCE FOR VINE RODS.

"J. S. W." (p. 388) recommends two Vines for each light or sash; whereas I have stated that one is enough. Sashes are, as a rule, from 4 ft. to 5 ft. wide, and I do not agree with "J. S. W." that by planting only one Vine under each there is a great waste of space unless Pines or some such crop are grown under them. Supernumerary Vines are often planted between permanent ones. These I have seen removed, thus reducing the number to one under each sash or rafter, and I have heard many say that they would have had far better results had they planted at the full width of the sash at first, for the extra supply of Grapes which they got during the first few years was more than counterbalanced by the lack of vigour in the permanent Vines. I am aware that circumstances alter cases. Where a large quantity of moderate sized bunches is desired, 2 ft. or 3 ft. apart may prove best; but if large bunches are desired, 4 ft. or 5 ft. apart will give the best results. There need be no difficulty whatever in getting the required number of bunches to secure 2 lb. of fruit to the foot run of rod even at the widest distance mentioned, or 1 lb. to the foot at half the distance, but what the uninitiated would like to know is which is the preferable plan to adopt. My own experience is decidedly in favour of plenty of space. Our Vinery lights are from 4 ft. to 4 ft. 6 in. wide, and if 5 ft., I would like them all the better. One rod is planted under each rafter, and three-year-old Vines have so completely covered the trellis with side growths, that I would give but little for any crop that could be grown under their shade. Only one bunch is left on every other side shoot, for one bunch of 4 lb. is valued more than four bunches of 1 lb. each. I am speaking of varieties that produce large fruit and large foliage; but I would even adopt wide planting in preference to close planting for all the varieties I have even yet tried. If the tops do not occupy all the space at their disposal, the roots are sure to fill the border, and the weight of crop is pretty much regulated by the amount of food within their reach. A far as the question which will pay best is concerned, I feel certain that quite as much weight of fruit can be grown on Vines 4 ft. apart as on those at half that distance, and at the end of a given number of years the widest planted Vines will prove the best—such, at least, is my experience. J. G. L.

VINE BORDERS.

"R. H." cannot select a better time for renovating a Vine border than the autumn, and if care and attention be paid, there should be no need to sacrifice the crop. There are various opinions as regards making Vine borders, but I have always found a sweet, well-drained border to produce satisfactory results—that is, a border free from manure. The best time to lift Vines is as soon as the wood is thoroughly ripe and the fruit all removed. A day or two before commencing damp all available surfaces inside the house, so as to charge the pores of the foliage with water, and if the roof can be shaded with canvas or mats so much the better, as the shade keeps the atmosphere cool and quiet, and preserves the foliage, which is of great use in assisting root action. The best material for making the border is undoubtedly the top sod of an old pasture, full of fibre and free from fungus; if this is not comeatable, get the nearest thing to it within reach. Cut the sods from 2 in. to 3 in. in depth, according to quality, removing any long Grass that may be on them, and chop them into pieces 2 in. or 3 in. square, and throw them into a heap. See that everything is ready to repair any drainage defects

that may be found. Commence at the outside of the border with manure forks, dig up the soil and carefully lay back the roots as the work proceeds, covering them with wet mats; then remove the soil and put the drainage right. It is a good plan to lay a 2-in. drain tile against the front wall of theinery, and cross drains every 6 ft., filling up between with waste brick or other suitable material to the depth of 6 in. This secures good drainage and sure outlet in case of spouts running over. The foundation of the border should be 12 in. higher at the back than in front, with a drain a little lower than the foundation along the front to carry off the water from the cross drains. Cover the drainage over with sods, green side down, then fill up with chopped sods to the desired height made pretty solid. If the sod be of an adhesive character, mix with it a few broken waste bricks or sandstone; but if sandy they will not be needed. In making up the border, allow for subsiding and for applications of fresh surface dressings as may be required, which form the best means of maintaining the vigour of the Vines. The border being ready, spread the roots out full length carefully and evenly over the surface, just cover them with some of the finest material, and give sufficient water, from a rose-spouted can, to fill in the crevices about the roots, finally covering them with not more than 2 in. of soil. Cover the whole surface with from 2 in. to 3 in. of half rotted stable manure. Keep the manure moist in dry weather, together with the natural warmth of the soil, which, being put together in a green state, forms quite a hotbed, and starts the roots into action at once. All manure should be applied on the surface; the rain will carry down to the roots its feeding properties as they require it; the residue should be removed before fresh material is put on.

JAMES SMITH.

Waterdale,

Old v. young Cherry trees.—In looking over several Cherry orchards in this locality, the crop of which is very variable this season, I could not fail to note that old trees on an average were better cropped than young ones. This is the case in the majority of seasons, and probably accounts for the care which is taken to preserve old stumps as long as there is a living branch left on them. They are usually very fruitful, and, unlike bush fruits, the produce of old trees is equal in every respect to that of young ones.—J. GROOM, *Linton*.

Melons in 6-in. pots.—Notwithstanding Mr. Clarke's confirmatory note as to these, I am still sceptical about plants growing under such conditions bearing even one fruit; at least, such as I would dare to send to my employer's table, and yet we are asked to believe that these plants carried one, and sometimes two fruits. Does this mean one fruit as a first crop, and two as a second? I am puzzled to know how else to interpret the sentence; but being disposed to take a charitable view of the matter, I will suppose that it means that some of the plants had but one, and others two fruits each. Even if but one good fruit on a plant, Mr. Clarke's friend may claim to have accomplished the greatest feat in Melon culture on record; but in order to obtain full credit for his achievement, it will be necessary first of all to silence all scepticism in the matter by at once sending to THE GARDEN office a sample of his culture—of course, pot, plant, and fruit—and if the latter be pronounced eatable, and of 2 lbs. weight, I will hasten to make the *amende honorable*. Till then I must remain—SCEPTICAL.

Plums in pots.—If I could have suitable houses in which trees could be planted out, I would care but little for trees in pots, but it frequently happens that even in large gardens houses for planting out every kind of fruit which it is desired to grow cannot be spared; it therefore becomes a matter of trees in pots or no trees of that kind at all. For this reason we have a row of trees consisting of Cherries and Plums in a Peach house that has only been planted three years, and consequently not quite filled with

bearing wood, but these pot trees have annually yielded a fine lot of fruit. The Cherries (May Dukes) are over and put out to rest and ripen their wood, but the Plums are bearing a heavy crop of fine fruit. They consist of the following kinds, Rivers' Early Purple, Kirke's, Jefferson, Victoria, Green Gage, and Transparent Gage. They give very little trouble compared with the amount of fruit which they produce. I would, therefore, advise any one wishing to utilise newly planted fruit houses to have some pot trees to occupy the open spaces, for if they do not equal trees planted out in the size and quantity of produce, they will at least prove a welcome addition to the dessert.—J. GROOM.

The large Vine at Eastnor Castle.—I have seen a good many of our large Vines from time to time, and have visited all of them of any note; but the Eastnor one stands unequalled as regards health and fruitfulness. The house containing it is 72 ft. long and 28 ft. wide, span-roofed, and about 10 ft. high in the centre. The Vine is planted outside at the south end, the main stem being trained under the ridge, and from this canes, that branch out at intervals, are trained down almost to the floor. It is seventy-five years old, and all its wood and leaves are well developed, sound, and healthy. Like most of the other big Vines, the variety is a Black Hamburgh. The annual crop which it carries averages from 400 lb. to 500 lb.; the very largest and smallest of the bunches are generally taken off, the medium ones being left to form an even crop, which they certainly do. Bunches 5 lb. in weight have been cut from this Vine of late years; but those of about 3 lb. in weight are the favourites, and it is this kind which the Vine is bearing at the present time. As yet they have not begun to colour; the leaves are large and deep green, the berries the same in colour, and already well "hammered;" by finishing time they will, no doubt, be fully up to the Eastnor standard of perfection, so well known throughout the country.—CAMBRIAN.

Melon disease.—Having read Mr. Fish's article on this subject, I think he has hit the right nail on the head. What we want is more heat and a drier atmosphere to check and ultimately to out-grow this disease, which, as Mr. Fish says, is quite distinct from the rot at the collar. The latter I have generally been able to subdue by surrounding the collar of the plant with pounded charcoal and keeping it dry. This week I have made my first acquaintance with the true disease in some plants of the A. F. Barron variety, planted on a manure bed in a brick pit, in which there are flow and return 4-in. pipes. The plants grew rapidly, and just before the fruit blossoms opened whole shoots flagged and went off. On examination I found gangrene in the shoot; in some instances the edge of the leaf went first and ultimately the stem. All affected parts I immediately cut away and resolved to keep the plants without water, and since then no more shoots have gone off. The Melon requires to be grown rapidly, and some will withstand rougher usage than others. I have seen the old Victory of Bath and the local netted variety grown in pits without any artificial heat whatever. Sun heat, moreover, was not husbanded as most growers desire; on the contrary, air put on more suitable for Marrows than Melons, but in spite of this the plants carried a good crop of good sized fruits. The pace, however, being slow, the Vine was exhausted before the fruit was ripe; consequently they had to ripen on the shelf. They therefore had not that depth of flesh—melting, I mean—that a well-finished fruit possesses. Melons ought to ripen on the plant, have a day or two in a dry, airy place, and then be used; if kept they become over ripe and mealy.—GEORGE POTTS, Jun., *Surbiton Hill*.

Diseased Grapes (G. R.).—We cannot give you the cause of your Grapes being so strangely affected. On a microscopic examination the whole interior of each Grape is found to be brown in colour and thickly traversed by fungus spawn or mycelium, a state of things we do not remember ever seeing before. We shall be glad of a few more examples for further examination.—F.

PLANTS IN FLOWER.

ONONIS NATRIX.—An uncommon plant, and rather a showy one; would do for wall banks and for rough parts of the rock garden. Yellow Pea flowers on a bush-like plant. From Mr. J. Stevens.

PRIZE WHITE LOBELIA.—This graceful little plant of the *L. Erinus*, or so-called "bedding" section, and *Oenothera speciosa* have both been sent to us by Mr. Beedell, of Wallington, not Warrington as printed last week (p. 17).

SINGLE DAHLIAS.—These begin to come to us already. When planted early they are excellent, and we thus get a long season for their bloom, but when put out late they bloom late and are not very good. From Mr. Kingsmill.

ORCHIS MACULATA SUPERBA.—The finest spike that we have seen of this handsome hardy Orchid comes to us from Mr. Harper, Dregborn. That part of the flower-spike covered densely with flowers measures 8 in., and the colour of the blossoms is deep rose-purple. This is another instance of the value of this Orchid as a garden plant.

DISA GRANDIFLORA.—A fine example of this beautiful Cape Orchid is sent from Mr. E. A. Roberts' garden at Greenhithe. The plant bears two flower-spikes each with four large highly coloured flowers. This plant has been grown in a cool Odontoglossum house, the pot plunged in a larger one, and filled with Moss so as to keep the soil in a saturated condition. Under such treatment the plant has acquired vigorous growth, and has developed fine flower-spikes.

VICTORIA REGIA.—This queenly Water Lily is now in flower both at Kew and in the Royal Botanic Society's Garden, Regent's Park. Both plants are finely developed this year, having enormous leaves and huge blossoms, which appear in quick succession. Those who at one time thought the Victoria deteriorating on account of the plants being propagated continually from home-saved seeds would probably modify their opinion on seeing these fine plants.

GLOXINIAS FROM ROKEFIELD, DORKING.—Mrs. Fuller sends a beautiful series of Gloxinias remarkable for their high and varied colours, and for their large size, some measuring as much as 3½ in. across. It is surprising to see the rapid strides that have been made of late years in the improvement of Gloxinias; but we are not sure that entirely ignoring the beautiful horizontal-flowered kinds is a step in the right direction. Both erect and horizontal flowers come from Rokefield.

CYTISUS NIGRICANS, one of the finest of all the dwarfer hardy shrubs, comes to us from Grasmere in a beautiful flowering state. It is a shrub that should adorn every garden, even the smallest; its growth is neat and compact, and in summer it yields a profusion of blossom for several weeks. Each little twig carries a dense raceme of small flowers of the brightest yellow. It is somewhat remarkable that this handsome shrub does not find its way into ordinary gardens. It is perfectly hardy, and requires no looking after.

DWARF CHINESE PRIVET.—There are several handsome kinds of Privet in cultivation, particularly the Chinese and Japanese species, which include the variety under notice, the *Ligustrum chinense nanum*, a desirable kind on account of its dwarf growth, combined with a compact, free-flowering habit. Some branches of it brought by Mr. Stevens show well what an attractive shrub it is; every twig bears a cluster of tiny white blossoms. We believe it is quite hardy, and may be more familiar to some under the name of *L. Stauntoni*.

DABROCKIA POLIFOLIA ALBA.—This, the white flowered variety of *St. Dabec's Heath*, is at present in full beauty, its flowers individually resembling those of the *Lily of the Valley*, for which they would form a by no means unworthy substitute, except that they are scentless. Like some others of the smaller *Ericaceæ*, it does well in an exposed position in peaty soil, but in order to have the finest blooms it should be planted in a situation in which the soil never gets thoroughly dry. The typical form, with purplish coloured flowers, is also very pretty.

ROBINIA VISCOSA.—Flowering sprays of this from the Byfleet tree garden are beautiful both in colour and form. It may be said to be intermediate between the common False *Acacia* and the large-flowered *R. hispida* and *macrophylla*, both of which are often confused with *R. viscosa*, though the latter is much inferior to either as regards showiness; its flowers are crowded in very short racemes, not very discernible midst the foliage. The *Robinias*, except *Pseudacacia*, are a neglected class of low trees, seldom met with in ordinary gardens.

HABITZIA TAMNOIDES is not a plant one would tolerate in a select border of hardy plants, but there are positions for which few other plants are better suited. It is a tall growing plant, with slender twining stems wreathed on the upper parts, with myriads of tiny greenish flowers, which give the plants a feathery appearance. It is a capital plant for clothing dead tree stumps and for arbours, trellises, and the like. A good idea of its growth may be obtained from the fine specimen of it in the herbaceous ground at Kew, where, planted in a deep bed of loamy soil, it has attained a remarkable size.

UTRICULARIA ENDRESSII, now in flower in the Orchid house at Kew, is an extremely pretty, graceful little plant such as everyone must admire. It is smaller in all its parts than the better-known *U. montana*, and the colour, a delicate mauve, is unusual in the Orchid house. It requires the same treatment as *U. montana*, but it appears to be of much less robust constitution, at least at present. Probably when the plant becomes stronger and its requirements better understood it will grow as vigorously as *U. montana*, also now beautifully in flower at Kew.

ALSTROEMERIA AURANTIACA.—One of the showiest of hardy border flowers has been one of the brightest ornaments of the garden for the past fortnight, and will probably continue so for some time. Everyone who has a light, warm garden soil should possess it, for it gives no trouble when well planted at the outset, and the flowers last long in perfection in a cut state. Its elegant growth, too, allows of its being arranged with almost any other flower. There are several forms of this plant; one of the finest, with bright orange flowers, transversely barred with dark brown, comes from the garden at Grasmere, Byfleet.

LILIUM PARRYI AT KEW.—With regard to newly introduced plants, it is premature in nine cases out of ten to speak of their merits until they have been in cultivation two or three years. One of the most striking instances of this is *Lilium Parryi*, introduced from California but a few years. Until this week the finest specimens we had seen did not bear half-a-dozen blooms; we were, therefore, not a little astonished to see a plant of it in the new rock garden at Kew with nearly thirty finely developed and highly coloured flowers on one stem. The clump consists of four or five other stems, bearing between a dozen and twenty flowers. Such extraordinary growth is no doubt attributable to unusually large bulbs sent from California, for no home-grown bulbs could have developed such fine growth in such a

short time. This specimen, we imagine, shows this *Lily* in its full beauty, and certainly it is very handsome, and without doubt one of the finest of all *Lilies*; not only is the colour bright and clear, but the perfume is powerful and sweet. The stems are about 4 ft. high, and furnished with a few whorls of slender leaves; the flowers are all crowded at the tops of the stems, and droop slightly. They resemble in colour those of *Hemerocallis flava*, and are spotted more or less with chocolate. It is remarkably distinct, being different from any other *Lily* in cultivation, and we have no hesitation in saying that it will become one of the most popular.

CAMPANULA LATIFOLIA MACRANTHA.—One of the best of hardy plants now in flower at Kew is this noble Bellflower, a fine specimen of which some 5 ft. or 6 ft. high now adorns the old rockery, where it is evidently quite at home. This variety of *C. latifolia* (a British plant) is one of the finest of the genus in cultivation. Its tall stems are clothed with large, bold foliage, and are wreathed with a profusion of large, rich purple bell-like blossoms. It is of rank growth in good soil and a partially shaded position, but, however vigorous it may be, it never looks coarse, and is good enough to adorn any garden.

BOUGAINVILLEA GLABRA.—This is one of the best plants one could have to adorn the roof or sides of a greenhouse. It is of easy culture, and rarely fails to yield an abundant crop of beautiful purple-bracted flowers, than which few are more valuable in a cut state. Those who desire to see this lovely plant flowering in perfection should just now visit Kew, where, against one of the ends of the greenhouse (No. 4), is a plant of it clothing several square yards, and completely covered with wreaths of flowers. This specimen is planted out in good free soil, and is allowed all the light possible, and each year it undergoes a vigorous pruning. It seldom fails to flower freely, but this year it is exceptionally fine.

FLOWERS FROM ROTHESAY.—Mr. M. Cuthbertson sends from his nursery flowers of what he calls the Scotch Marigold, a handsome variety, having black centres, the florets being lemon yellow, edged with bright orange, after the manner of the variety called Meteor. He also sends what appears to be a very double flowered variety of *Chrysanthemum coronarium*, bright yellow, and like a very fine Pomponé *Chrysanthemum*, and a *Gaillardia* having all the disk florets elongated, so as to form a globular mass, as in the variety *Lorenziana*, which is now being distributed from Germany. This is a trio of handsome hardy flowers worthy of attention.

TWO ST. JOHN'S WORTS, from Mr. Stevens' garden at Byfleet, are both pretty plants. They are *Hypericum empetrifolium* and *H. olympicum*. The first is a dwarf, bushy shrub, not unlike some of the *Heaths*, each twig being tipped by a spike of tiny yellow blossoms, which, being very numerous, look bright and attractive. The *Olympic St. John's Wort* is quite different, being nearly as large as the common *Rose of Sharon* (*H. calycinum*), but the whole plant is covered with a bluish grey glaucous hue. The flowers are bright yellow and plentifully produced. Both are hardy, but thrive best on a sheltered, well drained rockery, where, if planted in good soil, they grow rapidly.

PERIPLOCA GRÆCA.—This seldom-seen climber can scarcely be called showy, yet when in flower it is very interesting. The leaves, which are ovate and oppositely arranged, are from 3 in. to 4 in. in length, while the flowers, which are freely produced in clusters of a dozen or so, command attention on account of their peculiar

colour. The individual blooms are about 1 in. in diameter, and consist of five petals of a purplish crimson colour, tipped with greenish yellow, which latter hue extends over the back part of the petals, and the whole flower is thickly studded with short white hairs. It succeeds best against a wall, but in the beds near the temperate house at Kew it is now in full flower trained to a stake.

PEPEROMIA RESEDEFLORA.—Very few of the *Peperomias* are worthy of general culture, but this is really a pretty and desirable plant. Unlike most of the other species, its chief attraction is the flowers, which are very small, but produced numerous in conical clusters on stems about 1 ft. in height. Being pure white, the contrast between them and the pale green foliage and reddish stems is striking. As a pot plant it is very pretty and elegant, but its chief use is in a cut state, the flowers being so white and graceful, and so unlike other flowers. A spray or two mixed with some delicate flower of a bright colour would make a charming arrangement for a small dinner-table vase. It is now finely in flower in one of the stoves at Kew.

FROM TUNBRIDGE WELLS.—I have forwarded you cut specimens of an *Azalea* named here *autumnalis*, a fine late variety invaluable on account of its coming in after the other kinds are over, and for its delicately coloured flowers, which are very serviceable where cut flowers are in demand. I also send *Tacsonia insignis*, a fine climber now flowering freely in the greenhouse. The ornamental Grass, *Arundo conspicua*, is now in flower. It comes into blossom some months before the *Pampas Grass*, a circumstance which makes it desirable either for the lawn or shrubbery. At Knight's nursery, Hailsham, I noticed the other day two fine plants of *Ceanothus Gloire de Versailles* covered with bloom of a lighter colour than that of *C. azureus* and much earlier.—D. DARTNALL.

DESFONTAINEA SPINOSA.—Although hardy in some places, this shrub is well worth the protection of a greenhouse, for when in the condition in which it now is in the temperate house at Kew, it stands in the first rank among flowering plants. The specimen in question is planted out in one of the beds, and is about 3 ft. high, resembling in general appearance a dwarf Holly, studded with brightly coloured tube-shaped flowers about 2 in. in length; the upper part of the tube is bright scarlet and the lower yellow, colours which, set off by the dark green foliage, are very striking. This plant may be easily increased by cuttings made of the half-ripened wood, kept in a close place, for though they sometimes remain a long time before rooting, they do not often decay.

SCABIOSA ATROPURPUREA, as may now be seen in the greenhouse (No. 4) at Kew, is one of the prettiest plants imaginable, and the admiration of everyone. The dense rosettes of flowers are from 2 in. to 3 in. across, borne on slender stalks, and varying from white, through pink, to the most intensely deep maroon-crimson. There are few more valuable plants either for adorning conservatories or for cutting, but how seldom does one see it, except, perhaps, some starvelings in a mixed border, it being quite hardy. It is, however, a plant that should receive as much attention in cultivation as the rarest tender exotic; then the results cannot fail to be satisfactory. Notes upon its culture have frequently been given in the *THE GARDEN*, especially by Mr. Roberts, of Gunnersbury Park, than whom we know of no one who grows it better.

THE YELLOW WATER LILY.—This, the *Nymphæa flava* from North America, is very distinct from any other Water Lily, and well merits all the praise that has been bestowed

upon it. There is no mistake as to its colour, its flowers being a clear sulphur-yellow, and they stand well out of the water on slender stalks. There are two or three plants of it now in flower in the Water Lily house at Kew, and, associated with the blue, white, and red kinds, its colour is more conspicuous than when alone, though the small size of its flowers is thereby rendered apparently still smaller. Among the Water Lilies in bloom beside the commoner *N. Lotus*, *stellata*, and others are *N. gigantea* minor, with large, rosette-like blooms of a lovely purplish blue colour, and a variety of the North American *N. odorata*, having pinkish tinged blossoms.

THE LAWSON NURSERIES, EDINBURGH.

THESE nurseries are well worth a visit, were it only for the fact that they afford one of the best views of Edinburgh, with Arthur's Seat and the Pentlands in the distance. Amongst the great variety of plants grown here none are more striking than the conifers, especially *Thuja*, *Retinosporas*, and *Junipers*, in every stage from seedlings hardly above the ground to plants several feet high, and grown by thousands. Many kinds are grafted, a quicker way of obtaining plants in most cases than by means of cuttings. *Cupressus Lawsoniana lutescens*, with golden foliage, is very hardy. A variety of *Thuja occidentalis lutea* and *Retinospora plumosa aurea* are also good golden conifers; and *Cedrus Deodara argentea variegata*, and *Juniperus virginiana alba spica* (a sport) are prettily variegated. The leaves of *Cupressus Corneyana* are finely divided, and *Cupressus Lawsoniana elegantissima* well deserves its name. *Juniperus hybernica erecta* resembles the Irish Yew in growth, and *Retinospora leptoclada* also possesses a somewhat erect form and is very compact. It would, however, occupy too much space to enumerate the many good and distinct varieties of conifers to be found here.

The following deciduous trees have peculiarly good foliage, viz., *Quercus filicifolia*, with leaves very finely cut; *Q. pannonica*, with deeply lobed leaves 7 in. or 8 in. long; *Q. ballota*, the leaves of which are slightly woolly; and *Q. pyramidalis punctata* with small variegated foliage, the young leaves tinted with pink. *Acer platanoides digitatum aureo-marginatum*, a long named variety, is prettily variegated, but the small shining deeply cut leaves of *A. platanoides laciniatum* are still prettier. *Acer polymorphum* with its varieties, *atropurpureum*, *laciniatum*, *palmatum*, and *palmatifidum*, are beautiful both in colour and form. *Acer Pseudo-platanus Wooli* has very good golden foliage, and the variegated form of this Sycamore, named *Leopoldi*, is also worth growing. Hollies seem to be made a speciality in these nurseries, hundreds of varieties being grown here. *Rhododendrons*, both species and varieties, are largely grown, including several alpine kinds possessing much beauty. Amongst them may be named *R. glaucum*, *R. lepidatum*, white and deep red varieties of *R. ferrugineum*, *R. Wilsoni*, the flowers of which are like those of the pink *Weigela*, but prettier. Besides numerous named hybrids of the larger hardy varieties, there are many Indian species, including, amongst others, *R. Thomsoni*, with good glaucous foliage, one of the finest of the early scarlet kinds; *R. barbatum*, fulgens, and *campanulatum robustum*. *R. Keysi*, with small, waxy, orange and yellow flowers, is now in blossom, and a plant of the very early *R. atrovirens* is fully 5 ft. high. Some of the large Indian species under glass are now out of flower, and so are several most beautiful new hybrids raised here between *R. Edgeworthi* and *R. fragrantissimum*, the flowers being much larger than those of *Edgeworthi*. Those of some plants are pure white, others slightly tinted on the upper petals with yellow or green, but all are sweet-scented. Amongst some excellent new hybrids raised here between John Waterer and Aucklandi some have large white flowers, others white, prettily suffused with pink, and two or three are sweet

scented. A *Rhododendron* called The Bridesmaid, with white flowers, small and compact in growth, was raised here by the late Mr. Gorrie, and is a good variety. *Spirea opulifolia aurea* is a good dwarf shrub; *Pernettya speciosa floribunda* is covered with blossom; *Andromeda floribunda* and *A. polyfolia*, now out of flower, are well grown here; also a white *Cytisus* of the *C. purpureus* section. In addition to these, I likewise noticed the white Persian Lilac, *Rubus deliciosus*, *R. leucodermis*, *R. nutkanus* (the Nootka Sound Bramble), and the pretty double form of *R. fruticosus* (the common Bramble), and *R. spectabilis*, with red flowers. The poisonous *Rhus Toxicodendron* is one of the rarer plants, and amongst alpine plants there is a good stock of the bright rosy *Androsace sarmentosa*, *Gentiana verna*, including one plant with pale blue flowers; *Primula Munroi*, in bloom last September and again in spring; *P. cortusoides*, *Ranunculus gramineus*, about ten kinds of *Hellebore*, a few kinds of hardy Orchids and of named Auriculas, some good Rock Roses, including a scarlet variety and a variegated one with white flowers, and *Veronica Lyalli*, sent out from here about two years ago. The latter a charming *Speedwell*, when seen in good condition.

Stove and greenhouse plants are grown in another division of these nurseries. Indian Azaleas, of much beauty, are now succeeded by an equally brilliant display of *Pelargoniums*—*Mabel*, *La Reine*, *Peerless*, *Flambeau*, *Mdme. Thibaut*, semi-double, pink and white, being amongst the prettiest; of zonals the best are *Mrs. Gordon*, *Mrs. W. Whiteley*, *Edith Pearson* (very large), *Lumen*, and *Atala*. An orange-red seedling *Begonia* is the finest I have ever seen. *Toxicophylæa spectabilis*, a sweet scented, white *Rubiaceous* plant, has a white juice, used in some parts of Africa in poisoning arrows. Palms of various kinds do well here grown in small pots. One of the Fan-leaved varieties (*Pritchardia pacifica*) is very handsome. *Geonoma gracilis* is a very graceful Palm and sweet scented; some think it superior to *Cocos Weddelliana*, of which large quantities are grown here. Associated with these are *Jacaranda mimosæfolia*, with beautiful cut leaves nearly 1 ft. long, *Cupania filicifolia* with equally good foliage, *Abutilon Sellowianum marmoratum* with large golden leaves, and *Acalypha marginata* with bronze foliage. A variety of *Grevillea robusta*, with more finely-cut leaves and denser habit than the type, is likely to be a good addition to fine-foliaged plants. There is a good stock of *Cordylina Veitchi* and of *Ardisia crenulata*; the latter (only about 9 in. high) promises to be covered with red berries in the autumn. *Utricularia montana* is in blossom, and the water Fern, *Ceratopteris thalictroides*, is another rare plant to be found here. But nothing is better grown than *Caladiums*. The leaves of *Mdme. Herne*, white with deep red veins, and with but little green, and *Meyerbeer*, equally transparent and beautiful, measure over 1½ ft. long by nearly 1 ft. wide. *C. Perle des Brésiles* is of much the same colour, but more suffused with pink; *Beethoven*, white veined with green, and *Princess Royal*, red and gold, are also excellent kinds.

C. M. OWEN.

TREES AND SHRUBS.

PLANTING EVERGREENS IN SUMMER.

I AM not aware that anything new can be said in favour of planting evergreen trees and shrubs during the summer months, but as it is a subject that interests a good many, it may be useful to say that the time of year has arrived when that kind of work should be done if done at all. The questions bearing on this matter are two—the probable results as compared with spring planting, and the effect that a hard winter has on newly planted subjects. As regards the first, I have no hesitation in saying that the best results will be obtained from summer planting in all cases where the plants to be moved exceed 6 ft. in height, provided they have only to be moved from one part of the grounds to another, but in the case of large plants that have to be brought long dis-

tances by railway I should prefer to wait until the middle of September. When practicable, I prefer to prepare all the plants to be moved if they have stood in the same position more than four years, and if they exceed a height of 6 ft. The preparation should be made in the previous October, and should consist in digging a trench round the stem of the tree 2 ft. deep and 1 ft. wide. The distance that this trench must be from the tree will depend on its age and size; for a tree or evergreen shrub 8 ft. high, the inner side of the trench should be 2 ft. from the stem all round, and the width should be in proportion to the height. In digging out the trench all roots met with should be cut clean asunder; the trench may then be filled in again and left in that state. It will be found when the time arrives for removing the tree thus operated on that every root cut asunder has broken out into a nest of fibres, and it is considered that these fibres are of far greater benefit to the tree after removal than the single root would have been if left undisturbed until the time of lifting. Experience proves this, for in practice I find that all trees or shrubs prepared in the way just described suffer much less than those not so treated; in fact, the percentage of living trees thus managed is far in excess of that of the other.

The question as to the effect that a hard winter has on newly-planted trees is one that demands the serious attention of intending planters. It must be taken for granted, I think, that a shrub or tree only recently removed is not in so good a condition to withstand the severity of a long winter as one that had not been disturbed. In my own experience I have had trees removed during the late summer months that have stood to all appearance sound and healthy up to the time when severe frost has set in, then become brown in the foliage and ultimately die. This, however, to my mind does not to any serious extent injure the cause of summer planting, because it is only in the severest winters that trees thus suffer. On the contrary, it cannot be too well known that there is a decided gain by adopting summer planting. If a tree is moved towards the end of July, it will in a great measure have completed its growth for the year; and if moved as soon as it has done that, it will get, other conditions being favourable, pretty well re-established before growth commences next season, and under ordinary circumstances it may be expected to make a fairly good growth the first year after removal; but in the case of autumn or spring planting it generally takes the whole of the next season to recover, and makes little or no growth. There is just one particular time in the summer eminently favourable to removal—I mean that period of the tree's first summer growth when it comes to a standstill. Many trees make two growths in a year, and the best time to move them is in the interval between the first and second growth. A little observation will enable anyone to detect when that time occurs, but as the habit of different trees varies, the selection of the time for removal may extend over three or four weeks, according to the character of the subjects to be operated upon.

J. C. C.

SHORT NOTES—TREES AND SHRUBS.

Hardy Bamboos.—The *Journal d'Acclimatation* states that *Bambusa mitis* and *nigra* have hitherto proved hardiest in the climate of France.—J. C. B.

Mezeoreon berries.—We should be obliged to any reader who, living near where this bush is plentiful, would kindly send us some of the ripe berries in a box or case.

Eucalyptus coccifera seedlings.—I have seedlings of this plant. Anyone can have some on sending address and box and paying postage.—A. C. BARTHOLOMEW, Park House, Reading.

Desfontainea spinosa.—I saw in THE GARDEN lately a notice of *Desfontainea spinosa* as not generally doing well. I have a plant of it which has stood out for the last ten or twelve years at least without any protection, except being in a sheltered place. It grows in well drained soil, but the climate is a rainy one. It is now 7 ft. high, 2½ ft. round, and 10 ft. in diameter in one part, and bears abundant flowers for the greater part of the year.—COLIN G. CAMPBELL, Stonefield, Tarbert, Argyleshire.

RAPHIOLEPIS JAPONICA.

THIS handsome Japanese shrub is not an uncommon plant in greenhouses, in which, it is generally known under the garden name of *R. ovata*. It is, however, perfectly hardy, and it is with the view of making that fact known that we produce the annexed illustration of it, which represents a spray lately sent to us by Messrs. Veitch from their nursery at Coombe Wood, where the plant has withstood the full rigour of our climate for some years past. The Coombe Wood Nursery is not very well sheltered, and

appearance, and, like most other Rosaceous shrubs, powerfully fragrant. Those who possess duplicate plants of it would do well to try it in the open in some sheltered spot, and if in a high and dry position so much the better. This species is called also in gardens by its synonym, *R. integerrima*. There are three other kinds of *Raphiolepis* in cultivation, viz., *R. indica*, *R. rubra*, and *R. salicifolia*, but only the last-named one is generally known. It, too, is a handsome shrub, readily distinguished by the long, Willow-like foliage. Its flowers are much

was excavated out of a hillside to form a tennis court. It was planted with *Rhododendrons*, *Azaleas*, and *Kalmias*. Most of the *Rhododendrons* have since then been removed, but the *Kalmias* remain, and are completely covered with flower every year; in fact, they flower much more freely than others planted in light loam, though the latter grow better.—N.

ROSE GARDEN.

OLD-FASHIONED TOWN ROSES.

THERE are one or two things about Roses "which no fellow can understand," and one of these is why certain kinds of Roses which will grow in town or suburban gardens should be unprocurable at nurseries. What has become of the old white, the Maiden's Blush, the common Damask, the perpetual Damask, and those huge climbers so universal in cottage gardens in the north, and known there indiscriminately as monthly Roses? With regard to these, Flora may well say to the generals and adjutants of her army of Roses, "Give me back my legions," when she wants to invade our smoky towns. No one would prefer these old Roses to such flowers as Marie Baumann, Victor Verdier, Louis Van Houtte, Baroness Rothschild, La France, Comtesse de Serenye, or any of the established favourites amongst Perpetuals; but for suburban gardens it is not a question of new Roses *v. old*, but between plants which produce nothing but shapeless masses of ragged petals and others which produce respectable flowers—between plants which hold their own under the ordinary cultivation which flowering shrubs receive and others which seldom or never produce anything like a decent return for the careful cultivation they require.

In the course of a walk through part of Woolwich and Blackheath I noticed some ten or twelve bushes of the old white Rose doing well with ordinary shrub cultivation seemingly, while standards and bushes of Perpetuals in conspicuous positions in the same gardens were going or gone. The soil is light and thin on porous gravel resting on chalk. Bushes of the old white may be seen in the suburbs striving to grow in unfavourable situations in such a way as to suggest almost the certainty of their doing well with care. Now, why should town gardeners be compelled, if they want Roses, to purchase budded plants which will not grow, and be unable to procure bushes on their own roots of these old Roses that will grow? and why should our Rose growers not breed us a race of Roses having the same power of thriving in smoke that the old Alba and Damask have specially for town and suburban gardens, keeping to the open form of the Alba, and discarding as useless everything approaching the globular or cabbage form, which refuses to open in towns, but turns mouldy and drops off instead?

From a town amateur's point of view a great deal might be said against holding Rose shows in or near large towns, the result of a visit to one being in too many cases the purchase of a guinea bundle of standards of the finest exhibition Roses, which are carefully planted and tended. Result: well—Peasticks would have been quite as ornamental and much less trouble. Some years ago I was a daily spectator of some thirty suburban gardens newly laid out, my own being one, and it was curious to observe how nearly every occupier began gardening with the standard Rose as a feature. A few red, pink, or white spots, vaguely circular, appeared on the plants the first summer, but after that nothing much resembling a flower. My own plants were mostly strong garden Roses on the Manetti, but I fared no better than my neighbours; indeed, the so-called garden Roses did worst of all. I



Flowering spray of *Raphiolepis japonica*.

the soil is not of the lightest description; the plant may, therefore, be said to have had a fair trial out-of-doors. We have also met with it in the open air in other places besides Coombe Wood, and if we remember rightly, Mr. G. F. Wilson has a fine old bush of it on his rockery which abounds with shrubs of a similar character, all apparently at home. This shrub is of low growth, somewhat bushy in habit, and rather sparsely furnished with oval leaves of a leathery texture. It produces its flowers in early summer, and when a good-sized bush, well covered with clusters of white blossoms resembling those of some species of *Cratægus*, it has a handsome

the same as those of *R. japonica*, but more plentifully produced. We have no instance of its having stood out like its congener, and we doubt if it is so hardy seeing that it is a Chinese plant. Perhaps some of our readers can enlighten us on the point. W. G.

Soil for Kalmias.—"Alpha" (p. 6) is undoubtedly correct in stating what soil *Kalmias* grow best in, but anyone not having peaty soil need not be deterred from growing them. Some of our plants that always flower the most freely are planted in the worst soil, if it can be called soil at all, for they are growing on a bank of marl that

got three good blooms of Reynolds Hole and one of Comtesse de Serenye, but all the others were worthless and refused to grow. In three years after planting all the Rose trees were dead or dying. Only the Maiden's Blush and a Damask did anything much after the first year, but these kept on very well. J. D.

CLIMBING ROSES.

Now is the time when climbing Roses are beautiful where they are trained so as to grow, wreath, and bloom freely. A group of old garland and other climbing Roses comes from Mr. J. Dundas, who writes of them as follows: "These old Roses seem first-rate growers, but the Perpetuals have the advantage in a season like this, for although the first blooms are bad, a second growth of strong shoots has already followed, and will be in bloom in a fortnight or so. I have sent blooms of The Garland and Madame d'Arblay; the first I like very much. These Roses are not often seen now, perhaps because when pruned in the usual fashion there are no flowers. I have these on a trellis 8 ft. high, and I pinch out the tops of the rods when they reach that height, which makes the side buds start and form good shoots before autumn. The new wood is tied in in the autumn and the shoots which have flowered are cut away. The sprays are flowering like the one sent, while fresh rods for next year are rising from the root, and springing from the lower parts of the old shoots. You can easily imagine what a nice mess a jobbing gardener would make of Roses like these on their own roots if he got it into his head that they were budded on a dwarf stock, especially as the young rods do not look much like the old wood. All the rods from the root would be taken for suckers and cut away. I saw a plant of Madame d'Arblay at Woolwich which seemed to have received this treatment; three or four zigzag shoots of very old wood covered the front of a house, showing only a few leaves and scattered flowers. Madame d'Arblay has the same habit as The Garland. My plant is only now sending up strong rods for the first time, so that the cluster sent can scarcely be called a fair specimen. The other Rose is Félicité Perpétuelle, an evergreen (sempervirens) Rose, which will cover the whole front of a house if well treated. I have seen 30 ft. of fence clothed with one plant nearly as thickly as it could be with Ivy. It is truly evergreen in winters like the past. I cannot help thinking it would produce a good effect to plant this Rose alternately with Gloire de Dijon for the walls of houses, so as to completely clothe the walls with greenery. The blooms of pink and buff Roses look very poor when seen on a brick wall."

THE BEST ROSE.

No doubt Canon Hole is right. Gloire de Dijon is very far from being the best Rose in form. There is little objection to its colour, though it is hardly decided enough to be telling in a stand of first prize kinds. But its fault is confined to its form. Fair in bud, no sooner does it begin to unfold fully than it is spoilt by a redundancy of petals. And were the same standard of judgment applied to Gloire de Dijon as to most other Roses its redundancy of petals would well nigh disqualify eleven or twenty-three first-class blooms. But the fact is Gloire de Dijon is so good and useful and in every other way so strong, that it has almost established a special standard of judgment for itself. Hence, Gloire de Dijon must be judged by such, and good blooms of this type are allowed to go with other and far better Roses. In form and absolute beauty it is not to be compared with Charles Lefebvre, Marie Baumann, Duke of Edinburgh, La France, Souvenir d'Elise, Marie Van Houtte, Catherine Mermet, or Devoniensis. Were I obliged to select the best Rose, I should now without hesitation name La France. What a prodigal wealth of pink of the most delicate shade is partially revealed and partially hidden in or under its petals! what perfection of form, what profusion of material, what regularity of arrangement, what admirable substance, what inexhaustible sweetness, charac-

terise, distinguish, and adorn this truly magnificent and virtually perpetual flowering Rose! And yet for an all-round everybody's Rose, to climb the mansion or the palace, enwreath the church walls or porch, clothe the poverty-looking baldness of the cottage, and be planted everywhere for and by the masses, perhaps the best Rose is still Gloire de Dijon. Who will raise us a scarlet, a red, a pink, a white, and pure golden Rose with an equally vigorous constitution and as free flowering a habit as the true Gloire de Dijon? and who will improve the shape of the latter until it becomes the equal of, say, Charles Lefebvre, Marie Baumann, or A. K. Williams? D. T. FISH.

SOME FALLACIES ABOUT ROSES.

Why do writers about the Rose pretend to be constantly finding so many bewildering causes for this or that not happening, for growth being unequal in Roses and Rose stocks, the one early the other late, the only cure for which is said to be spring pruning in the case of stocks? With a few unimportant exceptions, found everywhere where Roses are largely grown, it will be found that when the stocks are ready for grafting with half ripe shoots, or for budding, that buds and scions can easily be found for the purpose. It is said that stocks should be pruned when the Roses are pruned; most growers will do that. Where indeed the stocks have stood over from the previous summer, it must be done if an impenetrable thicket would be avoided; and if the stocks are winter planted, they will have had their cutting back at planting time; therefore, in any case the growth is that of the current year, and the same conditions that give the operator good, plump, useful buds and scions give also succulent, but firm growth in the case of the stock. I would ask, too, where are the lucky cultivators who have such an abundance of labour at command that they can afford to "flood" their Brier stocks? Time may, perhaps, be found to water suffering Roses, but the Briers—well, if they have not been too barbarously denuded of their roots, and were timely planted, they will stand a long spell of dry weather without injury. Remarks such as those to which I refer bring men into collision with their employers, who, relying upon the information which they glean from papers, desire those under them to flood such things as Rose stocks. They also tend to create doubts and difficulties where none should exist, especially in the minds of those not practically acquainted with gardening. SYLVESTRIS.

Double red, yellow, and white Brier

Roses.—A note (p. 444) quoted from the *Field* in reference to these seems to require further explanation. Double red Briers are rare; double whites I have never seen; and double yellows, unless in the class of Austrian Briers, or Harrisoni, are also unknown. Are the Briers referred to properly Briers, or Scotch Roses, or what? By the way, has any grower of yellow Austrian and bronze Briers observed what havoc the golden rust is making among these Roses this season?—D. T. FISH.

Roses in pots.—I have always understood that in purchasing pot Roses for cultivating in a greenhouse one should be careful to obtain plants that have been under glass for a few seasons. Indeed, I believe that at most nurseries there are houses especially for the growth of such plants, which are sold at about 24s. per dozen. But I have been informed by a neighbouring nurseryman that to purchase such Roses is inadvisable. "Better," said he, "buy sturdy little pot plants at 12s. per dozen that have made good wood in the open air and in frames, and grow them on in the greenhouse yourself." Will anyone inform me which plan is the better?—IXION.

Coupe de Hebe Rose.—Remembering well the striking effect which this Rose produced at one of the shows of the Royal Horticultural Society at Chiswick, I bought a standard plant of it three years ago and planted it, with a moderate supply of manure, against a north wall—the garden being elsewhere subject to violent gales, but it has never flowered. I shall therefore be glad if any correspondent can suggest the probable reason.—J. S. C.

TESTING SEEDS.

A CUSTOM exists of determining the quality of seeds which are to be committed to the open ground by previously sowing a small portion of them under glass. Although the result of this test will, as a rule, indicate with tolerable certainty the germinating power, it may, and probably often does, prove a snare to the grower. I have known cases where, when sown in pots in warmth, every seed has come up, whilst the bulk of the sample sown in the ordinary way in the open has failed to germinate in anything like a satisfactory manner. It is not difficult to understand why this should be when one considers how very different are the conditions under glass from those which often prevail in the open air. A case in point occurred to me during the past spring. Having sown a considerable quantity of a particular flower seed in the open, and finding that but few plants appeared, I, as a last resource, and with but faint hopes of a good result, sowed the remainder in a pot in a warm house, and I was not a little astonished to find that every seed came up very strongly. Another example equally striking is as follows: A friend of mine, a grower of Carrots for market, gave a sample of his seed to a neighbouring gardener to test; he placed it in his plant stove, and the result showed apparently that it possessed strong germinating power. Thereupon a four-acre field was sown with it, and so thinly did the young plants appear, that the ground had to be ploughed up and resown with fresh seed. I have sown seed under glass two years old of annuals, Cyclamen four years old, Primula, Cineraria, and many kinds of seeds which have lain dry and cool for several years, with very good success; but I never saw either flower or vegetable seeds which were not quite fresh come up well and strong—facts which prove that seedsmen should be even more careful in supplying fresh samples where it is a question of sowing in the open than where the protection of glass is to be given.

J. C. B.

FLEMISH GARDENERS.

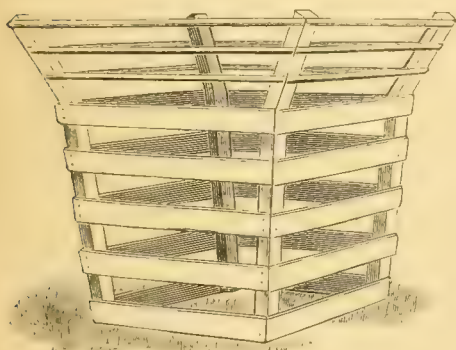
IN the reign of Edward III. many Flemings were induced to settle in England, and among the other branches of industry introduced by them that of gardening must not be overlooked. It is said that the Walloons first planted Hops in Kent, bringing them from Artois. They soon turned the fertile soil of England to account, and imported many excellent vegetables which had either fallen out of cultivation, or had hitherto been unknown in the country. After the dissolution of the monasteries, gardening became a lost art. Many of the monks were skilful gardeners; and as not a few of them were foreigners, they brought with them numerous useful plants, and naturalised them in the country of their adoption. I think we sometimes overlook our obligations to them in this respect. To a wandering brother we owe the Peruvian Bark; St. Dominic carried the Orange from Spain to Italy; and in an age when the science of medicine was yet unborn, the inmates of the monasteries (learned in the art of healing, and no unskilful surgeons) prepared their medicines from rare plants whose curative properties they had carefully studied. All this was now at an end—there was a sort of interregnum in horticultural affairs; the scientific gardeners of the future were as yet undreamed of. The patient monastic tillers of the soil had left no successors. England, however, derived much knowledge of gardening from the refugees to whom she gave shelter and a home. Sandwich was the first town where the Flemings planted their market gardens. The Cabbages, Carrots, and Celery produced here met with so ready a sale, and were in such great request in London, that a body of gardeners shortly went from Kent and established themselves at Wandsworth, Battersea, and Bermondsey, where their gardens may still be seen. Mr. Smiles (to whose interesting book on the Huguenots I am indebted for most of my facts) says that vegetables were formerly so scarce that they were salted down for winter use. Katharine of Arragon unable to obtain salads for her table

in England, was obliged to send to Flanders for them. A Cabbage from Holland was then an acceptable present. The trade between that country and Hull in Onions, &c., was extensive, and in 1595 a sum equal to 20s. of our money was paid for six Cabbages and a few Carrots. In that century that accomplished scholar and gallant courtier, Sir Walter Raleigh, sailed the sea in search of "something new and strange" from that unknown land of romance and adventure beyond the Atlantic. He brought back (as we know) Tobacco and the Potato. When we remember that the English of the Middle Ages lived on salted meat for at least half the year, it is not surprising that in the absence or scarcity of vegetables some terrible diseases prevailed which are now happily unknown. Mr. Hartlib (to whom Milton addressed a letter on education) says that in 1650 an old man then living remembered "the first gardener who came into Surrey to plant Cabbages and Cauliflowers, and to sow Turnips, Carrots, and Parsnips and early Peas—all of which at that time were great wonders, we having few or none in England but what came from Holland or Flanders."

MARK NESFEILD.

TREE GUARDS.

SUBJOINED is a sketch of what we are using in the park here to protect our ornamental trees from cattle, horses, or deer. They consist of crooked branches of Oak trees, cut at the saw-mills; the outsides are cut off straight, then the



next cut is made up to the angle on both sides. The piece is then reversed, and other cuts made up as far as the angle to meet those first made; the angle is about 2 ft. from the top. These posts are about 7 ft. long and about 4 in. square, the thickness varying according to that of the piece of wood operated on; in some cases we use them with the bark on. Where sap wood occurs at the base of the sawn posts they should be well tarred some time before being used, but in cases in which the posts rot stump posts can easily be used on which to splice them. The sizes of the crates or protectors when made are about 4 ft. 6 in. square at the base, 5 ft. 6 in. at the top rail, from 7 ft. to 8 ft. at the top, and 9 ft. across from angle to angle. The three top lines are of hoop iron; sometimes we use four lines of galvanised stout iron wire, either of which has a lighter appearance than wood. The top wooden rail is 3 in. by 2 in.; the lower ones 3 in. by 1 in.; height of crate, 5 ft.; to top wooden rail, 3 ft. 6 in.; from the ground five wooden rails should have been shown in sketch, the spaces intervening being 5 in. apart. We have some wholly of wood, the top being finished off with a stout rail, but, as I have said, iron has a much lighter appearance. These crates take less material than when upright pales are used, and they effectually guard the trees (mostly coniferous), even from the long necks of the larger horses as well as from deer. When Oak is being barked many branches that would otherwise go for firewood may be advantageously saved and used for this purpose. Such protections

are generally approved of by those who have seen them; in fact, no unfavourable opinion has as yet been expressed respecting them.

Killerton, Exeter.

JOHN GARLAND.

INDOOR GARDEN.

WINTER FLOWERING PLANTS.

CHRYSTANTHEMUMS are perhaps the most useful of early winter flowers, as they only need the protection of a glass roof in order to have a good display up to Christmas. Where early struck cuttings have been carefully attended to, they will now be bushy little plants in 7-in. or 8-in. pots fit for transferring into their flowering pots. Good specimens may be grown in 10-in. or 11-in. pots. The compost we use is turf from an old pasture, cut about 4 in. thick, pulled in pieces, and mixed with dry cow or old hotbed manure and sand. The plants must not be over-watered until they have become well rooted, when they can hardly have too much. We set them on a bed of coal ashes, kept damp by syringing after hot days. Small plants for decoration may yet be secured by using the tops of old plants for cuttings; if half-a-dozen are put in a 4-in. pot they make useful little plants, more especially the small flowered or Pompon varieties.

ZONAL PELARGONIUMS are undoubtedly destined to be more valued for winter than for summer flowering. The brilliant scarlets, crimsons, salmons, pinks, whites, &c., are really charming in mid-winter. No time should now be lost in getting them into their flowering pots, as they must be well rooted. Old plants cut back are the most floriferous, but young spring-struck cuttings produce the finest trusses of bloom, and it is well to have abundance of them in small pots for all kinds of indoor decorations. But a few years ago scarlet Pelargoniums in bloom at Christmas were looked upon as novelties; now they are indispensable. Keep them in an open, sunny position in order to get the growth well matured, and pick off all blooms as they appear. Any free flowering variety of the Vesuvius type may be utilised for winter decoration. Cold pits are the best summer quarters for them, keeping them exposed except to heavy rains, when the lights should be put over them, but tilted up at the back; towards autumn when the nights get cold they will be more in request. In September the plants must be removed to a light, well ventilated house, and allowed to perfect their flower-spikes.

PRIMULAS of the single Chinese class will now need shifting into their flowering pots; a light rich compost and plenty of drainage are the chief essentials as regards successful culture. Be careful not to pot too deeply; rather steady the plants by means of wooden pegs put in all round the stem, and be very careful as regards shading and watering. Pinch out all flower-spikes as they appear, and never let the soil get dry, or the rays of bright sunshine to reach the plant. A cold pit or frame set on coal ashes will form good summer quarters for them. The double varieties succeed those raised from seed, and come in well for cutting. The later sowings for spring will now need pricking off into 2½-in. pots, and another batch should be sown for the latest supply.

VIOLETS planted out in beds in April will now need frequent attention in the way of cleaning; stir the surface, and cut off all runners with a pair of Grape scissors. Water freely in dry weather, and syringe overhead after hot days. Red spider is the very worst of enemies so far as Violets are concerned, and no pains should be spared to keep it in subjection. The Neapolitan, Marie Louise, and Czar are amongst the most useful sorts.

SERICOGAPHIS GHIESBREGHTI is a very valuable winter-flowering plant. Cuttings of it or old plants cut back and treated like Poinsettias will be found to be equally useful, the colour being bright and the sprays light and feathery. Either on the plant or in a cut state they have a fine appearance.

CELOSIA PYRAMIDALIS is another excellent winter-flowering plant. The produce of seed sown

in March will now be nice stocky plants, which must always be shifted before the pots get very full of roots so as to keep them growing freely. Pinch out the flowers as they appear. A compost similar to that given to Primulas suits them perfectly. Keep them in a moist, close temperature; that of a pit partially filled with tan or leaves (to plunge in) suits them well.

SALVIAS, such as *S. splendens*, *S. Heeri*, and others, will now do out-of-doors, or in cold pits from which the lights can be removed on all favourable occasions. Keep them well supplied with water at the root, and syringe after bright days. Pinch out the points of the shoots in order to induce a bushy habit, and do not let the plants become starved, or the lower leaves will turn yellow and drop. Where roots are abundant liquid manure may be freely given.

TREE CARNATIONS bloom well in winter; where cuttings of them were put in early they will now be fit for potting off singly into 3-in. pots. I find that young plants struck annually in spring yield the best results, but old plants grown on will continue to yield a succession of flowers for nearly the entire season. Be careful to secure good drainage, as anything like stagnant moisture about the roots soon proves fatal to them. Fibry loam, or turf, a little peat, leaf-mould, and sand suits Carnations well. They must be tied up to single stalks as growth progresses. Cold pits suit them best in summer, keeping the lights quite off them on all favourable occasions, but putting them on on the occurrence of heavy rains or storms. The small flowered varieties, of which Miss Joliffe is the type, are the best.

BOUVARDIAS have of late years become extremely popular, and at no time are they more valuable than in winter. Old plants cut back and repotted will now be making rapid growth, and must be pinched to induce a dense, bushy growth, as every shoot formed now produces flower-heads. Cuttings recently put in must be grown on for late flowering, keeping them in warm, moist quarters, but old plants should soon be gradually hardened off, so that in August they may be benefited by full exposure to the open air. Where cut flowers are in much request, especially for bouquets, Bouvardias are indispensable, especially the white varieties.

EUPHORBIA JACQUINLEFLORA. — The long, arching spikes of brilliant scarlet flowers of this plant are very beautiful, and when these are cut early a succession of small flowering sprays is produced. This Euphorbia is very useful as a pot plant from its habit of running up tall and slender, enabling cultivators to get tall flowering plants in very small pots. In order to induce branching out old plants must be pinched early, and in the case of young plants we put from four to six cuttings in a pot, and grow them on without stopping.

GESNERAS when well grown are especially valuable for indoor decoration. They enjoy a subdued light in all stages of growth, and, therefore, last longer in good condition in rooms than most plants. If their roots were started in boxes in March they will now need shifting into their flowering pots. We find 5-in. and 6-in. pots sufficiently large for good specimens, and they fit nicely into ordinary vases. A compost consisting of peat, decayed turf, leaf soil, and sand suits them well, and they should have stove temperature and careful shading from bright sunshine. Keep them moist at the root, and the atmosphere should also be moist, but do not wet the foliage. We find Gesnera zebrina, *G. z. splendens*, and *G. cinnabarina* to be the most useful sorts for winter decoration.

MIGNONETTE must not be forgotten, for although not showy, its perfume at all times is delightful. If not already done, sow at once in 4-in. pots and set them in a cold frame. Small pots are most useful for flower-stands. If larger specimens are desired the seed must be sown early, and the plants potted on to ensure rapid growth, picking out the flower-heads as often as they form. The older kind of Mignonette is, however, likely to be superseded for pot culture by the new double flowered white that does not produce seed, and which

is a most continuous flowerer and very fragrant and beautiful.

ORCHIDS of certain kinds, such as *Calanthe vestita*, *C. Veitchii*, the *Cypripediums*, or *Lady's Slippers*, and many others, are real gardeners' friends for supplying quantities of flowers at the right time, and are of such easy culture that anyone having a stove temperature can hardly fail in growing them. For making button-hole and other bouquets the *Calanthes* are especially well adapted.

JAMES GROOM.

IVY-LEAVED PELARGONIUMS.

THE recent exhibition of the Pelargonium Society served at least one useful purpose; it brought prominently before the public the value of the Ivy-leaved Pelargoniums as subjects for pot culture, for conservatory decoration, and also for exhibition purposes. The specimens shown by Mr. Henry Little, from Hillingdon, were particularly good; indeed, they were some of the best ever seen. It is, however, also due to Mr. Barron to state that for a few years past he has annually grown specimens of the newer Ivy-leaved Pelargoniums at Chiswick and exhibited them in public. There is always a good collection of these at Chiswick, and they well repay inspection. Whether the kind of irregular cone-shaped form in which the specimen Ivy-leaved Pelargoniums are generally grown for show purposes is the best or otherwise is a matter for discussion, but it may be stated in recommendation of it that it is a method of training that serves to show off the trusses of bloom to the best advantage. The Ivy-leaved Pelargoniums must be subjected to some training, and the method adopted by Mr. H. Little is perhaps one of the best that can be employed under the circumstances. To make good decorative and exhibition specimens, one-year-old plants must be employed as a foundation. By this I mean plants obtained from cuttings in the spring of this year, and then hardened off during the summer and kept in small pots with well ripened wood through the coming summer to make specimens for 1883. When visiting Mr. Little's place at Hillingdon a few days ago I saw standing in a sunny position in the open air a number of young plants, the wood of which was being well ripened and matured for next year's work. The kind of wood wanted is plump vigorous shoots of this year that will break freely into growth in the early part of next year. Older wood is unreliable, and will not break into growth, but dies away, and leaves awkward gaps in the plants.

If anyone were desirous of laying themselves out for growing specimen Ivy-leaved Pelargoniums, I would recommend them to obtain at once a dozen or so of young plants raised from spring-struck cuttings and place them in a position where they could have plenty of sun and air, but on no account be allowed to suffer for want of water. As some of the newer varieties seen at the recent Pelargonium show are not yet in commerce, they cannot of course be had now, but the following list of obtainable varieties will be found to comprise sorts well adapted for pot purposes: Double-flowered—*Anna Pfitzer*, bright rosy-pink and lilac, very fine and good in habit. *Gloire d'Orleans*, bright deep magenta, small, but very double flowers that are finely borne on attractive trusses, a variety with a compact, but very free blooming habit, and one of the best in cultivation. *Madame Crousse*, delicate rose with slight dark spots on the upper petals, large in size, not so fully double as some but very good. *Madame Jeanne Wouters*, clear soft rose, with carmine veins on the upper petals; very pretty indeed. *Mon. Dubus*, deep reddish pink, very distinct and pleasing, habit a little struggling. *Rosa plena*, light lavender flushed with a slightly deeper shade, large, well-formed, fully double flowers. A. F. Barron, lilac-rose, flowers large and full, compact habit, very free, a most useful and attractive variety. *Viscountess Cranbrook*, pale satiny rose, a very pretty shade of colour, dwarf and compact habit, very free, a beautiful and pleasing variety. *Madame E. Galle*, very delicate flesh, large full flowers, very good. *Candeur*,

pure white, apparently a really good pure white Ivy-leaf, with well formed double flowers; *Sarah Bernhardt*, white, the top petals slightly tinted with carmine-crimson, very pretty and distinct; *König Albert*, lilac-mauve, tinted with a deeper shade, good habit and very free; and *Vice-President Jolly*, clear pink, large and full double flowers, good form, and extra fine. This makes a list of a dozen double-flowered varieties. A few of the best of the single varieties will be found in *Mon. de Boriage*, bright rose, not so good in shape as might be desired, large trusses, very fine, and showy; *Le Vésuve*, orange-rose, clear and bright, good form, and very free; *Mrs. H. Cannell*, clear mauve-purple, flowers of medium size, excellent shape, very fine, a capital variety; *Mr. George*, deep rose shaded with purple, a very fine and distinct variety; *Diadem*, deep rosy violet, very good, fine bold trusses of bloom; *Gem*, blush white, with crimson spots on the upper petals; and *Nemesis*, rosy crimson, dwarf habit, very free. In the collection Mr. Barron is growing at the Chiswick gardens there are some very pretty and pleasing new varieties; and Mr. J. George had some very good new types at the Pelargonium show, but as they are not yet announced for sale, they are not included in the foregoing list.

Assuming, then, that the cultivator has plants of these, and is maturing their wood as recommended above, it may be remarked that the plants can be wintered in an ordinary greenhouse, and encouraged to break freely into growth in early spring, and then shaken out of the old soil and repotted in a good light free soil in 5-in. pots. As soon as this is done the plants should have gentle warmth, and as the side shoots make growth, they should be tied out to neat stakes to lay the foundation of well shaped plants. When thoroughly well established a further shift should be given into 8-in. pots, and as soon as this is done, the plants need to be kept close till the roots begin to work in their new quarters; then they should have a little warmth till the leading shoots can be trained into a good specimen, and then placed in an ordinary greenhouse to flower where plenty of light and air can be given. The plants must be kept scrupulously clean in all their stages of growth.

R. DEAN.

SHORT NOTES—INDOOR.

Conservatory climbers.—My house has a north-west aspect, but sheltered from winds, and I want to plant in it a variety of the prettiest climbers I can get. What should they be? and what soil do they require?—C. M. U.

Gloxinia (*Ruth*).—Malformation such as that shown by the *Gloxinia* you send is not uncommon. A familiar illustration of it is the *Hose-in-Hose Polyanthus*, and *Fox-gloves* are sometimes found in the same condition.

Amaryllis reticulata.—I have flowered this very freely by withholding water and giving it a period of rest in the winter after it has matured its growth. I seldom shift it, as I find that it does not like its roots interfered with.—JAMES KING, *Rowsham*.

Semi-double Lapageria. I send a semi-double flower of *Lapageria rosea* cut from a plant cultivated here for fifteen years. It is the first semi-double flower that has appeared on it, the rest being all single. Is it a common occurrence for *Lapagerias* to have double flowers?—J. OSBORNE, *Wilton House, Southampton*. [Semi-double flowers are not uncommon, but the bloom you send is rather more double than usual.]

A Phyllocactus.—I send a bloom of a *Phyllocactus* not much known. I believe it to be *P. aurantiacus albiflorus*, according to Salm Dyck's description. It is a free growing kind. What is your opinion of it?—H. BOLLER, *Harrow Road*. [Came withered up. Plants sent by Londoners might be sent fresh by hand within half-an-hour of being cut.]

Souvenir de la Malmaison.—I am surprised to see by THE GARDEN (p. 5) that Mr. Douglas has no great opinion of this *Carnation*. I must confess that my opinion is quite different from his. I have several plants of the pink variety. They are large, it is true, but compact enough for any flower, and have not required any straps whatever. I should be very pleased to exchange my pink kind for a plant of the red variety.—GEO. CARPENTER, *Rigden, Walton-on-Thames*.

GARDEN FLORA.

PLATE CCCXLV.

NEW ENGLAND MAYFLOWER.

(*EPIGÆA REPENS*.)

ONE of the most charming plants amongst the hosts that have been introduced to our gardens from North America is this little trailing shrub, which, though it has been amongst us for many years, is scarcely known except by those who make hardy plants a speciality. That it really is a pretty plant will be seen by the annexed illustration. It is evergreen, trails along the surface of the ground, and in spring and early summer is furnished with handsome green foliage, lit up by a profusion of rosy pink blossoms, which emit a delightfully spicy fragrance. Like many other hardy plants, it bears the reputation of being difficult to cultivate, but the fault in many cases doubtless arises from the fact that at the outset it is not placed under favourable conditions. It is often grown as a bog plant, treatment which it abhors; sometimes it is placed on a rockery fully exposed to sun and air, and but seldom do we find it situated as it grows naturally. Its native habitat is in the shady Pine woods of North America, from Canada to Carolina, mostly in soil of a sandy character, but often in rocky soil. As it is invariably found in shady, and consequently sheltered, places, it is not surprising that when fully exposed in this country it should succumb in the course of a year or so. Mr. G. F. Wilson grows it in perfection in his wild garden at Oakwood, Wisley, whence he kindly sent us material for our plate. We cannot do better, therefore, than give his experience of it in his own words. He says, "I think that the secret of our success with the Mayflower (*Epigæa repens*) is that the old black soil and shade of the wood suit it, and the fallen Oak leaves in winter shelter it to some extent as the snow does in its own country; creeping along the ground, it roots as it grows. We grew it for years successfully in Weybridge cottage garden, but when it had grown up some height from the ground the severe winters cut it hard. We have a couple of plants in this garden which I expect will go the same way. At Oakwood, Wisley, it grows quite differently." The effect when in flower of these large spreading masses is extremely pretty, but in order to see the flowers to the best advantage they should be gathered and placed in water, a condition in which they remain a long time in perfection.

W. G.

A SUB-ALPINE RAMBLE AT THE ANTIPODES.

WITH the double object of collecting seeds for a friend in Austria and informing myself of the botany of a sub-alpine region hitherto unknown to me, I lately spent a couple of Easter holidays in exploring a neighbouring height called Maungatua, which had been recommended to me by a botanist friend as one of the best sub-alpine grounds he had ever examined. Although in the course of a two days' ramble I have been able to do not more than a third of the hill, having left a rich two-thirds for a future opportunity, I have more than verified my friend's assertion as to the richness of the field; and I propose to give those of your readers interested in alpine botany some idea of what a holiday sub-alpine ramble on our side of the world is like. Before going further, however, it may be as well to state that whatever I found on my walk I looked at more with the eye of the horticulturist than that of the scientist, keeping a keen look-out for what might increase the beauty of my garden, or



form an interesting addition to my collection of alpine plants and Ferns.

Maungatua, which being translated is "The Hill of God" or "The Hill of the Devil," for *Atua* in Maori is either the good or the bad deity, lies to the west side of a large plain near Dunedin called the Taieri plain. It forms part of a long ridge running along the whole western side of the plain, and consists of a sort of elevated undulating crest, perhaps seven or eight miles in length, transversely furrowed by deep densely-wooded ravines. The highest point may be about 3000 ft. above sea level. From the edge of the plain a forest with an exceedingly dense undergrowth runs up the hill about half way, the upper edge of the bush forming an irregular line along the whole hill face. From the point where the bush ceases to the top is a very steep incline covered for the most part with low, alpine vegetation, the surface being broken here and there—especially near the summit—by huge projecting masses of an igneous rock which, seen at a distance, presents, from some points of view, a curiously castellated appearance, and suggests pleasant visions of all sorts of creeping vegetable things. About three miles from the foot of the height lies the small township of Outram, "just where blue tints of the upland melt away into the fresh green of the nearer landscape." The whole surroundings of the dreamy little township can hardly fail to recall to the minds of readers of Washington Irving the little village at the foot of the Catskill Mountains. One expects at every corner to meet honest Rip, or to hear the shrill tongue of shrewish Dame Van Winkle; and I myself saw with my own eyes at least half-a-dozen of Wolf's lineal descendants round the hotel door. Leaving Dunedin by train on a somewhat unpromising Wednesday evening, equipped with two rather capacious vasculums (perhaps the plural should be *vascula*), trowel, clasp-knife, &c., I reached my base of operations, Outram, some time after dark, having taken something like 1 hour and 10 minutes more than the advertised time to cover the few miles lying between Mosgiel and Outram. About a mile and a half of good road brings me to where

The ascent begins. On this part of the way I came upon an exceedingly pretty and interesting plant, which is by no means uncommon in New Zealand. Observing an apparently stagnant pool by the roadside covered by a rusty looking scum, I went closer to investigate what particular vegetable form it might be, and found it to be the beautiful *Azolla rubra*. It belongs to the Order *Salvinieæ*, and has congeners, I believe, in North America. It forms a thick mantle over the surface of the water, and on close inspection its reddish green fronds present a very beautiful *Lycopodium* appearance. It seems to like stillness in the water, if not stagnation, and will creep up any decaying substances that happen to dip into the water. It is rather difficult to give a good idea of this pretty little plant, the close-set, imbricating, and richly coloured branchlets giving it a charm of its own very difficult to describe. Its roots are simple solitary threads, resembling those of a *Lycopodium*, and they seem to like to go down into the mud and luxuriate there. I observed that it spread over the mud at the sides of the pond, though when the mud becomes the least dry, it no doubt withers away. Those who like bog plants would be very much charmed with this little gem, and it is by no means hard to grow, for a dish of water occasionally renewed is all that it wants. I intend trying it in an open tank on a float. This little water plant is one of the most beautiful objects conceivable under the microscope.

A little further on I came upon a trio of very curious plants growing by the wayside. These

were the *Discaria Tomatou* (the Wild Irishman of the settlers), *Aciphylla Colensoi* (Wild Spaniard), and the *Carmichaelia australis*—three exceedingly characteristic plants. The *Discaria*, or Wild Irishman, is a very singular plant, the enormous spines projecting from the almost leafless branches presenting a very horrid appearance. It looks as if it would be a very formidable, if not very ornamental, hedge plant. The leaves are either very inconspicuous, situated at the axils of the spines, or are altogether wanting. The flowers, white in colour, are almost sessile on the branches; and the seed capsule, which is about the size of a peppercorn, is three-celled, each cell containing one seed. This is also an Australian and Tasmanian plant, and the natives of Australia are said to use the strong awl-shaped spines for tattooing purposes. The *Aciphylla*, or Wild Spaniard, is another extraordinary plant, spiny like the former, but, unlike the *Discaria*, extremely ornamental. The plant forms almost a perfect hemisphere, the long rigid grassy spines radiating from the root-stock with mathematical precision. Each leaf divides, the finger-like divisions spreading out fan-like, as do certain Palm leaves. This is certainly the *noli me tangere* of the colony. Each leaf division bristles out like a spear, and as the formidable and excessively sharp spine which arms the tip is colourless and inconspicuous, the unwary botanist receives many a painful stab. How stock drivers manage to ride their horses through tracts thickly covered with these formidable obstacles is to me a wonder. The tall flower-spike which ascends from the centre of the plant is armed like the rest with a perfect *chevaux-de-frise* of spines. The *Aciphylla* exudes an aromatic gum resin in great abundance, and it is probably this that makes it a favourite food with wild pigs, which grub up its fleshy roots and devour them with avidity. I myself observed in several spots traces of these grubbing operations, but did not succeed in catching a glimpse of the animals themselves, which are as quick to scent an enemy as the chamois. I am not aware whether the *Aciphylla* is cultivated in English gardens. If it is not, I can recommend it as a magnificent specimen plant. Desiring to take one home for my own garden, I made several attempts to dig one up. The thick fleshy root, however, goes down such a distance into the soil, that my clasp-knife and trowel were of no avail. At last at the top of *Maungatua* I found a small specimen, and by digging a regular trench round it, having first tied up the leaves like a Lettuce, I succeeded in getting it up root and all. It is now planted on a Fern bank, but does not seem to take well to its new quarters. The *Carmichaelia* is a leafless shrub, in habit somewhat resembling a Broom, but more rigid and fastigate, the branches being sometimes much flattened out. The racemes are $\frac{1}{2}$ in. to $\frac{3}{4}$ in. long, and the individual papilionaceous flower is very small, like a pigmy Pea. Seed pods in all stages as well as flowers are found on the plant at the same time. The genus is confined to New Zealand. It belongs to the same tribe of leguminous plants as our beautiful *Clanthus puniceus*, although no two plants could be more dissimilar in habit. The colour of the bloom is pale lilac. The whole plant possesses very few attractions for the horticulturist, although for the botanist it has many points of interest.

On the banks bordering the road which winds up for a short distance along the northern face of *Maungatua* towards Lee Stream a number of very interesting plants are found. There was one plant, abundant enough in most uncultivated places, the full beauty of which I now perceived for the first time. It was one of the Tussock Grasses—so characteristic of New Zea-

land wastes—a *Danthonia*, but which species I have not been able to determine. Nothing in the way of Grasses can be imagined more graceful than this lovely Tussock. It has all the symmetry of a clump of Pampas Grass, but is smaller than the Pampas in all its parts. Its height is about 2 ft., and the long narrow blades—like enormous spider legs—fall over the banks in most graceful curves. To those who admire free waving, graceful lines in plants this *Danthonia* would be a welcome acquisition. The whole shoulder by which *Maungatua* is approached is a long, undulating stretch of Flax and Tussock ground. Looking down from this stretch one sees the whole Taieri plain parcelled out into rich Cornfields, and resembling some huge Brobdingnagian chessboard. On this particular morning the chequered play of cloud and sunshine was enchanting, and the course of the river might be traced along the plain by the white fleecy cloud which hung over the water. The undulating ground, leading quite two-thirds of the way to the top of the hill, is such as is very often seen in hilly districts in New Zealand, and receives its character chiefly from two or three prevailing vegetable types. Of course there is the ubiquitous Tussock, which, when unrelieved by other forms, gives a very dreary tone to the landscape. But, generally, as on this particular slope, the monotony of the Tussock is pleasantly disturbed by several very interesting, beautiful, and characteristic plants. There is, to begin with, the indispensable *Phormium tenax*, now so well known and so highly appreciated in English gardens. To understand the full beauty of this Flax Lily, however, it must be seen growing luxuriantly by hundreds on a hillside, its great sword-blades swaying and clashing against each other in the wind. The beauty of the Flax is, of course, enhanced when the tall, Lily-like blooms rise high above the plant, but it flowers abundantly only at intervals of about three years, and the settlers assert that the years of the Flax flower are always good fruit years.

Several kinds of *Phormium* are said to exist. The curator of the gardens here once pointed out to me two varieties, which appeared to me very distinct. One of these, I believe, came from the North Island. There is also the variegated form, common enough, probably, in English gardens, which, like all variegated forms, appears to me inferior in beauty to the normal form. This year has not been a flower year for the Flax, and hundreds of bushes might be visited without finding a single capsule of seed, although the old flower-stalks of a former season are abundant enough. In some places the *Phormium*, along with the *Rubus australis* (our Bush Lawyer), forms thick jungles, through which it requires some strength and patience to penetrate. A well-grown Flax blade is very strong, and is not readily put aside, especially when blades from neighbouring plants cross and re-cross. But when the Spring Lawyer (so called because when it once takes hold it does not easily let go) adds its subtlety to the strength of the Flax, the combination is somewhat formidable. This *Rubus* by the way is a very magnificent climber, the leaves retaining their bright polished green the whole year through regardless of season. And when in spring it is hanging with immense clusters of its composite flowers, or later on when these flowers turn to clusters of brown berries, a well-grown tree of this Bramble is a sight to delight the eye. Occasionally one sees it smothered with the beautiful stellate blooms or with the fluffy awns of the sweet-scented white Clematis, the New Zealand congener of the Traveller's Joy, but, compared with the English plant, *Hyperion* to a Satyr. In one common form of the *Rubus australis* the digitate leaf is reduced very

curiously to the mere mid-rib. In this state the plant is really a very pretty and effective object. Between this and the full-leaved variety there is a complete chain of intermediate forms. To the bush explorer, owing to its habit of catching and scratching, the Rubus is a most aggravating plant; but as a wilderness ornament it is beautiful in all its forms. Intertwined with the bramble or other shrubs, and forming a dense mass of impenetrable greenery, is often seen the Muhlenbeckia (or Polygonum) adpressa, a climber with heart-shaped smooth leaves and unattractive panicles of Spiræa-like flowers, succeeded by clusters of seeds enclosed in a glistening fleshy green perianth, very pretty at close sight, though inconspicuous at a distance. The whole plant, when not in flower, might be taken for a very vigorous Convolvulus. The plant which, next to the Flax, gives character to the landscape is the

Cordyline australis, or, as the settlers name it by a union of prose and poetry, the Cabage Palm. This dotted over the sides of hills and gullies in all sizes, from the single stemmed small plant which might be grown in a pot to the huge candelabra-shaped tree 30 ft. high, imparts a singularly un-English tone to the landscape. Old trees send up huge trusses of white flowers, the panicles being often 3 ft. and 4 ft. long and much branched. Like the Phormium, this tree is also fitful in its bloom. I observed some veterans crowned with long panicles of fruit, but, owing to the branchless character of the stems, it is somewhat difficult to reach fruit and flower. This is a very favourite plant with colonists; they like to have them dotted over their grounds as a relief to conifers and deciduous trees. Grown in pots in a young state, this Dracæna makes a grand appearance amongst Ferns and other fine-foliaged plants, and as it is extremely hardy, growing quite up into the alpine districts, and as easy to strike as a piece of Potato, there is no difficulty in obtaining a stock of it if only one strong plant be secured. Here, where large trees of it may be found in any gully or piece of waste bush, one has only to hack a tree up into pieces 1 ft. long, and each piece will send up one, two, or three strong crowns. I should hesitate, however, to plant it out in the open ground amongst Ferns, for I find that its long fleshy-white roots quite dry up and exhaust a considerable circle of the ground round the tree; but planted amongst plants which can hold their own against it, I do not know of any plant which contributes more to give variety to the shrubbery or pleasure ground. PAKERA.

KITCHEN GARDEN.

NOTES ON PEAS.

WILLIAM I. has beaten all its rivals in this neighbourhood as regards earliness this year. A good deal, however, depends upon the purity of the stock and the way in which the seeds are saved. For instance, I know some gardeners and amateurs who, after the first gatherings of early Peas have been consumed, allow the latest pods to remain for seed; such a plan deteriorates the stock. In other words, if we wish to keep up the earliness of any given stock of Peas or of any other plant, we must keep on selecting the earliest for seed; not the latest. Carter's First Crop, which appears identical with Sutton's Ringleader, seems in this neighbourhood to have lost its earliness. In several gardens in which I have seen it lately it is uneven in appearance, much taller than the type, and consequently later. All or nearly all the early Peas now in cultivation are selections made time after time from the Early Frame or Early Charlton, and where care in selection is not exercised they revert to the type. First and Best is a good second early Pea, some ten days later than William I.

this year, but I have known it to approach nearer it. Prizetaker sown on the same day as William I. has formed a good succession to it, and then close at hand comes Huntingdonian, followed by Ne Plus Ultra and British Queen. Where late Peas are a desideratum, it is always worth while to sow a few rows of an early sort. When mulched, British Queen never fails to bear late pods with us, if the plants are treated carefully, and all pods gathered as fast as they are fit for use. I have often, too, gathered a good second crop from Huntingdonian, but there must be no seeds left to ripen, neither should the haulm be bent down nor damaged in gathering. There is no doubt where the soil is warm and the situation fairly well sheltered that autumn sowing is always worth doing, as ten or twelve days may be gained by it; and at any rate there is nothing lost but the seed, as the labour of sowing a row or two of Peas need not be considered. E. H.

POTATO DISEASE—A SENSIBLE REMEDY.*

MANY years ago it was proved that the Potato disease is due to the attack of a fungus, *Peronospora infestans*. This attacks the foliage, and gives rise to the well-known brown and black spots which, by-and-by, may cover the whole surface of the leaves and destroy them. That this is the origin of the disease there is no doubt. In the leaves the seeds or spores of the fungus are developed. By falling to the ground the spores are carried by rain-water to the tubers, on the surface of which they germinate. This Mr. Carruthers denies. He states that the spores (or their sprouting germs) are unable to penetrate the skin or corky layers of the tubers, but nothing is easier than to prove that fungus spores really can germinate on the surface of Potatoes, and penetrate through the undamaged skin of the tubers. I have made many experiments on this point, and I have always found that fresh Potato tubers very easily become diseased when the seeds (spores) of the fungus are sown on their surface. Every farmer can convince himself that this is indeed the fact by merely brushing fresh, newly dug tubers with a diseased Potato-top sprinkled with water. Eight days afterwards a part of the Potatoes will show smuttish-brown disease spots on their surface. In one such experiment which I have made, about 70 per cent. became diseased. In another experiment, made in a somewhat different way, every tuber, with the exception of one, became diseased after having been sown with the fungus seed. That the disease is carried from the leaves to the tubers in the way described is no theory, but a proved fact. Can the fungus not also work its way to the new tubers simply by growing through the stems into the tubers? it might be asked. If that were the case there would hardly be any remedy to save the tuber; but, happily, it may be said with certainty that this either never happens, or if it does in some few single plants—which, to my knowledge, has never been proved—it is of so rare occurrence as to be without any practical importance. From what has been stated, it is obvious that in fighting the disease the main object must be to prevent the spores from working their way through the earth to the tubers. My experiments have convinced me that this can be done to such a degree that even the most violent attacks of the disease may, as a rule, be almost neutralised.

The means by which this may be effected are very simple. It is only necessary to throw up a high and sharp ridge of earth round the Potato plants a little before the disease has appeared in the foliage, or at least at the very first appearance of it. The usual moulding hitherto practised in all countries is a flat moulding, by which the utmost tubers are only covered by a layer of 1 in. or 2 in. of earth, but my protective system requires—after a preceding flat moulding—a high and sharp moulding, by which the upper surface of the uppermost tubers is covered with about 5 in. of earth. To effect this it is necessary that

the ridge be so high, that the top of it is from 10 in. to 12 in. above the surface of the adjoining furrow, or ditch, whilst the ridge must be very broad at the bottom. My system also requires that the tops of the Potatoes shall be moderately bent to one side, with a view to prevent the rain-water from running down the stems and thus carrying the spores to the tubers. By this contrivance also more spores will fall between than upon the ridges. In five places in Denmark last year the following results were obtained in eight experiments:—

Diseased tubers by common flat-moulding.		Diseased tubers by high or protective moulding (tops bent).	
Copenhagen ..	34.8		1.4
.. ..	6.1		2.0
Gl. Autvorskov ..	45.2		0.0
.. ..	44.5		0.3
Vallebo ..	7.7		1.1
Tvensbjerg ..	24.1		4.5
Sandal ..	18.8		0.3
.. ..	5.3		1.6
Averages ..	23.4		1.4

From this table it will be seen that in all the cases the disease has been considerably warded off by my protective system, and upon the whole it has been reduced from a very high degree to what may practically be termed a mere trace of it. The case of the experiment at Autvorskov especially deserves a more particular consideration. Seven rows were treated in the usual way, one was not moulded; eight other rows had been subjected to protective moulding. The results were as follows:—

For the flat-moulded and the unmoulded row.	For the high-moulded rows (tops bent).			
<i>An early variety.</i>				
20.2	..	..	..	0.5
22.6	..	..	..	0.0
45.2	..	..	..	0.0
38.1	..	..	..	0.0
<i>A late variety.</i>				
24.6	..	..	..	0.0
64.3	..	..	..	0.3
44.8	..	..	..	0.0
57.6	..	..	..	0.0

As in all the other experiments, the rows were growing side by side. The experimental plot was situated in a wet place at the base of a hill, and the rainfall was extremely high. The table shows that this violent attack had been so completely repulsed that there was hardly the slightest trace of diseased Potatoes to be found in the protected rows.

A strong warning must be expressed with regard to the lifting of the Potatoes. If this be done before the diseased foliage has quite withered it is impossible to escape without loss, because the tubers at the very act of lifting will be sprinkled by the millions and millions of spores hanging in the diseased leaves. For six days the tubers, which have been infected on that occasion, will appear to be quite sound, but on the seventh or eighth day (according to temperature), they will suddenly show the marks of disease. It is even not sufficient that the leaves are withered before the lifting; they must have been so for two or three weeks, otherwise many spores will be found capable of germinating, and thus be dangerous to the tubers when the latter are taken out of the ground. The following are the principal points in my protective system:—

1. The ground must be thoroughly worked, so that the Potatoes may be planted in friable earth, which affords a better means of protection than a lumpy soil.
2. The Potatoes should be planted (pretty early) at a distance between the rows of at least 28 in. or 30 in. A greater distance is not required by the system, but if closer it would impede the protective moulding.
3. The first moulding must be flat, so that the formed ridge be broad on the top and only about 4 in. high. This moulding may be repeated if it is thought advisable.
4. The protective mouldings must be applied as soon as the disease-blotches make their appearance on the leaves of the haulm. If this has not occurred before Wheat-harvest time, the mould-

* How to overcome the Potato disease by a simple and easily performed method of cultivation. Published by John Menzies & Co., Edinburgh.

ing ought to be executed then, without waiting for the appearance of the disease-blotches.

5. The protective moulding is performed by throwing up from one side of the row of plants a high ridge with a broad base, and running to as sharp a point at the top as possible. The covering of earth thereby reduced over the upper surface of the uppermost tubers must be about 5 in. to begin with; later, by the settling of the earth and by sliding down, it will, as a rule, preserve a thickness of about 4 in. Simultaneously with this moulding the Potato tops are gently bent over towards the opposite side of the row, so as to give the top at least a half-erect position.

6. The flat and the protective moulding, where Potatoes are only grown on a small scale, may be done with a hand-hoe; on a larger scale these operations ought to be performed with a moulding-plough, the "Protector," which is constructed to meet the necessities of the described system.

7. In order to prevent after-sickness, which may often be exceedingly great, the Potatoes must not be lifted before about three weeks after the last leaves in the Potato-field are withered.

8. If the Potato-tops are cut off and carried away, which, for the sake of the quantity and quality of the crop ought not to be done before the leaves, in the main, are withered, the lifting may, as it seems, without danger of after-sickness, take place about six days after such removal.—J. L. JENSEN, *Copenhagen, in Farm and Home.*

HARDENING BROCCOLI FOR WINTER.

WHENEVER the thermometer in winter falls below 10°, Broccoli is sure to suffer; but it is possible to increase the power of the plants to resist cold by adopting a common-sense system of culture. A dwarf, stout, firmly built-up stem or leg is what is required, and this stem or leg should be well clothed with foliage to the bottom. This description of plant cannot be obtained by close planting during any period of its existence. Many err in leaving their plants too long in the seed-bed, whereby they acquire a weak, spindly habit, which clings to them through life. The seeds should be sown thinly in drills, at least 9 in. or 10 in. apart, thus giving plenty of space for earth-stirring and for air and light to circulate around them. A certain percentage of all seedling plants is of weakly habit, and if the plants which are to form the plantation cannot be selected from the crowded rows and pricked out early, at least the weaklings should be pulled up to give the best plants more room. Land for Broccoli should be in good heart, though it need not be freshly manured or even dug. Here where we manure all ground at least once in twelve months we never manure specially for Broccoli nor yet dig, firm land being essential to build up that hard fibry growth which alone has the power to resist unfavourable atmospheric influences. No hard or fast line should, however, be laid down, for I have known cases in which both manuring and digging were decidedly beneficial. In some situations land dug over in summer takes long to consolidate; in others it settles down almost immediately after the first heavy shower. I had charge of a place some years ago in Norfolk where the ground was light and sandy, and from experience I found that it was desirable both for Broccoli and Cauliflowers to dig a hole for each plant, place a couple of spadeful of rotten manure in each hole, return the soil, press it down with the feet, and plant the young Cauliflowers or Broccoli with a dibble in the centre. I refer to this to show how necessary it is to closely observe local conditions and circumstances, as whether we will or not their influences will make themselves felt.

I have often been obliged to plant Broccoli and other winter greens between the rows of Potatoes, missing every alternate drill, so that the rows of Broccoli stood 5 ft. apart, and when the Potatoes were taken up the leaves of the Broccoli plants would pretty well meet. It is not so well to plant among the large-topped late Potatoes, as they occupy the ground too long, but no great harm is

done to the early Potatoes by the presence of the Broccoli. Of course no one would adopt this plan if they had land vacant. I have often, when hard pressed for space, which is generally the case in summer when we desire to make the most of the ground, planted Broccoli somewhat thickly on an early south border and transplanted them in October to an open position, giving them more space and inclining their heads to the north; in short, heeling them in. In this way the whole, or at least a great part, of the stem is buried, the mass of leaves enclosing the heart resting on the ground, and so being well protected. I have generally saved these even in cold winters, and the heads usually come good in size, at least large enough for ordinary use, and very close and white.

As regards the distance apart at which Broccoli should stand when making their growth, I always maintain it is better to have 500 plants 3 ft. apart each way than to have double the number of plants on the same space with the growth drawn up soft and weakly, unable to resist cold. If the plants have been rightly selected and managed, each ought to profitably occupy a square yard. Veitch's Autumn Self-protecting Broccoli is an excellent one, and if put out early will be fit for use before the Cauliflowers are finished. Next comes Snow's Winter White, and this will hold on if lifted and protected till the early spring kinds come in. It is now comparatively easy to fill up the whole year with Broccoli and Cauliflowers. Cattell's Eclipse, though not quite white, is still one of the best late kinds. Cooling's Matchless, Perkins' Leamington, Watts' Excelsior, Westwood Park, and Sutton's Queen are all excellent varieties when true. In winter all Broccoli turning in are safest lifted and planted in a cool house or pit, but if lifted before the hearting process has commenced the lifting will prove a failure, so far at least as forwarding the hearts is concerned, though if the heart has begun to turn in the process will be hastened rather than checked by removal to a pit or house into which frost cannot penetrate to an injurious extent. E. H.

The flavour of Peas.—The flavour of the Peas in Covent Garden seems to have wholly departed from them. We wish some Pea growing readers would help us to combat this unfortunate state of things by pointing out the Peas really worth growing for flavour. Our good vegetables are in danger so long as the craze for mere size is regarded in the raising of new vegetables.

Burdocks and Silver-weed.—I think "J. C. B." is in error about the roots of Burdock ever being eaten as a vegetable in Scotland. The plant is scarce in some districts, at least I cannot distinctly remember ever having seen it. It is possible it may have been used, however, especially if used in France. The effects of the old Scottish gentry being mostly educated in France still remain; the names of many cooking utensils and table requisites are French; the manner of cutting up the animals used for food and the names of the joints of meat are also French. Sourrocks, Sorrel, or Burdocks are eaten, but not as a dish. The little Potentilla or Silver-weed is eaten by children, i.e., only the fleshy crown; the broad leaved Plantain is eaten in the same way, the leaves being removed and the crown skinned. What a pity it is the Silver-weed does not produce leaves in winter; it is one of our most elegant native fine foliaged plants, and in dry soils it dies off in the autumn with all the gorgeous shades of colour of the Virginian Creeper, contrasted with the most exquisite greys and neutral tints. It seems to be our native edging plant, growing freely along the edges of trodden paths where no other plant can exist, and it shows no desire to ramble, like its first cousin, Potentilla reptans.—J. D.

Outdoor Mushrooms.—The time has now arrived for collecting manure for autumn beds. After it has lain in a heap for a few days it should be turned every other day until fit to make into a bed. After the beds are made up they should be allowed plenty of time to get cool before they are spawned.—J. F. BARTER.

FLOWER GARDEN.

PELARGONIUMS AND GERANIUMS.

A CORRESPONDENT lately asked some questions respecting these plants, and received a correct answer. But as an obstinate misunderstanding respecting these two genera appears to exist, perhaps you will allow me to attempt to enter more fully into the matter. The greenhouse plants with serrated leaves, mentioned by your correspondent, are no doubt the large flowered or show varieties of the Pelargonium which some, correctly enough, designate as such, viz., Pelargoniums, but who at the same time erroneously regard the various varieties of the zonal section of the Pelargonium, the *P. lateripes* or Ivy-leaved varieties, &c., as Geraniums, while others consider the zonal and Ivy-leaved varieties as Pelargoniums, and designate all other varieties of the Pelargonium family as Geraniums. This causes confusion, which it may be worth while to try to prevent. It may be distinctly stated that all the plants alluded to are Pelargoniums, although belonging to different sections of that somewhat extensive genus; and the Pelargoniums, although allied to and belonging to the same Natural Order as the Geraniums, are nevertheless distinct from them.

The Natural Order Geraniaceæ comprises five distinct genera, viz., the Geranium, Pelargonium, Erodium, Monsonia, and Sarcocaulon. The Geraniums, or Crane's-bills, are nearly all natives of the northern hemisphere, while the Pelargoniums, or Stork's-bills, belong to the south. The Geraniums are nearly all hardy herbaceous plants. The greater part of them are perennial, while not a few are annuals. Many of them are natives of the south of Europe; a few come from North America, and many of them are indigenous to Britain, such, for instance, as the pretty blue flowering Geranium pratense and its numerous varieties, while *G. molle* and some other species are mere weeds. Hardly any of them are adapted for greenhouse culture, but they may nearly all be regarded as free-flowering decorative border plants. A few species from the Cape may not be quite hardy, and one of the most ornamental plants belonging to the family, viz., *G. anemonæ-folium*, is a native of Madeira, and requires in winter the protection of a hand-glass or cold frame.

The Pelargoniums, on the other hand, are nearly if not all natives of the Cape of Good Hope. Most of them are what may be called dwarf or under-shrubs, and they all require the protection of a greenhouse or other glass structure, for although succeeding admirably in the open air in this country in summer, yet none of them are sufficiently hardy to withstand the rigours of our winters. The genus Pelargonium being large and diversified, botanists have divided it into several sections, the varieties of which generally produce seeds freely; consequently numerous cross-bred or garden varieties, as they are called, have been the result, and very great improvement has been effected in most of the sections as regards the form and quality of their flowers, habit of growth, and the ornamental character of their foliage, &c. As regards improvement in flowers, this has been conspicuous among the large-flowered or show varieties, as well as among the zonals, and it is in the latter section that the advance has been obtained in the ornamental character of the foliage, resulting in what are known as the variegated and tricolor kinds. But although cross-bred varieties in each section with improved flowers of nearly every desired shade of colour and form, double as well as single, are readily obtained, still true hybrids, or a form between two distinct genera or species, cannot be said to be so, and possibly the only instances are those which have originated between some of the varieties of Pelargonium zonale and Pelargonium lateripes, or the Ivy-leaved species. All attempts to secure a cross between any of what are known as the Cape species and the large flowered or show varieties and the zonals have as yet failed, as have also many attempts on the part of many hybridisers to obtain an intermediate form between any of

the zonal, or other varieties, and the hardy blue flowered *Geranium pratense*, &c. The securing of the latter desideratum would, it is thought, be likely to be the means of introducing the blue element of colour into the zonal section of the *Pelargonium*.

Probably to encourage efforts to this end the *Pelargonium* Society at their show, held at South Kensington on the 27th ult., offered substantial prizes for the best hybrid having for one of its parents *Geranium pratense* or *Geranium sanguineum*, and another for the best hybrid having for one of its parents *Pelargonium oblongatum* (see classes 9 and 10 of their schedule of prizes). But, as in former years, no entry in either of the classes named was made, and excellent as the exhibition undoubtedly was, one conspicuous feature was the lack of real novelty. It therefore appears evident that to originate hybrid forms among even allied species is a feat not easily accomplished. To Mr. John Wills should be ascribed the honour of having originated the first hybrid between *Pelargonium zonale* and *Pelargonium lateripes* in the form of *P. Willsi* and *P. Willsi roseum*, two very beautiful varieties. Since that time other hybrid forms have been secured by various raisers. Among others I have myself succeeded in obtaining a cross between a bronze zonal and *Pelargonium lateripes*, which inherited the bronzy foliage of one parent and the prostrate form of the other. It was named *Dolly Varden*, and is an exceedingly ornamental and useful bedding plant, more particularly on light soils, which appear to be most conducive to the development of the bronzy and peculiar markings of its foliage. Another hybrid form was obtained between a strong variety of *Pelargonium zonale* and *Pelargonium peltatum*, and this proved to be a remarkably strong-growing plant, with fine ivy-like leaves and handsome trusses of rose-coloured flowers. It was named *Emperor*, and, so far as I know, all these hybrid forms have proved sterile. In unsuccessful endeavours to obtain a cross between the *Pelargonium* and the *Geranium pratense*, &c., by using pollen taken from variegated varieties of the former, I have frequently succeeded in transmitting the condition of marginal variegation into the foliage of the *Geranium*, which being, however, deciduous, generally came green the second or third season. One plant, however, so far as I can recollect, retained its *Pyrethrum Golden Feather*-like aspect for several years. The use of the pollen of dark or red-coloured zonal *Pelargoniums* upon the *Geranium pratense* appeared also to have the effect of producing in the progeny plants with flowers of a rich purple instead of the normal light blue colour. But further than what has been stated, nothing in such plants could justify the assumption of their being hybrids.

P. GRIEVE.

Bury St. Edmunds.

Gardener's Garter Grass.—Large plants of this placed amongst evergreen shrubs have a bright and cheerful appearance, doing much to relieve the monotony apt to prevail where a large extent of shrubberies exists. The white of the

foliage of this Grass is pure and constant, never under any circumstances assuming a sickly hue.—J. C. B.

SOLOMON'S SEAL.

THIS lovely native plant is not made so much of in gardens as it deserves. We often see it forced, but not so often doing duty as a graceful group between a few evergreen shrubs. It is in Britain native in woods over a considerable tract of



Tuft of Solomon's Seal in shrubbery.

country, but never, as far as we have seen, a very common plant. It is very hardy and easily grown, so easily, indeed, that it is neglected even where its presence is desired. In grace nothing surpasses it. It should not be allowed to struggle with bushes or other plants, though it will fight these as well as most things. But the best way is to allow it to have its own way in an opening between shrubs, evergreen or deciduous, or spreading under a low tree with a naked stem, or worked as a standard as many flowering trees are worked; then its grace and fine form may be seen to advantage. Still, there need be little doubt that it will grow almost anywhere it is planted, and may be naturalised in woods, copses, or hedgerows with the greatest ease. Our little sketch is a reproduction from a pen-and-ink drawing by Mr. Moon

of a plant growing in a garden shrubbery in the suburbs of London.

HARDY PLANTS.

Perennial Larkspurs are flowering well this year, some of the taller kinds having sent up spikes to a height of 6 ft. and more. The best situation for these tall *Delphiniums* is in the foreground of shrubs, as with the dark foliage to back them up, their stately habit tells, and they produce a very striking effect. When grown in such positions it is necessary to have them sufficiently far away from the evergreens to be clear of their roots, otherwise the evergreens rob and impoverish the soil about the *Delphiniums* to such an extent as to starve and spoil them, as they not only require rich, deep land, but plenty of moisture. Among the medium growing sorts of the better kinds of Larkspurs, *D. Belladonna* is the finest and best. The flowers of this are of a lovely pale blue, and masses of them seen in the distance look like a beautiful cloud. In size and habit it resembles that popular favourite *D. formosum*, which still holds its own, and is more than likely to do so for a long time to come.

Campanulas.—Next in point of merit are the *Campanulas*, the biennial species being gorgeous just now; they form quite large bushes and are crowded with blossoms. The most showy are *C. Medium* and *calycanthema*, which have large coloured calices and are very remarkable looking. A packet of seed of these yields plants that afford an infinite variety of colour, and if the seeds are sown now, the plants will be quite early enough for flowering next year. *C. pyramidalis* is a stately species, growing to the height of 3 ft. or 4 ft., branching freely, and clothing itself with blooms from base to summit. Another perennial species of great value is *C. coronata*, which bears tall spikes of pendulous pure white blossoms. *C. persicifolia* is also a very desirable kind, and so is *C. Van Houttei*, which has large blue blooms upwards of 2 in. in length. In *C. turbinata* the order of things is reversed, as that has erect cup-like flowers instead of the drooping bell,

and, though only of lowly growth, is a distinct and very fine kind.

Antirrhinums have seldom been seen in the condition they are this year, the mild winter having just suited them, as they kept growing and became remarkably strong, and are, therefore, flowering in the greatest profusion. The same may be said of *Pentstemons*, which are usually late in blooming, but this year are as showy and good as they generally are in the autumn. The way to get plenty of variety among these is to sow seed. *Pentstemons* have been so much improved that they are not only very large in blossom, but splendid in shading and colour. Lilies are opening fast, the Tiger kinds being even now in full beauty; but the one I like best of all, old and common though it be, is *L. candidum*, which for chasteness and refinement of finish is unrivalled by any. *Funkias*, such as *F. Sieboldi*, are simply magnificent; not only have they very ornamental foliage, but they are almost equal to Lilies in the style and size of their blossoms. The best for cutting from are the different kinds of *ovata*, which are not so large as the above-named, but for striking leafage *F. Sieboldi* and *F. Sieboldi variegata* are quite unsurpassed. To see them at their best they require shade and plenty of moisture, and when so accommodated they assume quite a glaucous metallic hue distinct from anything else. *Alstroemerias* are gorgeous in their many coloured hues, and the wonder is that they are not more largely grown, as all they need is light, well-drained, deep soil and a warm situation. Our beds are on a south border on each side of a walk where the plants have been for the last twenty years, and all the attention they receive is a mulching of half-

rotten leaves just before winter sets in. As their roots are deep from being so long established this keeps them safe from frost, and they come up thickly every spring and produce great heads of flowers. To start with them the ground should be trenched and made light and open with sand and leaf-mould, when seed may be sown or plants planted deeply, and if the latter, the best time to turn them out is very early in spring.

The Geraniums have been particularly fine, the most striking among them being *G. platypetalum*, which has light blue flowers nearly as large as a five-shilling-piece. *G. ibericum* is also a striking-looking kind, having flowers of a deep violet hue, and among the pink varieties *G. Endressi* is one of the best. These and other Geraniums of a like character are well adapted for rockwork, and may be raised and increased readily from seed, which they set freely, or by division, the proper time for effecting which is just when the plants are starting to grow. Another capital plant for rockwork is *Vittadenia triloba*, which bears Daisy-like flowers and will flourish anywhere, however dry or hot the situation may be. With us it is growing out of the old joints in walls, where it has established itself and looks quite at home. The rich glow of the *Helianthemums* when the sun is on them is something remarkable, especially when seen in masses where they carpet the ground. A good way of growing and using these rock Roses is along the sides of sunny walks that have ugly dead hedges to hide, which the *Helianthemums* will do effectually, and clothe them with beauty. For striking effect in large, wide borders nothing can equal

The herbaceous Pæonies, the full, massive flowers of which are gorgeous and grand. A few years ago there were not many representatives of this class of Pæonies, but now, thanks to hybridists who have exercised their skill on them, we have a great number of varieties, ranging from the various shades of deep crimson down to pure white, while the petals of others are marked with stripes or tipped in the way of Carnations. Not only are the herbaceous Pæonies large and splendid in colour, but many of them are sweet scented, and when cut and placed in water perfume a large room. To grow the plants well, they require deep rich land, and should be planted clear from the roots of trees or shrubs, which rob and starve them, and quite spoil their beauty. The mode of increase is by division, which should be carried out in spring, as then the cut parts heal rapidly over, and there is no fear of rot.

The Flag or common Irises have vied with the Pæonies and have made a fine show, but have now ceased flowering, and are followed by the Spanish and English varieties, both of which are almost equal to some of the choicest Orchids, so unique are the flowers in their form, and so lovely in colour and rich markings. The Flag or evergreen species will grow and flourish almost anywhere, but they do best where they can get a little shade and plenty of moisture, under which conditions they spread and bloom with the greatest of freedom. Both the Spanish and English kinds require a light and somewhat dry, sandy soil, as, being bulbous rooted and more tender, they are apt to die off in the winter. In planting the latter sorts it is a good plan to drop a handful of sand over the bulbs, which prevents wet lying about them in winter and saves them from rot. Some cultivators take them up, but that is unnecessary, and if planted as indicated above, they are far better left alone in the ground. Too much cannot be said in praise of

The double Pyrethrums, which have been most brilliant, and should be more largely planted than they are now; they flower very early, are remarkably showy, and are of great value for cutting. The newer and finer kinds are a great improvement on the old, as they are so full and well formed as to be equal to *Chrysanthemums*, to the flowers of which they bear a good deal of resemblance. The most desirable kinds are *Boule de Neige*, pure white; *Candidum plenum*, pure white; *Lady Blanche*, delicate rose; *Brilliant*, rich rosy

purple; *Fulgens plenissimum*, purplish carmine; *Imbricatum plenum*, purplish carmine; *Mons. Barral*, magenta-crimson; *Prince Teck*, brilliant crimson; *Roseum magnificum*, shaded rose; *Solfaterre*, sulphur and white; *Luteum plenum*, salmon-rose; *Rev. J. Dix*, carmine; *Striatum*, rosy pink; *Mrs. Dix*, delicate blush. These double Pyrethrums succeed best on rather stiff land, and are fond of plenty of moisture. The situation for which they are most adapted is near the fronts of borders, and seedlings or single kinds should be planted extensively in semi-wild places, where they soon become naturalised and look quite at home.

Another fine plant for this purpose is the old *Dictamnus Fraxinella*, the coloured variety of which grows very strong, and forms quite a bush, sending up numerous long spikes of peculiar shaped blossoms. The white kind is not so strong, but both are highly scented, and well adapted for the backs of large, wide borders, or growing in the foreground of shrubs. *Spiræa palmata* is a real gem, and should be in every herbaceous border, as it is the most showy and by far the best of the species. Like all the *Spiræas*, it delights in a wet soil, and does best where it can also have a little shade, and when so favoured it grows strong, flowers freely, and lasts a long time in perfection. *S. japonica*, so largely used for forcing, and *S. Filipendula flore-pleno*, planted around it, make a fine group, and the distinction of colour shows up the first-named to the greatest advantage.

The Hemerocallis, or day Lilies, are now just at their best, at least *H. Kwan-so* and *H. fulva* are, but *H. lutea* is nearly over. This latter is a valuable plant, sending up, as it does, such a profusion of large rich yellow Lily-like blossoms. The habit of *H. lutea* being less strong, and the plant altogether a smaller and more compact grower, it is better adapted for borders than the two above mentioned, and is useful for potting for forcing, as with gentle heat it soon comes in and makes a fine show in a greenhouse. *H. fulva* and *H. Kwan-so* are noble looking objects by the sides of woodland walks or near the margins of ponds, positions for which they are well adapted, and when in bloom have a striking effect. *Aquilegias*, too, are just the plants for shrubbery borders, and if the hardy kinds of vulgaris are sown and planted there, they seed themselves and soon spread about over the place. In the borders special attention should be given to *A. chrysantha* and *A. cœrulea*, which, with their long spur-like appendages, are very ornamental and beautiful. Both require light soil and a sheltered situation, as they make their growth early and are apt to get cut about in the spring.

S. D.

PROPAGATING HARDY PLANTS.

PREPARE a bed of sandy loam and leaf-mould some 5 in. or 6 in. in depth in a shady corner, place a frame over it to ensure a close atmosphere, and take the cuttings as they can be obtained, commencing with *Antirrhinums*, *Pentstemons*, *Phloxes*—in short, anything that has green shoots just hardening a little will strike freely. Many hardy border plants can also be increased rapidly by division in autumn or spring, and therefore in a busy season like this perhaps one would not trouble to take cuttings, but there are always many things which one would like to increase in order to have plants for use and to spare if need be. Carnations, Picotees, and Pinks will strike very well in a shady frame. I have propagated them in that way for years. Time is thus saved, and I always think the plants are better than raised in any other way. Layering is the old plan, and cultivators are very conservative, but there is certainly nothing gained by preferring layers to cuttings. I have often seen cottagers take up their old white Pinks, pull them to pieces, and plant the pieces in autumn, and the same with the old Clove Carnations. I think that for ordinary decorative purposes the directions for piping Pinks and layering Carnations in books on gardening are needlessly complicated. Experience is the best teacher, and anyone who doubts what

I am saying may satisfy himself by experiments on an old plant or two.

All the spring bedding plants will strike now, such as *Aubrietia*, *Arabis*, &c. This is a good time to sow seeds of perennials and biennials, such as Foxgloves, Hollyhocks, Canterbury Bells, and things of that character. Sow in pans and place them in a cool, close frame; keep them fresh, moist, and let them be shaded in the hottest part of the day. Pots or pans containing seeds if they stand in full sunshine dry up so fast and require so much water, that it sours the soil and makes it unhealthy before the seeds have a chance to germinate. This is one reason why many seeds fail to grow, or if they do grow the plants come up weakly, and are a long time in acquiring strength.

In sowing Hollyhocks or Foxgloves where only limited numbers are required, some pains should be taken in preparing the bed, and covering the seeds with light, sandy soil that will not become hard.

E. H.

NOTES FROM NEWRY.

IRIS AUREA, a very fine species with rich, golden yellow blossoms, carried aloft on slender green wands over 5 ft. high, is a striking plant, and one which makes itself seen a long way off. A good feature belonging to it is that its flowers last good for several days. *Iris violascens major* comes near to the Kämpferi group, but grows taller, and has large, handsome, rich purple flowers, rather fugitive, however. I should imagine that this species has played a part in producing some at least of the fine varieties of Kämpferi.

ORCHIS FOLIOSA is now very fine, one established clump having no fewer than twenty-five heads of flower; this is growing on a point close to and only 9 in. or so above the water, and is partly enveloped, or rather veiled, by a fine tuft of the common Rush and a colony of Ragged Robin.

CYPRIPEDIUM SPECTABILE is grand, many stems being furnished with two flowers. This is planted in a well-prepared bed in quantity associated with *Lilium superbum*, canadense, carolinianum, and pardalinum; *Lobelia syphilitica*, *purpurea*, *ignea*; *Primula sikkimensis*, *Spiræa palmata*, and *Iris aurea*. A few shrubs are introduced just to give firmness and shelter, such as *Myrica Gale*, *Fothergilla alnifolia*, and one or two plants of *Cornus*. Towards the front a few *Sarracenias*, such as *purpurea*, *Drummondii*, *flava*, and *psittacina*, are planted, and quite happy they look, but not quite so vigorous, I think, as where fully exposed. The whole is carpeted with *Andromeda tetragona*, *Nertera depressa*, *Gaultheria procumbens*, *Equisetum scorpioides*, *Linaria pallida*, &c. The requisite shade is obtained by placing on the sunny side such things as *Crataegus Pyracantha*, grafted standard high, their broad horizontal heads being most suitable for such a purpose, and a few other things. This *Cypripedium* bed is greatly admired.

PRIMULA SIKKIMENSIS has been grand this season. The strongest stem was 2 ft. 7 in. high, 1½ in. girth in the stoutest part, and bore fifty-seven flowers. The plant was grown in a pot for two years before being planted out; therefore Mr. Wolley Dod's dictum that pot culture is inimical to strong growth—unless, indeed, he can beat the above—is upset. *P. speciosa* is now in flower; the blossoms very much resemble those of *P. luteola*, but the plant is very distinct. *P. luteola* has done wonderfully well here this season; the strongest clump bore ten flower-spikes, and is now one of the finest objects as a fine-foliaged plant on the rockery, being no less than 2 ft. across by 1 ft. high, a beautiful green, healthy mass.

ROGERSIA PODOPHYLLA is one of the most distinct and handsome of hardy fine-foliaged plants; roughly described, it looks like a mass of huge Horse Chestnut leaves stuck in the ground, but when first unfolded they are of a beautiful bronzy colour, and which never entirely disappears. For a shady nook, springing from a carpet of some green Saxifrage, such as *S. decipiens*, it is very striking.

TROPEOLUM POLYPHYLLUM, associated with the bright flowered *Helianthemum venustum*,

hanging over a rocky ledge, is most attractive, and the two together highly interesting.

ERYNGIUM GLACIALE is a little beauty. It has steel-blue, spiny heads just 6 in. high, and bears a marked contrast to its big brother, *E. giganteum*, just assuming its proper colour hard by.

COLUTEA FRUTESCENS is a beautiful shrub, and one which endures our ordinary winters on the open wall. Its bright scarlet, *Clanthus*-like blossoms borne, as they are, in abundance render it a most desirable shrub to grow even in localities where it would be necessary to house it in winter.

TRICHINIUM MANGLESI is very fine here this season; our best specimen of it has more than forty heads of flower on it. Why is this most distinct plant not oftener met with than it is? Planted out on the open rockwork, it is coming nicely into flower, young plants bearing from two to five heads.

SIDALCEA CANDIDA is one of those plants that one gets to like better as we become acquainted with it. It continues to throw up its charming spikes of pure white flowers all through the season, and during winter is a shining mass of finely cut leaves, good even at a time when greens are valuable.

HYPERICUM REPENS makes a lovely green carpet, and is just beginning to be dotted over with its bright yellow flowers, each about the size of a shilling.

HYPERICUM SCOULERI, a dense habited, though slender branched species, will be in flower in a few days, but now very charming, being a mass of red buds.

SAXIFRAGA AQUATILIS, the finest I know of the mossy group, with its 1-ft. long panicles of large milk-white flowers, is very distinct and telling, especially when associated as it is with such things as *Elodes virginica*, *Meconopsis*, *Lobelia sessilifolia*, *Primulas*, *Parnassias*, *Sarracenias*, &c., all growing into each other.

ROSE WHITE PET is a pretty plant enough in a pot, but planted out much better. One put out last summer amongst stones on the rockwork is now a dense mass 2 ft. high and 3 ft. over, and bears considerably over 500 buds in various stages of development. Not the worst feature of this plant is that it is never, so far as I know, attacked by aphides or any other of the ills that *Roses* are heir to. Is this the same as *Paquerette*?

GAZANIOPSIS STENOPHYLLA resembles in some respects our old friends the *Gazanias*, but different, inasmuch as the narrow leaves are from 9 in. to 12 in. long, and the flower, produced on a long and rather slender stem, is pure yellow with a pallid dot at the base of each petal. It only opens during the hottest sunshine, and thrives much better planted out in a warm spot than it does in pots.

PHLOX AMENA, a real gem, is now fully in flower for the second time. In habit it is much like *P. verna*; the flowers are, however, warmer in colour, and the plant is not quite such a run-about; it is, in short, a species of rather a better type, and one which, I think, will have to become permanently attached to our gardens.

MECONOPSIS WALLICH, towering far above most other things, commands the attention and admiration of all who see it. Its pale blue blossoms shaking in the wind look in the distance like huge butterflies, but of a colour different from that of any butterfly which I have ever seen.

SALVIA INTERRUPTA has pretty flowers—blue, becoming paler in the throat. The habit of the plant, however, is quite distinct, a dense mass of robust leaves resting on the ground, out of which shoot in all directions the sparsely clad flower-spikes, the whole forming a specimen 5 ft. or 6 ft. wide. It is a very distinct species.

LINARIAS are now very pretty—*aurea reticulata*, with its beautiful gold and crimson flowers; *multimaculata*, dwarf in habit, yellow, with a row of tiny black dots down each side of the throat; *tristis*, buff with a bee in the centre; *Perezi*, erect in habit, with small flowers, in dense heads of

a soft yellow colour; *cæspitosa*, creeping in habit, with bright yellow flowers, very suitable for associating with alpina, which in habit it much resembles; *maroccana*, of which there are numerous beautiful forms varying in colour from rose and white to lilac and white, and on to deep purple. These are all well worth attention though only of annual duration, but, unlike most annuals, continue to throw up flower shoots all through the season, and usually sow themselves; and, lastly, *pallida*, so hardy, so free in growth, and such a persistent bloomer, is quite indispensable where carpets are required.

LYCHNIS HAAGEANA.—This plant, I think, should be placed in the coldest position we can find for it. It begins growth so early, that it is always cut off by cold winds and late frosts. Some plants here that escaped are now bright and beautiful. Perhaps a good plan would be to keep some in pots and put them out when the frosts are gone. The plant is dwarf and the flowers so large, and the colours so bright, that if we could have them unblemished they would be quite desirable.

GAILLARDIA GRANDIFLORA, in variety, is a glorious border plant. The best result is obtained by treating it as a biennial; thus one gets much stronger plants, which bloom on through the whole summer. Here they vary from pure yellow to yellow with crimson centres, and produce flowers that are nearly all crimson, and in height from 1 ft. to 3 ft., and with flowers from 2 in. to 4 in. across.

CHRYSOBACTRON HOOKERI improves very much on acquaintance; some very strong spikes this season have been fully 2½ ft. high, 1½ ft. of which was the flowering portion; the flowers, too, were very closely packed, and continued to open for over two months, the effect being similar to that of robust plants of *Kniphofia Macowani*.

PAPAVER APULUM is a pretty cut-leaved annual species, slender in habit and with ochre-red flowers stained with purple at the base. Rather high up it has a singular appearance, and as few of the flowers are ever perfect, a group of it looks like a flight of battered butterflies.

T. SMITH.

Jaborosa integrifolia.—This curious little white flower I had from Mr. Ware in the autumn. I should judge the bloom to be a small and starved one, as the plants have scarcely got hold of the ground yet, and the foliage has that stunted and puckered look which leaves take when growing in a climate too cold for them. Perhaps Mr. Ware will send you better flowers. It seems likely to be a useful plant for large gardens, spreading, by means of creeping underground stems, like *Couch Grass*, and sending up tufts of leathery leaves after the manner of *Lily of the Valley*. From the thickness of the rootlets, I should think a medium loam would suit it.—J. D. [Of botanical interest mainly.—ED.]

Pentstemon Jeffryanus.—This is a brilliant and graceful plant, and one that should oftener be seen in gardens than it now is. It is one of those so-called hardy flowers, which are only so in favoured localities; hence the frequent disappointments which attend its culture. In cold districts, especially where the soil is of a moisture-holding character, it is apt in inclement winters either to perish, or to become so enfeebled that the following summer it does not grow with anything like the vigour natural to it. The remedy for this is to take off a few cuttings any time during the months of July or August, strike them in a cold frame, and winter them there, planting out in fine, fairly enriched soil about the middle of March.—J. C. B.

Naturalising Primroses.—For some years past a lady in this neighbourhood has amused herself by gathering the seed of the common *Primrose* when ripe, and scattering it about in the woods and in semi-wild places adjoining the pleasure grounds, with the result that colonies of thriving plants are now established where, only some two or three years ago, not one was to be found. Just

scattering the seed without further care involves no trouble, and there could scarcely be a more delightful occupation than furnishing with bright flowers hitherto barren spots in this manner. Those who have not the *Primrose* growing wild in their neighbourhood might make arrangements with friends more favourably circumstanced for a good supply of fresh seed, and when once a colony is formed, the work of naturalising is an easy matter, and may proceed at a rapid rate.—J. C. B.

Red Spiræa.—The best plants of *Spiræa palmata* (the species, I suppose, to which "Warwick," p. 434, alludes) I ever saw were grown in an artificial bog with a retentive sub-soil; indeed, so retentive was it, that at times, and especially during winter, the lower parts were submerged. I need hardly say the soil was entirely peat and sand. In this bog I have seen *Spiræa palmata* in very fine condition, quite 4 ft.; and another equally beautiful species, *S. venusta*, with pink flowers and pinnate leaves instead of palmate, I have seen between 7 ft. and 8 ft. high. These *Spiræas* will grow in almost any soil, but a bog is their proper place.—T. D. H.

—If "Warwick's" plants are in pots, turn them out under a north wall till October; then pot them in pots that will easily hold the roots in two parts loam, one peat, half manure, and sand according to the quality of the loam. Plunge them in ashes as *Hyacinths* and other roots are done till February; bring them into a glasshouse from which frost is excluded, and afterwards treat them like *Spiræa japonica*, giving them plenty of water when started into vigorous growth. I have found it a good plan to leave the soil 1½ in. from the top of the pot and fill up with Cocoa-nut fibre. When the plants appear above this in the spring remove it, and fill up with 1 in. of compost. I have two large and fine plants of this *Spiræa* (*S. palmata*) which flower and improve in every way every season.—B.

Sweet Peas in succession.—These are invaluable where cut flowers are in great demand, and the closer you pick the blooms, the more they produce. Having such long footstalks, it is not necessary to pluck any of the haulm with them, and by gathering closely no seed-pods are left to exhaust the plants. In order to get them in bloom in May and June, the best plan is to sow in November. They are quite hardy, but well repay a little attention in the way of producing them with evergreen branches from cutting winds. I lately saw some very fine masses of them that had been sown last autumn around the stems of old Apple and other fruit trees, and supported with a string as they progressed in height. They were literally covered with bloom at the end of May. Other sowings should be made in February, March, and April; there will then be no lack of Sweet Peas from which to pick all the season, as the late ones keep on blooming as long as any flowers are procurable out-of-doors. The Sweet Pea will grow in almost any soil, but to flower it well the ground must be deeply cultivated and well enriched with manure. It must also be mulched for at least a yard around the roots, and well watered with liquid manure. The quantity of bloom depends entirely on the soluble food within reach of the roots, feeding freely in that way in sunny weather, but withholding all liquids when wet or cloudy periods occur. Sweet Peas are now sold in distinct colours, in which way they are most suitable for cutting, but the majority of cultivators like them mixed. Beware of slugs; if plentiful, sow the seed in 3-in. pots, and plant out the young seedlings when large enough.—J. GROOM, *Linton*.

King of Yellows Pansy.—A handsome golden yellow with a rich black eye. Our Scotch friends have such constellations of beauty in Pansies, that it is dangerous to make comparisons, but this from Messrs. Rodger, McClelland, & Co., of Newry, seems one of the finest of the race.

Sidalcea candida.—A Malvad with white transparent flowers and a brush of pale red stamens. It seems an interesting plant, though perhaps not showy. The white Musk Mallow somewhat resembles it. From Messrs. Rodger, McClelland, & Co., of Newry.

NOTES AND READINGS.

PEACHES INDOORS AND OUTDOORS.—A friend writes to me that he is "curious about the outdoor culture of the Peach in favoured districts" in England, and contemplates making some experiments in that way some day. What can be accomplished outdoors by a more careful and methodical system of culture than is practised generally gardeners have perhaps yet to learn, and it is very desirable to try. But the opinion is fast gaining ground that where good and remunerative crops and quick returns are the object, culture under glass is by far and away the best. Outdoors on the open wall cultivators must always be at the mercy of the weather, more or less, and those who have had much to do with the system know what that means as regards crops and the health of the trees. It must not be forgotten that a good substantial wall is necessary for Peaches outdoors, and much care is required by the trees which are three or four times longer in growing than they are inside on the new and popular extension plan, which, under glass, may and should have unlimited scope either on the standard or trained system. Where in England out-of-doors could one have dozens of fruit from a tree eighteen months after it was planted a maiden with one shoot and scores of fruit the second year? The expense of a thin, but strong glass screen to a wall is not worth speaking about considering the immense advantage it gives the grower; and if hot-water pipes are even needed to exclude frost or ripen the wood, their use should never be hesitated about. It is not so much a question of fruit as healthy trees and well ripened wood; these secured—and glass will secure them anywhere in these islands—only mismanagement can prevent success.

THE POTATO DISEASE.—Mr. Jensen's pamphlet on this subject, of which an outline is given in another column, will interest cultivators, for the author deals with what he considers the practicable prevention of the disease. He asserts that in repeated experiments on his plan he succeeded in preventing the disease, while plantations of the same kind near and treated in the ordinary way were badly affected. His theory is, that the spores of the fungus do not penetrate the tubers through the haulm, but are washed down through the soil on to the surface of the tubers, and so infect them through the skin, and his preventive measures consist in earthing up the stems principally on one side, so as to cause them to lie over the furrow instead of the ridge, thus preventing the spores from falling on the ridges and being washed down to the roots. It was known before that keeping the rain off the plants prevented the disease, and its absence under such circumstances might be accounted for in Mr. Jensen's theory. The drought was supposed to be the preventive cause in this case, but the Jensen method of earthing does not exclude the rain. The results as furnished by Mr. Jensen are certainly striking.

MAKING UP SPECIMEN ORCHIDS.—With the advent of the shows this is a subject sure to come to the front, and one wonders to see the prominence given it. Those interested in the matter are probably a trifle more numerous than one can count on the fingers of both hands, while there are thousands who grow Orchids for other purposes than exhibition that do not care a straw about it. It is plain that those who discuss the matter are principally influenced by their own circumstances, and look at it from their own point of view alone. The man who possesses large, single, *bond-fide* plants,

or who can and does buy such specimens ready made, thinks such only should be awarded prizes; and the man who cannot wait, but puts his specimens together at once by bits, thinks otherwise. So far as the influence of a long purse is concerned, the pair are about evenly matched. The simple truth is that some Orchids are so long in forming plants of a size fit for exhibition purposes, being unlike stove and greenhouse plants in that respect, that cultivators have given up waiting in these days of "express" culture, and, encouraged by the facilities which cheap and plentifully imported plants present for overcoming the difficulty, have adopted the massing practice. It suits exhibitors, especially beginners, and it suits the shows, and there is really not so much to choose after all between a single specimen ten years old and one two years old made up on the new principle. Both may be equally effective, and societies could arrange suitable prizes for both if they were so minded, and thus get over the discontent. Those who are crying out about the massed specimens now did not at one time object to huge subjects of such things as *Eucharis*, *Vallota*, and other bulbous stove and greenhouse subjects that were put together on the same principle.

VERY EXTRAORDINARY!—One would like to hear more of Mr. Kynaston's plan, in North Wales, of securing crops of Apples and Pears, &c., which is so certain and so successful, "that fruit to almost any extent is always to be found in his garden. The result is said to be such an abundant produce, that a quarter only of the fruit grown by him would amply have repaid him for his time, labour, and experiments," to quote the words of a correspondent of the new agricultural paper—*Farm and Home*. As Mr. Kynaston root-prunes every second year or so, manures highly, and as three-quarters of the crop is always clear gain, cultivators would no doubt like to know more about it, and Mr. Kynaston has, it appears, published a book on the subject in which his practice is detailed. Periodical root-pruning and top-dressing is good practice if accompanied by intelligent branch treatment, but it has never been claimed for it before that blight "never once affected" trees so treated when such scourges "destroyed the fruit prospects of the neighbourhood and the country at large," and one is not surprised to learn that this fact "surprised people more even than the unprecedented yield of fruit."

MR. THISTLETON DYER AND THE ELECTRIC LIGHT.—Recent communications on this subject by Mr. W. T. Thistleton Dyer, written, it would appear, in its defence after recent failures at Paris, does not encourage anyone to try it or believe in it. "The theoretical possibility of imitating by artificial means the effects of solar radiation on plant life has," says Mr. Dyer, "been demonstrated again and again," and "he sees no reason why Cucumbers should not be grown with the electric light alone . . . The only question is whether the result will justify the expenditure." Can Mr. Dyer be aware that market gardeners grow Cucumbers in abundance, and contract with the greengrocers to provide an unfailing supply from April till November with present appliances, and that those who choose to provide pits for the purpose can have as many or more Cucumbers than they can use for the remaining months of the year without the aid of the electric light, which would be a positive encumbrance and dead loss? If these are not good "reasons why" the electric light would be useless either alone or as an aid to solar radiation, I am unable to furnish any other. At the above season ordinary market

prices run from half-a-crown to four or five shillings a dozen Cucumbers—what profit will Dr. Siemen's steam engines, lamps, and appliances add to it? PEREGRINE.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J., SURREY.

Now that there is a wealth of Roses, the best ways of combining them should be carefully considered. A great bowl of mixed Roses, even if put together without thought, is a beautiful thing, but they are much more beautiful if the colours are carefully chosen and the flowers well grouped. The scarlet and darkest shades go grandly together, and a number of the best pink Roses, such as *La France*, *Marie Finger*, *Eugénie Verdier*, and *Captain Christy*, of slightly varied and yet nearly related colouring, carefully placed in a wide bowl of palest blue oriental china, form a picture of Rose beauty such as can hardly be excelled. A fine effect is given by a tureen of blue Delft filled with orange-coloured *Eschscholtzias* cut long and short. A tall glass holds white Lilies, with the rosy *Spirea palmata* and *Funkia* leaves; another large glass has a mass of *Canterbury Bells*, white and pink. A few blooms of pure white *Iris Kämpferi* stand alone in a slender Venetian glass; orange Lilies are in a blue china jar seen against an ebony cabinet. A large bunch of variously-coloured *Alstroemerias*, cut 2 ft. long, are arranged with foliage of *Bocconia cordata*. The yellow juice of freshly-cut *Bocconia* stains the water; it is therefore desirable to stand it aside in water for a time before it is wanted for use.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Ricinus or Castor-oil plants.—To those who are in search of sub-tropical effect in the summer garden, and yet lack the conveniences for housing and wintering large growing sub-tropical plants, the varieties of *Ricinus* will, indeed, prove a boon. Their rapid and stately growth, large foliage, and the ease with which they are raised, all tend to enhance their value for the purpose just named. The varieties *armatus*, *Obermanni*, *viridis*, and *macrophyllus*, when sown in March and grown on without check, attain a height of 8 ft. by August. The seeds should be sown singly in 3-in. pots; they quickly germinate in a temperature of 65°, and should be given this heat till they need potting into larger pots, then a temperature of 60° will be ample. By the beginning of May they will be ready to pot into 8-in. pots, and at the end of that month may safely be planted out in their summer quarters. Deep tilth and well rotted manure are necessary to ensure vigorous growth. The deep bronze foliaged and red stemmed variety *Gibsoni* is not so strong a grower as the kinds just named, a circumstance which makes it all the more valuable for use as an outer line to beds of the strong green foliaged sorts. This kind also bears pinching well, and may, therefore, be grown in the form of a bush.

General work.—At present there is but little to be done that calls for special remark, the principal requirements being the preservation of neatness by regularly mowing lawns, clipping edgings, and weeding and rolling walks. Bedding plants will now be in their full dress, and in order that they may continue so, keep them well supplied with water, removing all useless flowers at least once a week. Trailing kinds will require the same periodical attention as to regulating their growth, either by pegging down or training to sticks, as the case may be. Single Dahlias and other tall growers planted as "sentinels" amongst lower growing plants may need a portion of their growth curtailed, both to preserve symmetry and to prevent them from encroaching too much on dwarfier plants. Keep carpet beds trim. *Herniaria glabra* rarely needs clipping, and this merit renders it the best of all plants for forming a green

groundwork, edgings, and intersecting lines in this class of bedding. The dwarf Sedums and Saxifrages only require the flowers to be kept off them and to be pressed down with the hand to make them spread evenly. On herbaceous borders old flowers of Pyrethrums, Mallows, Delphiniums, Spiræas, and many others need cutting off; sticks also should be taken away, and the ground about such plants should be "pointed" over. Roses are in full bloom, and almost daily now there are numbers of decaying flowers that for the benefit of the plants would be better off; shorten also vigorous shoots, keep the plants well watered and washed, and then expect a good autumn bloom.

PROPAGATING.

Hard-wooded plants, such as Heaths, Epacris, Chorozeas, Boronias, and similar subjects, may, in most cases, be struck from cuttings during the summer months, although among them are to be found some that require great care in order to ensure success. The best cuttings are the young shoots that push forth after flowering, especially if the plants have been cut back; but even then it is better to take shoots of weak growth than stout succulent ones, which are very liable to decay. As it is absolutely necessary to keep them perfectly air-tight, bell-glasses should be used for that purpose, and the size of the pots will, of course, depend upon that of the glasses employed. In preparing the pots, invert a small one over the hole in the bottom, then fill up with broken crocks till within 1 in. of the top. The crocks should be clean, and gradually diminish in size from the bottom to the uppermost layer, to facilitate which a good practice is to pass them through sieves of different sizes, and keep each lot separate. The top portion should be those that pass readily through a sieve with $\frac{1}{4}$ -in. mesh, but as the dust must be extracted from them, one still finer must be employed. A space of $\frac{1}{2}$ in. or 1 in., according to the size of the cuttings, must be left for the soil, which should consist of two-thirds peat and one-third sand, the whole finely sifted. The pots being firmly filled with the above to within a little of the top, a thin layer of sand should be added and the whole slightly watered, using for this purpose a fine-rosed pot.

In taking the cuttings, where not too long, all that is necessary is to strip them off and remove the bottom leaves to the extent necessary for insertion, but if too long to be treated in this way the top only must be cut off at the length required. In removing the leaves a sharp-pointed pair of scissors must in some cases be used, or in others let the top part of the cutting be held firmly, but gently in the left hand, and let the leaves be stripped off one by one with the right hand. This effects a saving of time, but should only be used when the leaves come clean away from the bark without tearing or injuring it in any way; if they hurt the bark, of course the scissors must be used to remove them. Before putting in the cuttings press the bell-glass slightly in its place; the imprint in the sand will serve as a guide in inserting them, otherwise they may be put in too near the edge, and thus get pressed down by the glass. Put them in rows at a sufficient distance to stand clear of their neighbours, and take care that they are made thoroughly firm, especially at the base. When a potful has been put in, a thorough watering must be given to cause the sand to form a smooth, unbroken surface. This watering may either be done with a fine-rosed watering-pot, or if the cuttings are so small and slender that the weight of the water alone would cause them to overbalance, the better way is to set the pot when completed in a pan of water, not of sufficient depth to float over the surface, but still enough to enter by the bottom and give the soil a good soaking. After watering leave the glasses off for a little time to dry the foliage, then put them in securely and shade from sunshine. Where there is not a propagating house for this class of plants, the next best place is a cold frame; one or two lights of which may be partitioned off for that purpose, and treated ac-

cordingly. The bell-glasses must be wiped and removed for a little while each morning, and a strict watch must be kept for the least symptoms of decay, on the approach of which a little more air may be given, but not more than is necessary, as the soil soon dries and frequent waterings are hurtful. If attended to in this way a fair measure of success may be reasonably anticipated, but of course constant care in the matter of shading, watering when required, and drying up superfluous moisture will be necessary till they are rooted. When that happens, give air by degrees and gradually harden them off; then pot in small pots and grow on, taking care to stop them when necessary, as the foundation of a good plant is formed when in a young state. T.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Conservatory.—Now when the whole of the spring flowering, hard as well as most soft-wooded, plants that bloom during the earlier part of the season have done flowering, stove plants in bloom will come in most usefully to take their places, as if associated with the hardier kinds of Palms, Tree Ferns, Cycads, and other fine-leaved plants, and tastefully arranged, they have a very fine appearance, and will make a display equal to that which existed in spring. Where many of the occupants of conservatories are permanently planted out, such a re-arrangement as is here recommended can only be partially effected. At this time of year when insects increase very fast corresponding attention must be paid to destroying them, or it will be impossible to keep the stock in a healthy condition. Sponging by hand is a slow process and seldom more than partially effective. It is much better where it can be done to take the plants out of the houses and syringe them freely with insecticide, as if the work is well done all the interstices in the leaves and bark where the eggs and larvæ are hid are reached. Care should be taken to keep roof plants as free as can be from such insects as brown or white scale or mealy bug, for where these exist to any extent on climbers overhead they are certain to be communicated to every plant underneath them on which they will live. It is well as far as possible to select climbers for roof decoration that do not afford acceptable food to these pests, for although there are but few plants on which some or other of the numerous insects existant will not live, yet there is much difference in this respect.

Lilies.—Where a good stock of these are grown in pots they are most useful in conservatories; plants of *L. eximium* that have done flowering must be well supplied with water so long as the foliage remains green; they may then be planted out in well prepared soil, as they are not likely to bloom much a second time where at all forced until they have had a season or two to recruit their strength. *L. auratum* and other species require to be similarly attended to in the matter of water, also to be kept free from aphides, as on the retention of the leaves until the bulb growth is fully completed depends their well-being in future. *L. giganteum*, though mostly planted out in the open ground, will, if well managed, attain a larger size and produce more flowers in a pot; but it does not usually increase so well in this way by the production of suckers. Where this fine Lily is grown in pots, I have found it best to turn it out of them immediately the blooming is over, giving plenty of water if dry weather ensues. Plants of the different varieties of *L. speciosum* should have the stems supported with sticks before they get too far advanced, and in carrying out this operation with Lilies, care ought to be taken not to injure the bulbs; through want of caution in this much mischief is often done.

Abutilons.—A sufficient stock of these should always be kept up. Independent of their decorative value as pot plants, their continuous habit of flowering is not surpassed by many things which are as easily grown. Their ability to flower through the winter if accommodated with a little extra warmth is a still further recommendation. The

white variety *Boule de Neige* is so useful for cutting, that it deserves a place everywhere where winter flowers are in demand. It blooms in a very small state; plants of all the varieties struck from cuttings put in now and wintered in small pots will make useful blooming stock next summer.

Genistas.—Small or medium-sized examples of these are much more useful than large specimens; their easy propagation and the little difficulty involved in their after treatment is such as to make them deserving of much more general cultivation than they receive. Presuming that the plants are now out-of-doors, any shoots that show a disposition to outgrow the rest should be cut back, but no attempt ought to be made to keep them too formal by pinching in the whole of the branches, as is sometimes done, which gives them an over-stiff appearance. In the case of young, thriving examples of these Genistas, where the pots are small and have got full of roots, they should be frequently supplied with dressings of light manure or manure water, and as they are liable to the attacks of red spider they ought to be syringed over every evening in dry weather.

Ferns.—Where there are large structures devoted to Ferns, and a portion of the larger species are planted out, attention from time to time should be given in keeping the larger growing kinds from encroaching too much upon the weaker habited sorts. This is especially needful where many of the stronger sorts with creeping rhizomes exist. These if strong and not checked soon extend in all directions; this can be corrected by cutting the fronds, which so far reduces strength as to prevent their spreading too fast. The rhizomes or creeping stems may also be shortened, which will cause them to break back and induce a closer, more compact condition. One of the mistakes committed in the cultivation of the tree species of Ferns is giving them too much root room, either when planted out or when grown in pots or boxes; in both cases when accompanied by more artificial heat than requisite it invariably induces a greater extension of the fronds than is admissible within the limits of a plant house, unless where it is much larger than usual, the result being that the strong growers smother the weaker ones, and the interest attached to the collection is reduced by the smaller number of kinds grown. But where plants of these large growing kinds have had their roots confined within a limited space for any considerable length of time they should have frequent soakings with manure water during the growing season; when sufficiently supplied in this way they can be kept for years in a satisfactory condition. Liquid manure, or moderate dressings of some of the light manures now so much in use for applying to the surface of pot plants answer well for most of the small growing kinds of Ferns, such as the *Adiantums*, *Pteris*, *Davallias*, and others of a like character. In Fern culture no more artificial heat should ever be used than absolutely necessary, for it not only makes the fronds unduly tender, but also renders them much more susceptible to thrips. Where these are present it is best to dip or syringe with tobacco water, as when fumigation is resorted to strong enough to kill the thrips it usually is more than the plants can bear.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Cherries.—If any of the trees require potting let them be well cleansed and shifted as soon as they are clear of fruit. Use good friable loam and lime rubble in a rather dry state; ram it very firm, leaving plenty of room for water and mulching when all is finished, and return them to the house for a week or two. If the balls are thoroughly moist at the time they are potted one good watering to settle the soil, followed by daily syringing, will most likely suffice for the time they are kept under glass; but while guarding against getting the new soil too wet equal care must be exercised in preventing the roots or foliage from suffering. If large trees of late kinds are still

carrying fruit which it is desirable to keep for any special purpose, some kind of shading will be needed for the front of the case, and a good covering of rotten manure, while keeping the roots cool, will be ready for washing in as soon as the crop is gathered.

Plums.—When the early kinds in pots show signs of changing for ripening discontinue syringing, but keep them well supplied with water, and, if convenient, separate them from others which are less forward. Keep all the pots well mulched with good rotten manure, and supply the roots with diluted liquid at every watering. Use pure soft water for syringing, as Plums show every spot of matter left by the sediment from that which contains lime. Ventilate freely, as Plums do not make rapid progress in a high temperature, and the free admission of air adds greatly to the beauty of the bloom on the fruit. See that established trees of Jefferson, Golden Drop, and others are thoroughly mulched and supplied with water. Keep the foliage free from aphids by fumigation, and syringe twice a day in fine weather.

Late Peaches.—Where it is thought desirable to retard the ripening of fruit in the latest houses until September or October, all the ventilators should be set open by night and by day until the flowers begin to open, and again after the fruit is set in order to delay the stoning process. It is hardly necessary to say that the houses from which this late fruit is obtained should have hot-water pipes running round the sides for keeping out frost when the trees are in blossom, and again for supplying dry heat after the crop is gathered, otherwise such excellent kinds as Walburton Late Admirable, Barrington, Sea Eagle, and Prince of Wales Peaches, Stanwick Elruge Nectarine, which never cracks, Victoria, which few can ripen on open walls, and Albert Victor, cannot be expected to ripen their wood and perfect their buds before the winter sets in. Some years ago when I had a number of large trees in pots and tubs I used to make it a practice to place suitable kinds out-of-doors in a sunny, sheltered situation about the end of June, but fresh arrangements now enable me to gather quite as late from vigorous young extension trees trained under the roof of a house in which I winter standard Bays and Aloes. The latter are taken out for the summer before syringing, never a heavy item in cold houses, affects their growth. The dry fire-heat after they go back to their winter quarters seems to suit all round alike, and the constant watchfulness so essential to success in pot culture is avoided. Many people are impressed with the idea that the planted trees give the finest fruit, but I have not found it so, particularly during the time the planted trees are extending; indeed, Peaches, Nectarines, and Pears of the largest size may be grown upon pot trees when they are kept under glass, and constant feeding of the highest quality is judiciously given to them.

Melons.—Plants in pits and frames swelling off fruit will now take an abundance of water at the roots. In cold wet seasons like the present it is not advisable to water overhead in these structures, where the plants are more subject to canker than when grown in houses, and spider does not make so much headway; but advantage may be taken of a fine afternoon for flooding the bed with water at a temperature of 85° to 90° without wetting the foliage, and closing about half-past three, when the atmospheric moisture will produce conditions highly favourable to the rapid development of the fruit. Pay particular attention to the preservation of the old leaves, as they cannot be interfered with without producing a check, and give them full exposure to sun and light by cutting away all lateral growths and keeping the glass clean. Elevate the fruit on inverted pots on a level with, but not above, the foliage, as some kinds are liable to become discoloured when they change for ripening if night air is neglected. Attend well to the linings by turning and renovating with fresh manure before the heat in the bed shows signs of declining, cover with good dry mats, and give a clink of

night air to prevent an accumulation of rank steam and condensation of moisture on the fruit. Refer to previous calendars for directions as to the management of Melons in houses and heated pits. Get out young plants before they become pot-bound, and make a good sowing of some quick fruiting kind for coming in in October. Meantime prepare a light, well-ventilated, efficiently heated pit for the reception of the plants. If bottom heat pipes are provided, the fruiting pots should be plunged within their influence when extra warmth is required for setting and ripening the fruit, but until the nights become longer fermenting material will produce moist heat, in which Melons will revel through the early stages of their growth.

Cucumbers.—If a heated compartment, perhaps now filled with Melons, will be at liberty in about three weeks, the present time will be favourable for sowing a few seeds of Telegraph or some other favourite kind for autumn fruiting. Be careful to thoroughly cleanse the house, as Melons invariably leave an unwelcome legacy behind them. Also prepare the necessary fermenting material for giving bottom heat. Have it well worked before it is taken in, and defer plunging the fruiting pots or making the ridges until all danger of burning the soil has passed away. Make frequent additions of light, rich turf to the roots of plants which have been in bearing for some time, feed copiously with clear liquid, and water occasionally with warm clarified lime water to keep the hills free from worms. In ordinary seasons fire heat is not required in July, but up to the present time cold nights and wet, sunless days have been so unfavourable, that gentle firing has been absolutely necessary to the maintenance of minimum temperatures.

Frames.—The plants in these now in full bearing will require unremitting attention if they are to be kept in good order for any length of time. Dress them over three times a week and earth up with lumps of rich turf and old lime rubble as the roots find their way to the surface. Attend to the linings, as want of bottom heat is often the forerunner of canker and mildew in frames where the plants have been started well and afterwards neglected. When the oldest plants show signs of exhaustion, take one or two lights in hand, cut out all the fruit and old leaves, peg the vines down on the hills, pack the joints with pieces of fresh turf, and keep the frame close, moist, and shaded until new growth sets in.

KITCHEN GARDEN.

R. GILBERT, BURGHEY.

DISEASE in the early section of Potatoes is spreading fast. Cutting off the tops underneath the surface is a better way of saving the tubers than lifting at this busy season; therefore, lose no time in doing this, as delays are dangerous, and no Potatoes are more likely to be affected than Myatt's. Champions and other late sorts are as yet all right. We are now busy gathering fruit, and so far as bush fruits and Strawberries go the crops are very heavy. When the weather is damp we fill up every available inch with spring and autumn Broccoli, leaving the Kales till later on. Our first lot of Brussels Sprouts are 1 ft. high and growing strongly. Keep the ground free from weeds among all crops, hoeing or using the cultivator as the case may be. Among Peas, Standard, Marie, and John Bull are now in full bearing; the last is a trifle longer in the pod than the others, and the quality good. If one has these three and Omega for use in August and September few others will be needed. If Endive is not yet sown it may be put in now; nothing is gained by sowing very early, as the young plants generally run to seed. Shallots are ripening fast; ours are planted in drills filled with burnt refuse, and in this no grubs or other vermin ever attack them, not even mildew, and the result is a clean, healthy crop.

Aenebia echinoides began flowering with me a second time this season about June 20.—A. C. B.

NOTES OF THE WEEK.

APPOINTMENTS.

July 18.—Leek Rose Show.

19.—Sutton Coldfield Annual Show.

Darlington, Show of National Rose Society.

20.—Helensburgh Rose Show.

Aberdeen Summer Show.

AMERICAN APPLES.—The reports which we have received from Messrs. J. W. Draper & Son, Covent Garden, the principal London agents for the sale of these fruits, indicate that the crop is most prolific this season. From personal observation we gather that in England the crop is comparatively a failure; in France a poor half crop is calculated upon; in Germany one-third crop only; in Holland only half a crop and in Belgium not half a crop—thus the prospects were never more favourable for shipments from America to England than they are this year. The American Apple trade, formerly monopolised by Liverpool, has during the last few years (in consequence of direct steam communication) been gradually diverted to London, the markets of which now compete favourably with those of Liverpool.

THE FRUIT CROPS, we learn, have been greatly damaged by the late excessively wet weather, particularly Strawberries and bush fruits. In the Kentish fruit gardens, which have to supply the enormous demands of preserve manufacturers, the loss has been severe.

CARNATION AND PICOTEE SOCIETY.—We hear from various sources that the forthcoming annual show of this society is likely to be very good this year, provided the present wet weather, which is liable to injure the buds, does not continue. It takes place at South Kensington on the 25th inst.

THE WILD FLOWERS at the last Royal Botanic Society's show were not one of its least attractive features. In a few of the collections there were large numbers of the rarer species, particularly of Orchids, such as *Orchis ustulata* and others. One collection could not have numbered less than a couple of hundred plants all collected within a radius of five miles. The best collection was from the weald of Sussex, a locality rich in wild flowers.

THE SPECIAL EXHIBITION OF BEGONIAS which Messrs. Laing & Co. have on view at their Stanstead Nurseries, Forest Hill, is this year very fine, there being several thousand plants in bloom, and to accommodate the largest specimens a capacious structure has been specially erected for them. The show will continue for several weeks to come, and, therefore, those who wish to see tuberous Begonias in every shape and form cannot do better than pay these nurseries a visit.

LACHENALIAS AND DAFFODILS.—The collections of these belonging to the late Mr. Nelson, of Aldborough, have passed into the hands of Messrs. Barr & Son, King Street, Covent Garden, who are prepared to distribute them. The Lachenalias consist of the following species and varieties, viz.: *Nelsoni*, *aurea*, *quadricolor*, *superba*, *tricolor*, *luteola*, *maculata*, *pendula*, *kermesina*, *p. amoena*, *gigantea*, *versicolor*, *fragrans*, *rosea*, and *tigrina*. Of Daffodils, Mr. Nelson selected only the finest types, discarding all others.

WHITE MUSK MALLOW.—Why is it that nurserymen charge such a high price for this free and hardy native plant? It grows like a weed with me. I have self-sown plants of it in any quantity, and as for seed, I shall be very glad to send a pinch to any of your readers who may desire it later in the season. Its delicate scent

and pure white satiny flowers make it a most useful plant for cutting from.—A. KINGSMILL, *Eastcott, Pinner*.

ROYAL AGRICULTURAL SOCIETY.—Though some thirty classes were set apart for fruits and vegetables at the society's show at Reading, the exhibits were not only very few, but poor, and in several of the classes there were no entries. It is to be regretted such was the case, as it is the first time the Royal Agricultural Society has thus offered prizes for market garden produce.

THE CONSERVATORY AT KEW is particularly attractive just now, being filled to overflowing with a great variety of plants in bloom, but the most noteworthy are the various twiners and climbers that adorn the roof; we have never seen these so fine before, especially the Fuchsias, which seem to flourish uncommonly well, the house being very light and airy. *F. virgata*, a well-known species, with small scarlet flowers, is one of the prettiest plants imaginable when planted out in good free soil and allowed to ramble at will. Besides the common type of greenhouse climbers there are in flower such things as *Berberidopsis corallina*, *Mandevilla suaveolens*, *Bougainvillea glabra*, various *Tacsonias*, and *Begonias*.

MR. JAMES GROOM.—We hear that Mr. J. Groom, of The Gardens, Linton Park, Maidstone, intends going into business as a nurseryman at Gosport, where he has found a suitable place. He proposes, in addition to other branches, to take largely under his care hardy plants, of which he has had great experience at Henham, Linton, and elsewhere. One of our oldest and most esteemed contributors to THE GARDEN, we know from personal experience that he is well fitted for this work, and trust that his nurseries may be a new home for many of the interesting subjects grouped under the general term hardy plants. We feel sure he will have the good wishes of many of our readers. The more active young nurseries carried on by men of intelligence we have the better for horticulture.

ROYAL HORTICULTURAL SOCIETY.—In their circular to the Fellows, of the 27th March last, the council stated they were endeavouring to enter into negotiations with the commissioners for the Exhibition of 1881 with the object of effecting an arrangement which would be in strict accordance with the trusts upon which the commissioners hold their property, mutually advantageous to the commissioners and the Society and beneficial to the public. With this view the council proposed that a joint committee of the two corporations should be formed to consider their future relations. This proposal was accepted by the commissioners, but the committee which had been appointed to give effect to it has not yet met, as it was found necessary, before such a meeting could be usefully held, to settle terms between the Society and the executive committee of the Great International Fisheries Exhibition, 1883, to whom the commissioners had granted the use of part of the South Kensington Gardens for the purposes of their exhibition, reserving for themselves that part known as the ante-garden, of which they intend to resume possession. The council report that the friendly spirit in which the executive committee met them has enabled them to make a satisfactory working agreement with the Fisheries, which, whether the ulterior negotiations with the commissioners are successful or not, secures to the Society, subject to the user required by the Fisheries, the ornamental part of the Gardens which lies to the north of the circular basins until the end of 1883. The council are not in a position to anticipate the result of these

negotiations, but they believe the commissioners wish to act liberally towards the Society, and they have no reason to anticipate that its connection with South Kensington will cease after 1883.

EXHIBITING HARDY FLOWERS.—It is satisfactory to see that at last hardy plants are beginning to be shown in public in a creditable manner. The extensive display that Mr. Ware made last Tuesday at South Kensington was admitted by everyone to be an extremely attractive and interesting one. His exhibition certainly was a very fine one, and contained but few if any weedy plants, which, as a rule, detract so much from the appearance of hardy flowers. Another noteworthy point was the admirable way in which all the exhibits were arranged by Mr. Perry; they were not formal and dressy, but each subject, as it were, told its own tale, and possessed a certain amount of individuality. The colours, too, were harmoniously blended, a point often overlooked in arranging plants at exhibitions.

THE LONDON PARKS are now beginning to put on a presentable appearance; the work of bedding out is really finished at last. It was somewhat amusing to see men busily engaged at work in the first week in July planting out tender plants which cannot possibly attain full growth until the autumn, when the labour of storing for the winter will have to be gone through. When will those in charge of our great public parks become fully alive to the wealth of gay flowers that exist among hardy plants, which render many gardens bright, attractive, and enjoyable from the early days in winter until the dull days of November? That a favourable comparison may be drawn between tender and hardy plants as regards showiness may be proved by all who care to visit the great hardy flower nurseries about London.

STRAWBERRIES AND THEIR FLAVOUR.—Mr. Gilbert, of Burghley, has been endeavouring to prove to us that other Strawberries besides the British Queen are worth eating. He has not quite succeeded, though his President is very good and his Frogmore Late Pine makes one difficult to please afterwards with the flavour of a Strawberry. When the passion for bigness and redness is fully satisfied we shall doubtless have a healthy revolution in favour of what is the only really important thing in either a Strawberry or in anything else we eat, and that is its flavour. Not only is the flavour of many Strawberries bad, but they are positively the most unwholesome things that one can eat; they are so full of an acid of the wrong kind. Whether we can ever modify this by raising seedlings is not so clear, but it is worth trying for, and we believe it may be done. The perfect British Queen has certainly effects different from some very popular, but very sour Strawberries, and the sooner they disappear from cultivation the better. Still, we shall, we fear, be a long time under the reign of those who grow fruit and vegetables for other reasons than their quality. Mr. Gilbert's favourite Strawberries, which are admirably grown, are Sir C. Napier, Frogmore Late Pine, President, and Foreman's Excelsior.

We hear that Mr. John Woodbridge has been appointed steward to the Duke of Northumberland, at Syon House.

VEITCH V. THE GRAND JUNCTION CANAL.—This was a motion to restrain the canal company from allowing water to percolate through the bed of a new branch canal so as to injure the seed beds at Messrs. Veitch's seed grounds at Langley. The Canal Company gave an undertaking not to

put any water into the section of the canal which passes through Messrs. Veitch's grounds, except for experimental purpose, until the canal is properly puddled.

SOCIETIES.

ALEXANDRA PALACE ROSE SHOW.

JULY 8.

THE unpropitious state of the weather of last week no doubt militated in a great degree against the success of the Alexandra Palace Rose show, usually one of the best about London. On this occasion the competitive classes were scantily represented, though this falling off was amply compensated for by the fine collections of blooms from the Waltham Cross and Cheshunt Nurseries, from both of which came thousands of Roses, arranged by Mr. Johnson, not in straight lines, but in bold masses on sloping platforms; some of the blooms were in round baskets, but the greater number were in small jars. The general appearance of the show so arranged in one of the large halls was pretty and different from the majority of Rose shows, there being noble Tree Ferns, Palms, and other fine-leaved plants so interspersed throughout the hall as to take off the monotonous flat aspect which Rose shows generally possess. As to the blooms, some were remarkably fine, and some wretchedly bad, the latter being shown by amateurs, who in many cases appeared to have had a great deal of difficulty in scraping together what few they showed.

Nurserymen's classes.—The finest blooms exhibited in the show were those from Mr. B. R. Cant, of Colchester, whose collection of six dozen single trusses was superb in every respect. Amongst them was a grand bloom of *Souvenir d'Elise*, which, though not so fine as that which took the silver medal at the National Society's show, was a splendid flower, large and exquisite in form. Other excellent blooms were Mrs. Baker, Caroline Kuster, J. S. Mill, the old General Jacqueminot, Madame Gabriel Luizet, and Duke of Connaught, which latter was shown as fine as we have seen it this season. Of varieties not often met with, Mr. Cant had Madame Crapelet, Ford Herbert, Madame Alphonse Lavallée, Nardy Frères, *Souvenir de Mons. Boll*, Emilie Hausberg, Comte de Paris, Madame Marie Cointet, and Ville de Lyon, all of which struck us as being uncommonly fine sorts, which ought to be seen more of. As a representative collection this was a very fine one, containing as it did but a small proportion of flowers below average quality. The other two collections were from the Hereford and Cheshunt Nurseries, both of which contained superb blooms. From these two nurseries came the only two collections of four dozen treble trusses. The best, from Messrs. Cranston, was a good one, containing very fine blooms of their new variety Mrs. Jowitt, which has, no doubt, a bright future before it, as an exhibition Rose, being good in colour (a bright, glowing crimson) and fine in form. In this collection Reynolds Hole was in perfection, and showed what a splendid dark Rose it was. Other noteworthy blooms were those of Abel Carrière, Marie Van Houtte, A. K. Williams, Mad. Charles Wood, Constantin Fretiakoff, Horace Vernet, all of which were shown in their finest character. In Messrs. Paul's collection was a grand truss of Duchesse de Morny, one of the most beautiful of all the light Roses, and very distinct in colour. Comte Raimbaud, Niphetos, Henri Ledechaux (a good Rose), Countess of Rosebery, Duke of Teck, E. Y. Teas, and Marie Baumann were also among the finest varieties represented in the collection. Of two dozen treble trusses of Hybrid Perpetuals, Mr. B. Cant again took the lead of the three lots shown; in his collection we noted Mad. George Paul (a beautiful variety), Pitord, Ville de Lyon, Roses not often shown, as well as splendid examples of the well-known kinds. Excellent collections came from Messrs. Cranston and Mr. Turner, and among the flowers from the latter we saw the new Mrs. Harry Turner in perfection. Twenty-four single

trusses were shown by seven exhibitors, Mr. F. Cant being the first with a fine display, and we never remember seeing a better flower of the dark maroon-crimson Xavier Olibo. When shown so finely it is a very telling Rose. Other good blooms were Avocat Duvivier, the Dukes of Teck and Wellington, Mad. J. Schwartz (a good variety), Sir G. Wolseley, and Captain Christy. Good collections were shown for the next two prizes; indeed, the class throughout was well represented. Tea and Noisette varieties were shown well by three exhibitors. The best dozen from Mr. Cant included fine blooms of Mad. Bravy, Innocente Pirola, Mad. Lambard, Rubens, Marie Van Houtte, Catherine Mermet, Niphotos, and Caroline Kuster, all among the cream of the varieties. In the other collections were excellent examples of Perle de Lyon, Mad. Willermoz, Jean Pernet, Souvenir de Paul Neyron, Maréchal Niel, and Homer.

Amateurs' classes.—The finest Roses shown in the larger classes were those from Mr. E. R. Whitwell, of Barton Hall, Darlington, the exhibitor who so well won the National Rose Society's challenge trophy last week. This northern exhibitor showed the best three dozen single trusses and the finest two dozen treble trusses, and both collections were highly creditable, and exemplified skilful culture and an excellent selection of varieties. The three dozen included fine trusses of J. S. Mill, Louis Van Houtte, Etienne Levet, Sénateur Vaisse, Gloire de Dijon, Reynolds Hole, Mad. Lacharme, Xavier Olibo, Fisher Holmes, Mdlle. Prosper Laugier, and Marie Baumann, all of which seem to thrive excellently at Darlington. The same exhibitor's two dozen treble trusses were similarly fine, and both collections were arranged on black velvet, which showed the flowers and their colours off to advantage. This style was the more noticeable as it was the only one among all the number that departed from the conventional layer of Moss. Another successful exhibitor was Mr. C. Davies, of Banbury, who showed the best four dozen trusses. Among the amateurs' collections we noticed some excellent flowers of such old established favourites as Lord Macaulay, Alfred Colomb, General Jacqueminot, Sénateur Vaisse, John Hopper, Dr. Andry, thus showing that the newer varieties do not readily supplant the older ones.

Open classes.—There were fifteen classes open to all comers, and included classes for light, dark, pink, and yellow varieties. The finest thirty trusses consisted of Mad. Margottin, Maréchal Niel, Caroline Kuster, Marie Van Houtte. The best collection of pink coloured sorts contained La France, Elie Morel, Captain Christy, Mad. Gabriel Luizet, Catherine Soupert, Duchesse de Vallombrosa, Souvenir d'un Ami, and Marie Finger. The best whites were Mad. Lacharme, Innocente Pirola, Rubens, Mad. Willermoz, Mad. Bravy, Comtesse de Serenye, Souvenir d'Elise, and Devoniensis. The best dark varieties were Abel Carrière, Prince Camille de Rohan, Prince Arthur, Sultan of Zanzibar, Reynolds Hole, and Xavier Olibo. All the first prizes in the preceding classes were taken by Mr. B. R. Cant, Colchester. There was a class for thirty trusses of buds not more than three parts open. There was only one exhibitor, and, judging by the collection shown, the class is not a very commendable one. The bouquets were good throughout, particularly those shown by Messrs. Paul & Son, Cheshunt, who took all the first prizes, except in one class. The best bouquet of mixed Roses was a charming arrangement of dark crimson, yellow, and white partially expanded blooms, as were also the yellow, white, and pink bouquets from Cheshunt. A noteworthy point in all these bouquets was the judicious intermixture of the foliage and buds of Roses, which gave an elegant grace not attainable by those who made their bouquets of open flowers alone and Fern fronds. The first prize for a dark coloured bouquet was given to a large one that was intermixed with fronds of Maiden-hair Fern, which, however, was contrary to the schedule which distinctly stated a

bouquet of Roses, not Roses and Ferns. However, this first prize bouquet was no doubt the best in other respects. Nothing associates so beautiful with Rose blooms as Rose buds and Rose foliage, and no Fern fronds need be used to make a charming bouquet. Messrs. Paul's bouquets well exemplified what we mean. The class for a thousand trusses of Roses for which a first prize of £20 was offered only brought out one exhibitor, Messrs. Paul & Son, Cheshunt, who, of course, made a large array of colour with their one collection.

New Roses.—The only collection of new Roses sent out since 1880 was from the Cheshunt Nursery. It included Jules Finger, Mrs. Harry Turner, Mdme. Isaac Perrière, Mrs. Jowitt, Catherine Soupert, Ferdinand Chaffolte, Countess of Rosebery, Edouard André, George Moreau, Duke of Teck, White Baroness, Masterpiece, George Baker, Rosieriste Jacobs, William Warden, Duchess of Bedford, Comtesse de Camando, Lady Sheffield, and Comtesse de Ludrée. Messrs. Paul also showed a dozen blooms of R. N. G. Baker, a fine new variety. Mr. Turner, Slough, showed The Colonel, a beautiful crimson-maroon variety; and Messrs. W. Paul & Son, Cheshunt, Queen of Queens, a light rose-coloured flower.

ROYAL HORTICULTURAL SOCIETY.

JULY 11.

The council room on this occasion was rendered bright and attractive by several large groups of plants and cut flowers tastefully arranged around it. There were numerous new plants submitted to the floral committee, of which the following received first-class certificates:—

DAVALLIA TENUIFOLIA VEITCHIANA.—An elegant Hare's-foot Fern with fronds from 1½ ft. to 2 ft. in length, finely divided, and of a pale green tint. It is one of the most valuable additions to Ferns that has been made for a long time. Messrs. Veitch.

TYDEA ROBERT LE DIABLE.—A fine variety, having flowers 1½ in. across of a rich, bright crimson, spotted and freckled copiously with an intensely deep maroon. The habit of growth is dwarf and vigorous, and the plant appears to be very free flowering. Messrs. Veitch.

LILIU THUNBERGIANUM CRUENTUM.—A new variety of this variable Lily, remarkable for the very deep sanguineous crimson colour of its large open blossoms, which are handsomely mottled and streaked with even a deeper shade. It grows about 18 in. high and is very floriferous. It is one of the finest of the whole group. Mr. T. S. Ware, Hale Farm Nursery, Tottenham.

PLEOPELTIS FOSSA.—A dwarf growing Fern having thick, leathery fronds, deeply pinnatifid and arranged in a low spreading tuft. Messrs. Veitch.

PANSY LORD WAVERLEY.—A double flowered variety, the finest yet seen. The flowers, some 3 in. across, form a perfectly circular dense rosette of the deepest velvety purple imaginable. It will be valuable both as a border flower and for cutting from, the singular compactness of the bloom rendering it especially desirable as a button-hole flower. Messrs. Cannell & Sons, Swanley.

RHODODENDRON BALSAMIFLORUM ALBUM AND AUREUM.—Two very handsome varieties of Japanese Rhododendrons, having perfectly double flowers, the first with pure white, the other with clear yellow blossoms. These are borne in large terminal heads, and are highly attractive. These two varieties and the rose-flowered one shown previously are a trio of seedlings from one cross, a fact to which a deal of interest attaches, seeing that each variety is of a totally distinct colour. Messrs. Veitch.

GODETIA DUCHESS OF ALBANY.—A charming variety, having large, pure white blossoms borne numerously in dense clusters. The plants shown were dwarf, sturdy in growth, and very floriferous. It is one of the finest of all the Godetias, and one that will inevitably take high rank among annuals. Messrs. Daniels, Norwich.

CROTON DAYSRING.—A handsome and distinct variety, having long, lance-shaped foliage, that on the upper part of the stem being of a bright creamy yellow, edged with green; that on the lower suffused largely with a crimson tinge, colours which, contrasted with the other tints, are very striking. The habit of growth is bushy and vigorous. Messrs. Veitch.

OSMUNDA JAPONICA CORYMBIFERA.—A handsome variety of the Japanese Royal Fern, having every frond terminated by a broad crest, which renders the plant very elegant in appearance. Its growth is dwarf and dense, and it will doubtless flourish well in a cool greenhouse. Messrs. Veitch.

ROSE DUCHESS OF CONNAUGHT.—One of the most beautiful and distinct of new Roses that we have seen. The colour, a deep crimson, is very fine, and the flower, being large and of good form, adds much to its value. It is said to be a remarkably free flowerer, and one of the best of bedding varieties. Mr. Noble, Bagshot.

CROTON MARMORATUS.—An extremely handsome variety, the leaves of which are upwards of 1 ft. in length, rather broader than usual, and of a bright yellow colour, beautifully mottled with various shades of green. Like the other variety shown, it is of vigorous and compact growth. Messrs. Veitch.

BEGONIA A. F. BARRON, MRS. STEVENS, AND THOMAS MOORE.—all of the tuberous rooted group. The first is particularly fine, having a vigorous habit, very large, and well formed flowers of a brilliant vermilion-crimson. All raised and shown from the society's garden at Chiswick.

CHRYSANTHEMUM LA PETITE MARIE.—A second-class certificate was awarded to this variety, which is one of the early or summer-flowering race. It is remarkable for its extremely dwarf growth and free-flowering habit. The flowers, which are about 1½ in. across, are white and plentifully produced, even on tiny plants. Mr. T. S. Ware.

One of the finest displays in the room was an extensive collection of cut blooms of hardy plants, chiefly Lilies, from Mr. T. S. Ware. The Lilies, which were exceptionally fine, included splendid examples of *L. giganteum*, a huge spike, *L. Humboldtii* and its variety *Bloomerianum*, *L. Martagon*, with the white (*album*) and black (*dalmaticum*) varieties, the latter being particularly fine, some spikes bearing as many as thirty blooms. Other Lilies were *L. speciosum*, very good for early blooms; *L. pardalinum*, *L. monodelphum*, the buff-coloured *L. testaceum*, or *excelsum*, as it is also called, *L. Browni*, very fine, and numerous varieties of *L. dahuricum*. These, combined with a great variety of other things, made a charming group. Among other flowers shown were single Dahlias, Carnations, Pinks, Gladioli, *Ixias*, *Campanula alpina*, *Hosti*, and the white variety, *Alstroemeria aurantiaca*, *Papaver nudicaule* in variety, *Catananche cœrulea* and *C. bicolor*, *Geum coccineum plenum*, *Coreopsis coronata*, very fine, *Armeria cephalotes*, various *Adenophoras*, and a few of the earliest varieties of summer-flowering Chrysanthemums, which seem to be becoming popular border flowers, *Précocité*, a fine, bright golden yellow variety, being one of the best of all. A medal was awarded.

An extensive and attractive group was also exhibited by Mr. Howard, florist, Southgate; it consisted chiefly of Carnations, which the exhibitor makes a speciality of growing to perfection. These Carnations represented a large number of varieties, varying in colour from a rich deep crimson through pink to pure white, and one, a beautiful salmon-pink colour, was admired by everyone. The Carnations were associated with Maiden-hair Ferns, Balsams, Rhodanthes, and Chrysanthemum *Etoile d'Or*, the largest of the golden flowered Marguerites and one of the finest. This fine group well merited the medal awarded to it.

A charming display of cut flowers came from Messrs. Cannell's Home for Flowers, Swanley, consisting chiefly of Verbenas, which are so admirably and largely grown by the exhibitors. These represented thirty-two varieties and half-a-dozen

trusses of each arranged very effectively. A selection from this collection included among dark red kinds Shakespeare, Fireball, Queen of Verbenas, Regalia, and Flower of Dorset. Of dark blues and purples, Boy in Blue, Blue Superb, Lady Leigh, Blue Boy. Of light coloured or white were Boule de Neige, Swanley Gem (very fine), Nero, Baron Von Bircham, Annie Ford, Swanley Stripe, Lady Lorne. Messrs. Cannell also showed a fine series of single Dahlias, a large bouquet of *Enothera speciosa*, *Campanula persicifolia alba*, *Malva moschata alba*, and *Nicotiana affinis*, all beautiful white flowers.

Besides the plants certificated, Messrs. Veitch showed *Dracæna Thompsoniana*, a handsome leaved species from West Africa; *Polypodium ornatum*, a very elegant Fern with long, finely-divided arching fronds; *Cypripedium grande*, a handsome hybrid between *C. Roezli* and *caudatum*; *Osmunda javanica*, a graceful Fern from Java; *Begonia lineata*, a handsome leaved variety of the B. Rex type; *Impatiens Sultani*, *Thalictrum glaucum*, *Lasia stipitata*, and *Lobelia Finsbury Park Blue*, one of the finest of all the dark blue bedding varieties of *Lobelia Erinus*, being dwarf and compact in growth, extremely floriferous, and of a bright deep blue.

A group of about two dozen tuberous Begonias, cultivated to perfection, was shown by Mr. Barron from the society's garden at Chiswick. Besides the three varieties certificated there were about a dozen unnamed seedlings, all possessing merit, some of which were plants nearly a yard through. Among the named varieties were *Souvenir de Chiswick*, deep vermilion; *James McIntosh*, deep crimson; *Gippie*, rose-crimson, very profuse in flower; *Henry Webb*, large and very fine. The great feature in the plants in this group was the robust growth and fine habit every plant possessed. Besides the Begonias, a fine group of about three dozen named varieties of *Achimenes* were shown from Chiswick. A fine group of *Neriums* also came from the society's garden. The plants were all single-flowered varieties, the finest of which are Professor Duchartre, crimson; *Doc-teur Goffin*, deep rose; *Blanc Simple*, pure white; *Cupreatum*, coppery red; *Frederick Guibert*, *Henri Mares*, *Delphine*, *Rubrum*, *Duplex*, all of which were raised by Huber & Co. Two handsome Lilies, *Lilium longiflorum Wilsoni* and *L. Thunbergianum atro-sanguineum*, were exhibited by Messrs. James Carter & Co., High Holborn. Both are very dwarf, the first about 9 in. high, the other about 6 in., and both shown in very fine condition. Some excellent cut blooms of Sweet Williams came from Messrs. Hooper, Covent Garden, representing an excellent strain.

Fruits and vegetables.—The display of these was small. About half-a-dozen Melons were shown. Mr. Bonsall, Camp's Mount, Doncaster, sent a good fruit of Hero of Lockinge, which well bore out the high character of this variety. Mr. C. A. Pease, Grey's Court, Henley-on-Thames, sent a variety called Grey's Court, a cross between Earl of Beaconsfield and Hero of Lockinge; it is a large, round, netted, green-fleshed variety, of good flavour, but was passed by. Mr. Read, Moat Mount, Mill Hill, sent two new Melons called New Life and Hybrid Green-fleshed; both are green-fleshed, netted fruits. The committee passed over both sorts. A seedling Melon sent by Mr. Allen, Ramsbury Manor, was also passed. Mr. C. Osman, Sutton, sent samples of Leviathan and Seville Long-pod Beans, both fine varieties, for which he received a vote of thanks. A Cauliflower, a cross between Snowball and Eclipse, was sent by Bonsall, but was considered to be like the Erfurt. The same exhibitor also showed a new Pea called Curvilinear, a large-podded sort, which was recommended to be tried at Chiswick. Messrs. Veitch were accorded a cultural commendation and letter of thanks for fine collections of Peas and Shallots. The former were exceptionally fine, consisting of forty of the finest varieties. In such a display as this it was interesting to observe the striking similarity between several of the sorts, even those that were of the same height. The sorts were arranged in rows according to their heights, from 2 ft. upwards.

Trials at Chiswick.

At a meeting of the Fruit and Floral Committees, held at Chiswick on July the 7th, certificates were awarded for the following plants and vegetables:—

Single Zonal Pelargoniums.

LUMEN (Pearson).—Dwarf in habit, trusses very large; individual flowers large, of fine rounded form, bright scarlet, with distinct white eye.

EVA (Pearson).—Free in growth; trusses large, borne well above the foliage; flowers of fine form, beautiful magenta-scarlet.

MISS HAMILTON (Pearson).—Remarkably dwarf in habit, trusses large; individual flowers large, of very fine form, beautiful bluish-white. Distinct and pretty.

KLEBER (Lemoine).—Very free in habit; trusses of medium size, somewhat loose; flowers of a beautiful magenta-shaded scarlet, with bright scarlet blotch on lower petals. Very pretty in colour.

ATALA (Pearson).—Dwarf in habit, very free flowering; trusses large; individual pips large, of a fine rounded form, and bright orange-scarlet.

OLIVE CARRE (Pearson).—Vigorous in habit, free flowering; trusses very large; individual pips large, of very fine form, clear rosy pink with blotch of white on the under petals. Very fine variety for culture in pots.

Double Zonal Pelargoniums.

M. HARDY (Lemoine).—Dwarf in habit; trusses of medium size; flowers large, semi-double, delicate rose-lilac.

GOT (Lemoine).—Very vigorous trusses, large and full; individual flowers of medium size, semi-double, bright scarlet; very showy.

AGLAI A (Pearson).—Very dwarf, free flowering; trusses large, well displayed; individual pips large and double, purplish scarlet.

CANDIDISSIMUM PLENUM (Pearson).—Dwarf, very free flowering; trusses of medium size; individual pips of large size, very double, of a pure white colour; the best white variety.

Tray-leaved Pelargoniums.

COMTE HORACE DE CHOISEUL.—Plant of free trailing growth, very free flowering; trusses of medium size; individual flowers large and double, beautiful rosy pink with streaks of white along the petals; a very pretty variety.

COMTESSE HORACE DE CHOISEUL (Lemoine).—Trailing in habit, free flowering; flowers very large, semi-double, beautiful rose centre shading to magenta towards the edge; very distinct and showy.

Decorative Pelargoniums.

BELLE DE JOUR (Lemoine).—Compact in habit, very free flowering; flowers semi-double, pure white; will be a good variety for market purposes.

MADAME HARMANT (Lemoine).—Of fine sturdy growth, very free flowering; trusses large; individual flowers large, of fine form, pure white slightly streaked with purple towards the eye.

Tuberous Begonias and other plants.

BEGONIA MRS. STEVENS (R. H. S.).—A free-flowering variety; flowers of fine substance and form, well displayed, beautiful flesh colour, suffused with pink.

BEGONIA THOMAS MOORE (R. H. S.).—Free in growth and flowering; flowers of medium size, of very fine rounded form, and pale rosy scarlet; a very distinct and showy variety.

GLOXINIA MAJOR MASON (R. H. S.).—A very fine erect-flowering variety; flowers very large, with pure white throat, and clear purple margin shading to paler purple towards the edge.

LANTANA PHOSPHORE (Lemoine).—Very dwarf in habit, remarkably free flowering; flowers clear golden yellow.

RESEDA ODORATA PYRAMIDALIS GRANDIFLORA (Vilmorin).—Plant of fine dwarf stubby growth, very branching; heads of flowers very large, the flowers red. A fine variety for pot culture.

RESEDA GOLDEN QUEEN.—Dwarf in habit; flower-spikes large, of a fine golden yellow colour. This also is a fine variety for cultivation in pots.

Neriums.

SEUR AGNES (Huber et Cie.).—Flowers single, large, pure white, free flowering and pretty.

MONS. BALAGUIER (Huber et Cie.).—Flowers single, well expanded, beautiful delicate pink, shaded towards the edge with rose. A very fine variety.

MADONNI GRANDIFLORUM (Huber et Cie.).—A very free flowering variety; flowers with double corolla, creamy white; very distinct.

Collection of Peas.

LYE'S FAVOURITE (Lye).—A tall round white Marrow.

GLADIATOR (Veitch).—A dwarf round blue Marrow.

TURNER'S EMERALD (Carter).—A dwarf white wrinkled Marrow.

STRATAGEM (Carter).—A dwarf green wrinkled Marrow.

ALFRED THE GREAT (Laxton).—A tall blue wrinkled Marrow.

Culverwell's Telegraph, Carter's Telephone, Culverwell's Giant Marrow, and Four-hundred-fold (Bunyard) were highly recommended, the two former having been previously certificated.

Lettuces were next inspected, *Green Uctuous* (Benary) and *Paris Sugar* (Benary) being commended.

Shallots were next examined, when it was found that only two truly distinct varieties existed under the names of No. 1, Small White, Silver Grey, Large Brown, Russian; No. 2, Large Red, Small Red, Large Russian, New Russian, Mammoth, the exhibition Shallots of Stuart & Mein being a somewhat larger selection of No. 2; the Jersey Giant Red Shallots and the Jersey Silver-skin Shallots of Pond proved to be some species of Onion to be subsequently determined.

OBITUARY.

DR. NEWINGTON, OF TICEHURST.—We have to record the death of Dr. Newington, which occurred at his residence at Ridgeway, Ticehurst, on the 3rd inst. Well known in connection with the establishment which he has so long and so well directed, he was an able gardener, very clever in erecting economical structures for fruit growing, and also at inventing implements, such as his tree lifter. He made on his grounds a very bold rock garden, excavated from the natural rock, and his experiments and devices for garden improvements were very numerous. He was a correspondent of our own and other horticultural and agricultural papers, though not usually writing in his own name.

"The Garden" general index to the first twenty volumes.—Those having sets of THE GARDEN would perhaps do well now to look them up and complete them, because the general index is being printed, and will, we hope, soon be ready. It need scarcely be said that it will make the whole series more useful to the possessor.

Names of plants. *W. Brown*. *Phyllocactus crenatus*.—*Mac*.—1, *Nepeta Mussini*; 2, apparently a species of *Echium*.—*R. (Cape Town)*. 1, *Eragrostis curvula*; 2, *E. brizoides*; 3, *Sporobolus elongatus*; 4, *Andropogon hirtus*; 5, *Cynodon Dactylon*. *T. E.*—1, *Veratrum album*; 2, *Centaurea nigra*; 3, *Alchemilla alpina*; 4, species of *Silene*.—*J. D. N.*—It is impossible to name the seedlings from Norfolk Island without fuller material. The Ferns should have spores on the fronds, and the other plants should be in flower.—*R. F. P.*—1, *Echium vulgare*; 2, *Listera ovata*; 3, *Spirea hypericifolia*.—*G. S. A.*—1, *Artemisia Abrotanum*; 2, *Muscari comosum*; 3, *Nepeta Mussini*; 4, apparently *Geum rivale*.—*J. Pratt*.—Probably *Epidendrum fragrans*, but cannot be certain without fuller material.—*A. B. (Hendon)*.—*Phyllocactus crenatus*, a good plant.—*F. R. S.*—Apparently *Oncidium tectum*.—*J. Whittaker*.—*Thalictrum angustifolium*.—*F. R. M.*—1, *Campanula Medium calycanthema*; 2, *Deutzia scabra fl. pl.*; 3, *Polygonum Fagopyrum*; 4, *Fuchsia glabra*.—*R. D.*—*Sisyrinchium striatum*.—*D. D.*—The Strawberry resembles the Sir Joseph Paxton variety.

COMMUNICATIONS RECEIVED.

R. H. S.—*T. K. H.*—*W. R.*—*E. C. W.*—*W. G.*—*J. C.*—*D. D.*—*J. C. C.*—*W. J. M.*—*J. G.*—*J. S. W.*—*S. D.*—*W. W.*—*D. T. F.*—*R. G.*—*J. F. E.*—*C. M. H.*—*A. W.*—*W. G.*—*J. A.*—*A. M.*—*E. W.* & Sons.—*W. H. M.*—*J. J.*—*K. & Co.*—*W. T.*—*J. R.*—*Mac*.—*N. E.*—*C. A. G.*—*S. M.*—*S. E. J.*—*W. J. M.*—*J. L.*—*M. G. C.*—*J. C. S.*—*R. D.*—*J. C. C.*—*J. G.*—*W. G. S.*—*J. W.*—*Alphon*.—*F. R. M.*

"This is an Art

Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

FLORAL DECORATIONS IN LONDON.

WE had the pleasure of seeing the other evening some interesting floral decorations at Sir Samuel Wilson's house, of which we may, perhaps, speak with advantage to those interested in similar work. What struck us first as most interesting was the graceful use made of the common hardy Bamboo (*B. falcata*), which grows so well in the south of England and Ireland, and also in many seacoast districts. This is the perfectly hardy *Bambusa falcata* which Mr. Wills brings from the south to aid him in getting the most perfect and airy foliage for the sides of doorways, arches, and other surfaces. The hint may be useful to those who grow these and similar plants, and many of our readers have the opportunity. Gardeners who are called upon from time to time to decorate the house with plants might with advantage remember the good qualities of this Bamboo, and grow a few good plants of it for this purpose if not for any other. The plant grows so freely, that a few of its wands can be spared at any time of the year.

Another point that struck us was the noble use made of Palms in all this kind of work. It is well worth while to grow a few Palms of the best kinds, and grow them well for this purpose alone. The finest thing in the house in question was a very large plant of *Stevensonia*, which seemed to embody in itself all the dignity and grace of the Palm tribe—at least as much of it as can be shown in a London drawing room. It stood alone.

A particularly charming feature was that given by the tropical Water Lilies in flower, floating in little picturesque pools, fringed by Ferns and graceful leaves. Over them hung tropical Pitcher plants, and around them all kinds of bewitching grace that our gardens can yield—prominent again being the Bamboo, before alluded to, bordering so gracefully the sides of the alcoves arranged for the Water Lilies. The most curious feature, however, of the decorations was the ingenious use made of mirrors in a small apartment embellished with Ferns, and many Orchids in flower, and other plants all plunged in Moss on benches. By the use of mirrors in this small apartment a scene of apparent interminable floral beauty was visible. By leaving the mirror somewhat oblique as regards its base and somewhat leant inwards at the top, a welcome irregularity was given to the reflections. This little apartment was made over the doorway on the balcony, and was very cleverly and ingeniously done. When the whole was lighted up the effect was excellent. Prominent here were the most graceful Orchids (*Odontoglossums*), the value of which in decoration no one can over-estimate—some like clouds of butterflies (*O. cirrhosum*); some fit for a regal crown of flowers. These are the plants to which gardeners should look forward, not merely for their rarity or their cost, but for their extreme value in all floral decoration. A noticeable feature in the way in which the Orchids were arranged was the leaving of little lawns of *Selaginella apoda* to show between the flowers, so as not to interrupt the view. This little plant is excellent for this and similar purposes. We should like to see more breadth in all such decorations, but many tastes have to be gratified, and ever fresh variety has to be obtained.

Mr. Wills, who carried out this so well, has not only himself to satisfy, but, rightly, his employer, and anything which would make such arrangements stereotyped would be a mistake. We are glad to see him continuing the excellent work he does in this way, and believe it will have a generally good effect on horticultural taste. We are still too much accustomed to overgrown masses of mixed common flowers, jammed together in wall-like solidity.

VICTORY OF THE LEAST BAD.

I THINK most persons will quite concur with your article and the remarks of "N." and Mr. D. T. Fish in *THE GARDEN* under this heading. The way in which flowers are often arranged is truly lamentable, considering the material which those who arranged them had at their disposal and the time they must have spent over their effort. There can be no doubt that the best effects are often obtained by the simplest means and the commonest flowers. I saw a beautiful centre-piece for the dinner-table the other day formed by a large china bowl filled with the common Corn Marigold (*Chrysanthemum segetum*), common field Poppies, and a few spikes of Grass. This was very much admired by all who saw it; it filled up the centre of the table, and in no way prevented persons seeing one another. The flowers were picked in a neighbouring field, which was supposed to bear a crop of Peas, but the Peas were hardly visible, and the entire field was a perfect "blaze of colour," being covered with Corn Marigolds and Poppies. None of the most ardent "bedders out" ever devised anything half so brilliant as this field was when the sun shone on it. Some of the Corn Marigolds measured 3 in. in diameter. I wonder this plant is not oftener cultivated than it is, as its bright yellow flowers and glaucous green foliage are most charming; it grows very freely, and in old times was such a weed in cornfields, that landlords fined their tenants for allowing it to grow on their land. The flowers, like those of most plants of this Order, will last several days, sometimes even a fortnight, in water without withering, a great advantage in hot weather and in houses where cut flowers are much used in decoration.

G. S. S.

HARDY HERBACEOUS RUBBISH.

It must be generally admitted even by our enemies, if we have any, that we gardeners are an amiable race. If we are given to twaddle (as I understand some people say we are), we are at least amiable twaddlers, and our garrulity almost always takes the form of unstinted eulogy. This is as it should be among the devotees of the "purest of human pleasures;" nevertheless, I propose on the present occasion, if the editor of *THE GARDEN* permits, to indulge in a little mild general abuse. The above heading was suggested to me partly by a long potter among my own plants, but, before saying more, let me hasten to put myself in order by admitting unreservedly that I found little in my own garden (which, although not large, contains a fair selection, if not collection, of herbaceous and alpine flowers) to condemn. There were, indeed, among the many plants in or out of bloom only two that I looked beyond hope of respite for the autumnal holocaust; one of these was a straggling yellow or orange-coloured Geum, the name of which, if it has one, I am ignorant; the other is a member of a respectable family—is, indeed, highly connected—and rejoices in the name *Chrysanthemum indicum panum*. His colour, if colour it can be called, is neither white nor pink, but a sort of toss-up between the two, and his claim to consideration is supposed to con-

sist in his flowering three months before the rest of his race, at a time when nobody wants him. If I recollect right, he came to me as an added plant to reduce the cost of carriage of a more valuable importation, but wherever he came from he shall go to the rubbish heap on an early day. *Scabiosa caucasica connata*, as at present flowering in my garden, is beneath contempt; a good specimen, however, of this plant is a good thing, and if it does not improve in appearance next year, I must try change of air and scene. Clothing a bit of the shrubby border where nothing much better would grow as well is a large patch of *Lamium maculatum*; it is rubbish of the worst sort, like most of its order; but if dirt be defined as "matter in the wrong place," matter in the right place is not, I suppose, dirt. *Erodium Manescavi* is a poor plant; the best thing about it is the foliage; but as this, too, was a gift horse, I will not look him further in the mouth.

But now for a word or two upon rubbish in general. Classification is a delusion, and definition, as all the world knows, is a snare; to attempt a rough generalisation, however, let me divide the genus under two heads, rubbish positive and rubbish comparative. Rubbish positive is, of course, rubbish *per se*—*semper ubique et ab omnibus*; rubbish comparative is the rubbish of circumstance—plants, that is to say, that have become so by the existence side by side with them in a limited space of almost similar or superior varieties of the same thing. Inasmuch as the number of people who can at will add half an acre or so to the area of their gardens is probably less than the number of those who cannot, the question of the extinction of the unfittest is likely frequently to present itself. As a sub-section under this head I may perhaps range, too, our old friend "the interesting plant" whose status, it must be confessed, often depends a good deal on the way you look at him. When a man once takes to gardening he progresses involuntarily, like the human intellect, according to Cocker (or was it Comte who pointed this out?) from the metaphysical to the scientific, and, from beginning with a general desire for showy flowers, goes on to feel the absolute necessity of having all the botanical orders at least represented. A little knowledge of the natural orders is perhaps as good a guide as one can have in selecting plants one has not seen. For instance, I should say that, with the exception of one or two foliage plants, *e.g.*, the giant *Ferula* and *Heracleums* and the *Eryngium*, whose botanical affinity with the Cow Parsnip is not quite evident to the naked eye, all umbelliferæ are rubbish. Next to these I should look with the utmost suspicion on the *Lamiaceæ*. *Salvia patens* and the scarlet *S. splendens*, neither of which are really hardy, are fine colours with poor growth; *Ajuga reptans*, especially the variegated form, is a capital edging plant and useful for certain rockery purposes; but by far the best of the family in my opinion is the Bergamot (*Monarda didyma*). I observe that "Brockhurst," whose communications to *THE GARDEN*, if I may venture to say so, always strike me as exceptionally interesting and valuable, recommends *Horminum pyrenaicum*, so as it is not apparently an expensive amusement, I may perhaps some day indulge myself in the pleasure of witnessing the apotheosis of the Deadnettle in my own rockery. [You will repent.—Ed.] The editor of *THE GARDEN* condemns *Baptisia australis*. I must confess to have entertained a sneaking notion of having sixpennyworth of the rubbish in question in my next cargo from the nursery. However, I must concur in the judgment; but let me tell you, sir, there are indigos of a deeper or rather of a more wishy-washy dye. Witness, for

instance, some of the early flowering Monkshoods; the later Aconitums are redeemed by their fine dark glossy foliage. By the way, can anyone give me the name of the best of the autumn flowers? Is it *A. autumnale*? Talking of Aconitums, is there anything in or out of the Grosvenor Gallery more painfully "greenery-yallery" than *A. Anthora*? This plant is correctly figured in Bennett's "Alpine Plants," vol. i., but is described as bright yellow. [One of the plants we have seen sent out from hardy plant nurseries of repute.—Ed.]

The composites, as so great a class has a right to do, contribute largely to the trash list. Many of the Michaelmas Daisies are rubbish positive, and few of them are worth growing in moderate sized gardens, and these only for the purpose of cutting. The Solidagos are all more or less rubbish. I observe that even the owners of large gardens cry out for "finality" in yellow Daisies. The best of these is, I think, the spring *Doronicum austriacum*, though the plant has with us occasionally a bad habit of forgetting to flower. The best of the autumn flowers, in spite of their rather coarse habit, are the Rudbeckias; *Bupththalmum salicifolium* is neat and floriferous; *Scolymus grandiflorus* is a beautiful Thistle. I wish I knew where to get *Cirsium spinosissimum*.

No Campanulas are bad. I only possess about 20 varieties myself, including that beautiful, quaint, and exceedingly ill-scented plant, *Glossocoma clematidea*, and I want more; but if I had a few more of the taller-growing varieties I should have to "reconsider my position," and I think I should begin by considering the position of *C. grandis*—the old *C. grandis*, as they call it in a sort of "had-the-honour-of-serving-your-great-grandmother-sir" kind of way. *C. Van Houttei* is much belauded in THE GARDEN. It is a fine flower, but it has two faults: it looks down instead of looking up, and withers as fast as does the biennial Canterbury Bell, for which, indeed, some visitors to my garden mistook it the other day, much to my annoyance. Turning to the Scrophulariaceæ, all the Rock Speedwells with which I am acquainted are beautiful and worth growing; the taller herbaceous Veronicas very much *per contra*. The late Mr. Edgar Poë is understood to have thought that after he had written and published "The Raven," any further poetical effort on the part of posterity became simply unnecessary; in the same way it has been said that if you possess *V. longifolia* var. *subsessilis* you are thereby discharged from the necessity of growing any other sort. *V. amethystina*, however, is well worth growing for its colour, which is almost blue. I have myself a morbid craze for Borage-worts. In the spring my fancy lightly turns even to thoughts of Lung-worts; nevertheless, small people should set their face absolutely against *Symphytums*; nor, indeed, can they well afford to know the *Pulmonarias*, unless these latter can prove their right to the more reputable name *Mertensia*. *Lychnis chalcedonica alba* is an example of caryophyllaceous rubbish, a very mean white. There is some more trash in the order, and even the *Dianthus* will bear weeding.

There is no *Gentian* that ever was or ever will be introduced that I would not willingly give a good place to and do my best to coddle into good temper.

Liliacæ are, of course, above criticism. It is a pity that more of them cannot make it convenient to remain above ground during the summer months. Mr. Elwes' note (GARDEN, July 8, p. 18) is very painful; we all know it; it comes home to us. *Expende auratum, quot lilia*? Adding Lily mould to one's soil at 2s. 6d. per oz. becomes expensive, and one has leisure to bemoan in summer the Dutch bulb courage pro-

duced in mid-winter by the exciting atmosphere of King Street, Covent Garden. J. C. L.

Weedwauks, Wormwood Scrubs, W.

* * We should have welcomed our new correspondent had his attack been even more sweeping. We have fought the battle for greater variety in gardens in many ways and now for a good many years—we may perhaps say more effectively than others—but the cause of progress is hampered a good deal by careless selection on the part of growers and the presence of a number of poor plants of the same type, as in the case of the Veronicas alluded to above. The desire for mere glare was bad enough, but the culture of a number of plants because they have different names, but no really distinct effect, is also against us. No doubt in a sense (botanical) all plants have equal claims, but decidedly not in gardens, and that is why the botanical garden system of growing many species together never has and never can help the good cause of the flower garden. Now, when various houses (seeing, we presume, the great importance of the many fine things classed generally under the name of hardy plants) are beginning to form plantations in various soils and positions, it is well the public should make their wants known. Bad, weak plants, and those of little character or beauty from a garden point of view, have done great harm to the cause of progress in gardening. When mixed collections are sent out the quality is often very poor, the series being of course made up in part from kinds whose main virtue is their weedy vigour. For the rest too much may be made of mere show—a plant may be at once showy and poor in colour. Too little is often thought of quiet colours and things good in form of flower, or foliage, or habit. It is a mistake generally to make much of types common in a wild state in many districts. The best remedy is for the grower to see as much as he can of good collections at various seasons of the year, and to pick out for himself the kinds and classes that please him best. All unknown and doubtful plants should be tested in nursery beds. Put in the garden, they, if poor, may disgrace it. To form an idea of the value of hardy plants from seeing the contents of the too common mixed border is to go a step towards any atrocity in the scarlet and yellow line; but the number of really beautiful things is very great—so great indeed, that we have never seen the half of them fairly represented in one garden, however large or rich.—Ed.

WILD GARDENING AT WISLEY.

EVERY time we see Mr. G. F. Wilson's garden, at Oakwood, Wisley, we are the more convinced of the value of the experiments that are being carried out in it with regard to plant culture. We say experiments, for in truth it is an experimental garden, though generally called a wild garden. Every plant, one might say, and they number many thousands, forms the subject of experiment, *i.e.*, duplicates of the same kind are planted under various conditions of soil and aspect, so as to ascertain what is really the requirements of each in order to secure its full development. Probably nowhere in the country could a more favourable spot be found than that at Wisley for establishing a garden of this character, for although it comprises but a few acres, there is a remarkably wide range of soil and aspect contained in it. The principal portion is a wood, consisting chiefly of Oaks; beneath them is a great depth of vegetable soil, the accumulation of ages—a soil in which almost every plant will thrive provided the exposure is suitable. A better place for shade-loving plants could not well be selected, and it is needless to add that its capabilities have been thoroughly put to the test. Outside the wood is a wide stretch of sloping ground fully exposed, consisting of a good workable loam, and between it and the wood is a low-lying portion through which runs a constant stream of water;

in another place is a deep, saturated bog where one might sink knee deep in soft mud, and where Caltbas and such like plants luxuriate. Here, then, is a spot in a small compass where may be successfully grown every plant that is hardy in our climate, from a tree to a humble alpine, and Mr. Wilson has availed himself of these exceptional advantages.

In such a garden as this, abounding, as it does, with plant life in wonderful variety, there are necessarily numerous failures to place against a still longer list of successes, and it is a real pleasure to a plant lover to see how thoroughly a home the majority of the plants are, revelling in freedom with a generous soil beneath them, and not molested or mutilated, as is too often the case in a dressed flower border. The main feature of the place is, of course, the Lilies, which abound everywhere, and may be counted by the thousand under every possible condition of soil and aspect. For some years Mr. Wilson has carried out extensive experiments with regard to *Lilium auratum*, and he thinks now he has quite mastered its peculiar likes and dislikes. He finds that total shade is as bad or worse than full exposure, particularly if the season be a wet one. His healthiest plants, those most free from leaf spot and with a fair promise of good bloom, are those effectually sheltered from cutting winds and where a partial shade is afforded by overhanging trees. To speak, however, definitely on this point we must wait till later in the season. One thing is certain, and that is that Mr. Wilson has thoroughly mastered the culture of the North American Lilies of the superbum and pardalinum type. Here they may be seen probably finer than in their native haunts, particularly *L. superbum*. A more beautiful sight could not well be than the tall stems of this Lily rising up midst brushwood and carrying huge heads of nodding flowers that make the slender stems bow with every breath of wind. From what we see here we should say that the conditions under which *L. superbum* grows best are partial shade effected by deciduous underwood, and a deep and rich vegetable soil, moist, but not saturated or stagnant. When we state that thus circumstanced this Lily develops stems as much as 12 ft. high, it may be inferred that it has found a congenial home. With regard to the behaviour of other kinds in the wood we cannot speak, as they were not sufficiently advanced at the date of our visit, but of the sun-loving class there was a grand array on the hillside. Never till then had we seen a large gathering of Lilies of the dahuricum and elegans type, the effect of which in flower may be better imagined than described. Just at the bottom of the slope, in a deep bed of loamy soil, where they were fully exposed, they were the finest, some of the stems being 4 ft. and 5 ft. high, and loaded with blossoms. Higher up were masses of *Lilium monadelphum* and its varieties, called severally Szovitzianum, Lodigesianum, and colchicum, all uncommonly fine, the stems tall and stout, and carrying huge heads of flowers. In this spot the soil is a deep loam, neither too light nor too heavy, but of such a character as just to suit this Lily as well as all the Martagons, the old white *L. candidum*, testaceum, and, in fact, all the European kinds. One thing we ought to mention, and that is the protection given to the young growths by means of hurdles pitched around the beds, a practice which, no doubt, accounts for the fine growth of the Lilies.

Besides Lilies many other interesting results have been obtained in connection with other plants. We were somewhat surprised to find gigantic tufts of Funkias in the shadiest part of the wood, for, as a rule, they like plenty of exposure. It is evident that they are not in the least fastidious in this respect, for finer tufts we

have seldom seen; those, therefore, who would like to relieve the monotony of woodland walks cannot do better than plant by the margins, in good soil, strong tufts of *F. Sieboldi*, which has leaves 1 ft. square, *F. ovata* and *F. subcordata*, avoiding the small-growing kinds, especially those with variegated foliage, which are only suitable for pots. One of the greatest successes with plants in the wood has been with the charming little *Epigæa repens*, figured in THE GARDEN last week. Here it forms quite a dense carpet, growing in the greatest luxuriance amidst the fallen leaves, and under similar conditions is the pretty *Linnaea borealis*, a plant which some consider difficult to grow successfully. Among other plants in the wood are some bushes of *Camellia*, chiefly the new American kinds raised by Mr. C. M. Hovey, of Boston. These are in the best of health, and give every promise of becoming well established, though at present Mr. Wilson takes the precaution of affording them protection when necessary. In the same spot is a plant of *Lapageria rosea* which has been out for several years, but which does not seem to make a vigorous start, though quite healthy. *Todea superba* is another plant experimented upon, and apparently with success. Indian Azaleas are doing admirably at present, as is also the broad-leaved Holly (*Ilex latifolia*), which, requires the protection of a wall. Primulas abound everywhere, a large space being allotted to them on the outskirts of the wood, where partial shade is afforded by the trees, though quite open in early spring. The soil is good and moist, and already the plants of the denticulata and acaulistipes may be seen by the hundred; also of *P. japonica*, *rosea*, and *sikkimensis*, all of which luxuriate here.

On the hillside is a miscellaneous collection of hardy herbaceous plants disposed in bold groups. Never before had we seen such grand masses of *Agrostemma flos-jovis* as we did here, or of the hardy *Geraniums*, such as *armenum*, *platyptalum*, and *Endressi*. Other noteworthy plants were *Meconopsis Wallichii* and *nepalensis*, both of which seem to enjoy the full exposure of the sunny hillside; *Coronilla iberica*, a perfect mass of yellow, one of the finest of plants for a bold rockery or bank; and *Oenothera riparia*, one of the brightest and best of the perennial Evening Primroses, developing itself fully on the sunny slope. *Iris ochroleuca*, too, with huge yellow and white flowers was finely in flower, its stems being about 50 ft. high. Bulbous plants also thrive remarkably well on this slope, especially *Allium Macnabianum*, and *Murrayanum*, both of which were in bloom and showing their true characters. Some of the heads of these measured fully 6 in. across, the flowers being large and highly coloured. When so well grown, these *Alliums*, which are oftener seen in a starved state than otherwise, make really handsome border plants. Various kinds of early *Gladioli* were beautifully in flower, and, judging by the decayed stems, the place in spring must have been lit up with a profusion of *Narcissi*.

At the foot of the hill is a running stream, the margins of which are clothed with a great variety of moisture-loving plants, and further on is a pool in which it is intended to grow aquatics, such as *Nymphæas*, *Nuphars*, *Aponogetons*, *Sagittarias*, and a host of other handsome plants. Among the bog plants the North American *Sarracenia purpurea* is doing uncommonly well, developing large and highly coloured pitchers in full exposure, and the less hardy *S. flava* is likewise in a flourishing condition, having thrown up several good pitchers. On the sloping margins of the water is a collection of *Iris Kämpferi*, and than this no better place for this moisture-loving plant could be found; it is fully exposed

and the soil is constantly moist. Another plant that does remarkably well near the pond is *Nierembergia rivularis*, now beautifully in bloom. Some find a difficulty in growing this plant well, but if they would place it under similar conditions as those in which it grows here, they would doubtless succeed. It seems to like full exposure and a moist, but not saturated, soil of a loamy character. These are but a few of the crowds of plants that find a congenial home in this place.

One other thing we would like to mention, and that is the way in which Mr. Wilson raises all kinds of hardy plants from seeds. On one part of the hillside he has small beds about a couple of yards square surrounded by hurdles, so as to afford a shelter from winds and shade from the sun. In these beds, which may be counted by the score, the seeds are sown broadcast as soon as gathered, mixed or otherwise; they are then left to take their chance, and in nine instances out of ten they come up thickly, and soon grow large enough to plant out in nursery beds in the adjacent wood. Bulbous plants, including Lilies, are treated in this way; hence plenty of material is always available. Such a garden as this is full of interest, for here may be seen plants growing as in their native habitats, and the value to cultivators of the experiments just recorded is unquestionable. W. G.

FRUIT GARDEN.

LAYERING STRAWBERRIES.

OF the many fruits that are forced, none are more highly prized than Strawberries, and almost any one possessing a greenhouse or other glass structure may have them by layering runners at once, so as to secure good plants, on which success in a great measure depends. The first preliminary is to obtain suitable soil, the best for the purpose being that of a turfy nature with plenty of fibre, and which has been laid up just long enough for the grassy part to perish and decompose a little, as beyond that, the fresher it is the better will the plants do. To get such soil in proper order it is necessary to chop it in pieces and break it up with a spade, so as to reduce it to a moderately fine state, when, with the addition of a little soot sprinkled over, and the whole turned, to mix the two well together, it will be ready for filling the pots. These may either be of the size it is intended for the plants to fruit in, or small ones from which they can be shifted afterwards, but with ordinary care in watering I prefer the former, for this reason that the runners need not be severed from the parent so soon, which I regard as a very important matter, as the longer they remain attached to their parents, and have their help as nurses, the stronger and finer they become. This being so, I advise layering in 6-inch pots, which are quite big enough for any kind to fruit in, as there is nothing gained by giving the plants much root room, which, instead of assisting and enabling them to form good crowns, has a tendency to cause over-luxuriant foliage. In the preparation of the pots one crock placed well over the hole is sufficient, which done, it is advisable to throw in a pinch of soot, as soot is a great help in keeping out worms, which are attracted to the pots by the moisture caused by the draining through of the water. When filling the pots with soil, a handful of the roughest should be placed in the bottom of each; the other portion should be taken as it comes, and made quite firm, as in growing Strawberries the thing to aim at is good sturdy plants, with compact, bold crowns without a superabundant leafage, and compressed soil does much in bringing about such a condition.

In layering the chief object should be to select the best runners, and having done so and trimmed them ready by the removal of any beyond them, the next thing is to set the pots in an upright position, and peg a runner firmly in the centre of each. This may be done by the use of common

cheap hairpins, bent wire, or pegs cut from old birch brooms and made for the purpose, or the runners may be secured in their proper positions by laying stones on them of sufficient size to keep them down till they root. With regular and proper attention in watering they soon do that, and grow at a rapid rate, so rapid, indeed, as to crowd each other, and when they begin to do this, it is high time to cut them from the old plants and remove them. The best situation for them during the summer is an open, sunny spot where they can be placed on a hard bottom of coal-ashes, as these are impervious to worms. To afford the plants every chance, and prevent them drawing, they should have plenty of room, that is, sufficient to be just clear of each other, and so placed or arranged as to be convenient to water, as during dry weather they will require it daily, and in all cases when given it should be in sufficient quantity to soak through and wet the whole of the soil. By the middle of August or so, the plants will be sufficiently advanced to take liquid manure, which, properly diluted, may be given twice or thrice a week with the greatest advantage, as a stimulant of that nature then helps them on wonderfully.

The runners they make must be carefully removed by cutting or pinching them away as fast as they form, by doing which the whole strength and energy of the plant is concentrated in the crown, and unless this is well and fully developed, the truss of blossoms each should contain cannot be formed. If the weather should be very dry and hot, the plants will be much benefited by an occasional syringing, the proper time for doing which is during the evening when the sun is off, or the plants may be watered overhead by using a rosed watering-pot; such wetting of the foliage is very refreshing to them, and the best means that can be used of warding off red spider, an insect—minute though it be—which often throws the plants out of health by sucking the sap from the leaves. In the autumn, when growth ceases, the plants will not require nearly so much water, and should only have just enough to keep the soil moist, as a wet, soddened condition at that season would be very injurious to the roots after their activity ceases. On the other hand, dryness must be avoided, as that would be quite as hurtful, until the plants go entirely to rest, after which they should be stored for the winter. The best place for them during that season is a cold pit or frame where they can be plunged in leaves, tan, Cocoa-nut fibre, or anything of that kind to prevent the frost acting on the soil and bursting the pots, which it is sure to do by the expansion it causes in the ball of earth, owing to the moisture contained therein. If pits or frames cannot be spared, then the plants may be plunged in a sheltered place in a bed of cinder-ashes outdoors, and if the ashes are deep enough to cover the pots, the plants and pots will be safe. S. D.

Victory of Bristol Melon.—Mr. Fish has lately called our attention to the excellence of this Melon, which he grows admirably. It is the fashion to speak of the Green-fleshed Melons as of the finest flavour, but this we doubt very much, especially in the presence of such a fine fruit as this. Believing that there are ten times too many Melons sent out, and that no good comes of gardeners christening and sending out a new variety of any good Melon one happens to have, we nevertheless wish to say that this is both a handsome and a very well flavoured Melon. The netting on the finer fruits is close and pretty.

Cure for Melon disease.—I have two Melon plants in a pit, 6 ft. by 4 ft., carrying a dozen fruit from, say 1½ lbs. to 2½ lbs. each. After they were set a week and swelling well, I discovered that on one plant several inches of the main stem and several branches were damping and rotten to the core, the pulp coming away nearly all around the stem when touched; the other plant had two vines carrying fruit, split open several inches, and affected with the rot like the other. I tried dusting the affected parts with lime,

but with no good result. I therefore resolved to try an experiment; I bruised some common alum and mixed some sulphur with it, and after cleaning away a portion of the rotten pulp, I applied powdered alum and sulphur, and now, I am glad to say, the rot has been cured and the fruit is ripening beautifully. I have therefore not only saved the fruit, but discovered, I hope, a remedy for this sad disease as regards the pit culture of Melons.

—J. E. WAITING, *Grange*.

CROPPING PEACH TREES.

PEACH trees are often seriously overcropped, especially under glass. The result of overcropping is small, ill-flavoured fruit and weakened trees for the next year. It requires some amount of judgment to properly crop a Peach or Nectarine tree. A young vigorous tree will bear a greater number of fruit on a given space than an old one, and as a rule young trees do not shed their fruit during the stoning process like old ones, but as regards dropping during stoning, I believe that when it does occur, it is owing to overcropping, not necessarily in the current year, but in the preceding one. I look upon it as an effort on the part of the tree to relieve itself of its burden. A tree in good health, and under proper management, does not generally throw off any fruit unless overcropped. What number of fruit upon a given space constitutes a good crop depends upon the age and condition of the tree. Many good cultivators are content with one Peach to every foot of wall space, a very moderate quantity for a young healthy tree; but, all points considered, it is judicious management, taking the future condition of the tree into account. Another point for consideration when thinning the fruit is whether that of the particular variety attains a large size when well grown or not; those known to grow large should be left much thinner on the trees than small ones. From such varieties as Goshawk, Lord Palmerston, and Princess of Wales, at least one-third more fruit should be removed than from such small growing kinds as Stirling Castle and the early kinds raised at Sawbridgeworth. This is, of course, assuming that there are more fruits on the tree than it can mature in a satisfactory manner. When thinning the inexperienced may be reminded that on the same tree there will be strong growing shoots as well as weak ones, and that in the majority of cases there will be more fruit on the weak branches than on the strong ones. Therefore, a less number of fruit should be left on the weak shoots than on the strong ones. The proper time to thin is as soon as it can well be seen that the bulk of the thinning will be done by the time the fruit gets as large as Hazel Nuts. I have never found a Peach or Nectarine tree to drop its fruit during stoning unless overcropped or in an unhealthy condition. Inexperienced cultivators should be cautious how they treat their young Peach trees; they should not feed them too liberally, the border should not be made too rich with manure, nor should they have manure in a liquid form unless the trees are heavily cropped and show signs of distress. Overluxuriance must, in fact, be avoided, for from such growth the buds either fall before they expand or the young fruits, immediately after the flowers, fade. Where Peach trees under glass have been judiciously treated and are still luxuriant, the best way to induce fruitfulness is to lift them early in August while the leaves are still green, and while there is time enough for them to get partially re-established before winter. The work of lifting and replanting must be done expeditiously. The soil about the roots must be watered if it is dry and maintained in a moist condition. A mat or mats, according to the size of the tree, must be hung up before it to afford shade whenever the sun is bright for a fortnight after the tree is replanted, and the leaves should be syringed two or three times a day during bright weather, and if practicable the house should be kept rather close for the same period. Under such treatment I have known unfruitful trees speedily brought into good bearing condition.

J. C. C.

WATERING VINES.

NOTHING gives more immediate assistance to Vines swelling off a crop of fruit than a thorough soaking with manure water. Liquid manure may be made of different materials, such as guano, sheep droppings, cow manure, &c. The latter I prefer, and always use it when it can be had in sufficient quantity. Vines should receive a thorough watering a short time before it is contemplated to start them into growth; this induces a stronger break than would otherwise be the case, and carries them on to within a short time before they come into flower, when they should receive another watering, which will carry them on again till after they have set their fruit, when another application may be given. The next time to water is a week or two before the Grapes begin to colour, and this ought to be the last watering while the fruit is on them, as after that watering would tend to make the berries crack, and the border being allowed to get a little dry will be an advantage as regards ripening the wood as well as to the keeping of the fruit. After the latter is cut, and by that time the wood should be thoroughly ripe, if the border should have become very dry give another watering, but this time clean water should only be used, as manure water would have a tendency to keep growth in operation at a time when it is desirable the Vines should go to rest. This watering is necessary, as roots keep fresher in winter in a moist soil if the drainage is good than in a dry soil. The quantity given at each of these waterings will depend on circumstances. The best rule to go by is to give as much as will moisten the soil from top to bottom of the border, and if the drainage is good there need be no fear of giving too much; it is better to give plenty than to under water. In these remarks I am referring entirely to inside borders. The watering of outside borders is altogether another matter; but these also should at least have two waterings with manure water in the course of the season, the times at which to give them depending wholly on the state of the weather.

A. MACKIE.

The Woodlands, Darlington.

FRUIT TREES IN POTS.

WHAT "Peregrine" says in reference to these (p. 8) is in some cases unfortunately too true. Fruit trees in pots, when mismanaged, undoubtedly are poor, small, and scraggy. But I maintain that that is the result of mismanagement. Fruit trees can be and are well grown in pots in orchard houses. "Peregrine" says, "why should we grow fruit trees in pots either indoors or out-of-doors? That is a question that has never been answered." My reason for doing so is because I can get fruit as fine on pot trees and with as little trouble as I can on trees planted out. When the fruit is gathered the trees can be plunged out-of-doors, in a sheltered spot, and the house used for other things. It is not a fact that Pears, Plums, and Peaches are failures when grown on pot trees; on the contrary, so grown, they do exceedingly well, and I myself do not find them much trouble. Some Peaches, such as the Mignonne, make a lot of naked wood when grown in pots, I grant, but Peaches as a rule, and Plums, and Pears do well under pot culture. Because one person fails, it is to my mind no reason why all should fail. I have seen some splendid trees in pots that have fruited for twenty years in a highly satisfactory manner. I do not deny that standard trees in an orchard house do well; on the contrary, they do very well indeed, and are, in my opinion, much more satisfactory than Peach trees out-of-doors on walls. How often, I would ask, do we get a good crop of Pears out-of-doors? Pyramid Pears in 11-in. or 13-in. pots in an orchard house will produce eighteen fine fruits each, and do this every year, and with little trouble. If watering is found tedious, plunge the pots; they will then require but little water. The annual potting, plunging, and top-dressing, of which "Peregrine" complains, is counterbalanced by the little attention which pot trees require in the way of pruning, and the great

advantage of having the house for other things when the pot trees are turned out. Standards, too, want top-dressing, and require a free use of the knife, or they would lift the roof off. I only speak of my own trees; perhaps "Peregrine's" may not be such unruly ones. As to top-dressing, it takes me but two hours to dress fifty trees, and I can report the same number with the help of a man and a boy in one day. I maintain that any intelligent man who takes a pride in his trees, and loves fruit growing, can succeed with Peaches, Plums, and Pears in pots in an orchard house, and if for market purposes make it remunerative.

Milton, Cambs.

G. A. P.

Elton Pine Strawberry.—This is largely grown in the gardens at Maiden Erlegh, where the other day I saw it producing a marvellous crop of fine, richly-coloured fruit. I very much doubt whether, as there grown, any other kind could excel it in productiveness. It is a favourite in the still-room because it is firm and somewhat acid; indeed, it has always been considered a good kind for preserving. I can well remember that in boyish days Keen's Seedling, British Queen, and Elton Pine were thought the best garden varieties, and in not a few places they still remain so. Certainly we have hardly excelled Keen's as a first early when well grown, or British Queen for rich flavour, or the Elton for preserving; therefore we cannot claim to have made for a long time any great advance in the production of new kinds of Strawberries. Few now know anything of that small, but richly coloured variety, yet largely grown in market gardens, the Grove End Scarlet. I find it is popular about Isleworth and Twickenham, and is grown in broad beds beneath fruit trees, being replanted but seldom. It is a great favourite with professional preservers; though the fruit be small, the plants are wonderfully productive. Eleanor, Swainstone's Seedling, Princess Alice Maude, Myatt's Mammoth, Ketley's Goliath, and Carolina Superba are all kinds that had for a time a high reputation, but chiefly on account of size, in the same way as James Veitch has a reputation now. It is no loss that most of these and many other less known sorts have nearly disappeared. Three good kinds will, as a rule, cover the entire season as well as six; but if growers prefer flavour to mere croppers, they will find in British Queen, Dr. Hogg, and Frogmore Late Pine kinds that give fruit well worth eating.

A. D.

ORCHIDS.

ORCHIDS AT THE DELL, EGHAM.

Among the finest collections of Orchids in the neighbourhood of London is unquestionably that in Baron Schröder's beautiful garden on the confines of Windsor Great Park. The collection is not only rapidly rising in importance on account of the rarity and fine growth of the plants, but their numbers are being added to almost every day; so great, indeed, is the increase, that we found since our last visit, a year ago, that the original Orchid houses have been supplemented by others, and still it is intended to make room for more Orchids by doing away with many fine-foliaged plants, of which there is here an uncommonly rich collection. This fact alone is sufficient proof, if, indeed, proof be wanting, of the growing popularity of Orchidaceous plants and the corresponding decrease in estimation of other plants, particularly those of the fine-foliaged class. No inferior Orchid is tolerated here, place being given only to those that represent the highest type of excellence; hence we find in the collection, or rather selection, many plants that are probably unique; amongst the rarest we might mention the fine variety of *Odontoglossum Pescatorei* named Veitchi, which caused so much sensation among orchidists last spring; *Cattleya Mendelli* superbissima, *Cypripedium Stonei* var. *platytenium*, *Phalanopsis*

Brymeriana, Stuartiana, Wighti, Ludemannia Lehmanni, Dendrobium thyrsiflorum Walkeri, Dendrobium Ainsworthi, a monster plant, and Sobralia xantholeuca, all of which are in the best of health under the fostering care of Mr. Ballantine. This is the duldest season in the year as regards flowers, yet there is even now a good sprinkling in the various houses, and many of the plants in bloom are worthy of special note. In the Cattleya house, which for many weeks past has been very gay, there is still a few remarkable plants in flower, notably a magnificent variety of Cattleya superba named splendens, which far surpasses the ordinary form as regards colour, which is indescribably rich and beautiful. C. Mendelli, Warneri, and Mossiae are still in bloom, though the varieties are not so fine as those which a few weeks ago were in perfection. Of these the numerous forms of C. Mendelli were very fine, particularly the variety called superbissima, which for large size, the delicately beautiful tone of the broad sepals, and the intensity of colour in the immense labellum is unsurpassed by any other Orchid, and it is a matter of regret that even small pieces of this grand variety can only be bought for scores of guineas. The various forms of C. Warneri, too, were wonderfully fine a short time ago, and it was surprising to see what a wide range of variation there exists even in this Cattleya, but none but the very finest, those with large, well formed, and highly toned flowers, are tolerated here. Of Lælias there is still a show of L. purpurata, which exists here in several varieties; also L. elegans, including the white variety (alba) that is so much sought after on account of the purity of the sepals and richly coloured lip. Another beautiful Lælia is L. Dominiana rosea, remarkable as being the last of Mr. Dominy's hybrid Orchids that have flowered. It is a most lovely plant, having a very large and broad labellum, and the whole flower is suffused with a beautiful rose colour; whereas the first variety that flowered of the same cross had white or only tinged sepals. It will be many years before this Orchid becomes common in cultivation, but when it does it will undoubtedly be highly popular.

Cypripediums in flower are numerous, and include C. Dominii, nævium, Lawrenceianum, longifolium, Sedeni, Veitchi, and the very handsome Spicerianum, about which so much has been said and written, but all these are comparatively insignificant beside the beautiful C. Stonei platytænium, which has for some time past been one of the principal attractions of the garden. There are some of the extremely rare and high-priced Orchids that are apt to be over-rated with respect to their attractiveness, but this is really a beautiful plant, much surpassing the original Stonei, itself one of the finest of all Lady's Slippers. The platytænium differs, as may be inferred from its name, in having the tail-like sepals much broader than in the type and profusely covered with dark spots. The strong spikes that the plant has developed and the vigorous foliage it bears are sufficient indications that its culture is well understood here; and the baron may well be proud of being the possessor of such a handsome, rare, and valuable plant, duplicates of which in cultivation may be counted on the fingers of one hand. Another rarity is the yellow Sobralia xantholeuca, one of the most delicately beautiful of the genus. In growth and habit it cannot be distinguished from the commoner S. macrantha, but the flowers are quite different. They are as large and of the same form as those of macrantha, but the sepals are of a beautiful yellow, while the capacious labellum is of a delicate primrose colour. When it becomes plentiful this Sobralia will inevitably be popular, and its treat-

ment is quite as simple as that of the commoner kind. We never remember seeing Epidendrum prismatocarpum in such perfection as the plant represents it here. The specimen is a fine one, and bears several massive spikes of flowers, which are larger than usual and with the colours more pronounced, the violet tinge of the lip being in beautiful contrast to the peagreen sepals spotted copiously with black. Its value as a decorative plant is increased by its being a summer flowerer in company with the handsome E. vitellinum majus, of which there is a fine display here.

Though the flowering season of Masdevallias is on the wane, there are still some remarkably fine forms of M. Harryana, Lindeni, and Veitchi, besides several of the Chimeroid section, such as bella, Chimæra, Houtteana, and the little M. xanthina or Wagneriana, as it is more often called. The clear golden flowers of M. Davisii render it very distinct among the others; indeed, no other Masdevallia in cultivation has such a clear yellow colour, yet for all that it is not as yet much known. The July Dendrobes here are D. Calceolus, also known as D. moschatum, and very handsome; D. Bensonæ, which has been in flower for a long time; D. Cambridgeanum, one of the finest of all the dwarf-growing yellow-flowered species, and one that should be cultivated wherever a select collection is desired. It is grown very successfully here on suspended blocks of wood, in a rather warm house, and the stout, healthy growths which the plants make indicate that this is the proper treatment for them. Another very fine Dendrobe in flower is the Australian D. superbiens, than which there are few finer in the genus, but it is not often that one meets with it well grown. We notice that Mr. Ballantine favours the plan of placing this and others of his Orchids in full exposure, without the least shade and where a good circulation of air can be maintained above the plants. In one of the houses we saw plants of Cattleya aurea and Dowiana placed close beneath the unshaded roof, so as to thoroughly ripen their growths, in order to induce flowering sheaths to develop, which the plants are doing already.

The collection of Phalaenopsis is very rich here in the rarer kinds, such as P. Stuartiana, violacea, sumatrana, Brymeriana, Portei, and these are doing well in a tolerably high and moist atmosphere, grown for the most part on the top of upright, cylindrical trellises, which seem to suit admirably, as the roots are well aerated and no stagnant moisture can lodge about the plants. Of the rarer species in flower we noticed P. violacea, a dwarf-growing kind, with flowers partly green and partly violet, a strange contrast of colour. The beautiful P. Wighti was likewise finely in bloom. The rarely seen flowers of Grammatophyllum Ellisi are among the chief attractions of one of the warm houses. It is a very handsome Orchid, with long, wide, branching spikes bearing crowds of large flowers of wax-like texture, copiously freckled with chocolate on a light ground with a transverse bar of yellow running through each sepal.

Among the Oncidia in bloom, which include the handsome O. macranthum, Forbesi, serratum, and stelligerum, there are O. Papilio and its near relative Kramerii, than which we do not remember seeing a finer variety, being considerably larger than the ordinary form and the colours more pronounced. Other Orchids include various Aerides, Saccolabiums, Trichopilias, Bolleas, Calanthe Dominii, the first of Mr. Dominy's hybrid Orchids; and among Odontoglossoms, O. Roezli and its white variety, and a splendid array of O. crispum, Pescatorei, and especially of O. vexillarium. W. G.

Dwarf Dendrobium Dalhousianum.—I enclose a spike of D. Dalhousianum cut from an imported plant bought at Stevens's two months ago. Although the plant has not yet made any new roots or growths, it has thrown up twelve spikes of flowers similar to the one sent. This must be a very dwarf variety, as none of the old bulbs, which number over twenty, exceed 27 in. in length. —J. FOWLER, *Ash Grove, Pontypool.*

Disa grandiflora superba.—The finest form of the beautiful Cape Disa is undoubtedly that named superba, and we have seldom had such an opportunity to compare it so well as the flowers sent by Dr. Paterson from his collection at Bridge of Allan. The flower of the ordinary form is smaller in every part, and the colour is dull in comparison with the glowing scarlet hues of the superba variety. The labellum, too, of the latter is of a deeper shade and more strongly netted and veined with crimson. Judging by the specimens sent, it is evident that the Doctor grows the Disa as finely as he does the Orchids of the Tropics.

Cypripedium insigne.—If Mr. J. Simpson's variety of this species (p. 25) has, as he says, a dorsal sepal identical with punctatum violaceum, he must be in error in stating that it would be better described by the synonym albo-marginatum. The last named variety is thoroughly well known. It is the smallest flower of any insigne; the pouch is far more shining than even punctatum violaceum. The dorsal sepal bends forward, resembling in a slight degree C. Spicerianum. It has proportionately more white than any other variety, but in no single instance will a spot or blotch of any kind be found in the white division; whereas in punctatum violaceum the white ground travels in all directions past the purple or violet marks and shows them up in their true colours. On the green ground the violet markings look more brown than anything else. There are in cultivation under the names of C. Maulei and C. Chantini several plants of the variety figured as punctatum violaceum. There are also under those names a great many plants of the very weediest form of C. insigne. Perhaps "Observer" (p. 25), who takes so much interest in the proper descriptions of Orchids, might next autumn, when the various forms of C. insigne are in flower, give such accurate description of them as would make it impossible for any other gardener to fall into the same error as Mr. Simpson. If "Observer" will oblige us with his name and address, I have a most excellent photograph of five varieties, taken by Mr. H. Stevens, which would greatly assist him.—J. C. SPYERS, *Burford Lodge, Dorking.*

NOTES ON HYBRID ORCHIDS.

THE Orchid houses in the Royal Exotic Nursery, Chelsea, at all seasons attractive, are at present particularly so on account of the numerous hybrid Orchids in bloom; indeed, we have not hitherto seen so many in flower at one time. Of hybrid Lady's Slippers, for instance, there are no fewer than thirteen kinds in flower, including some of the most beautiful of the hybrid Cypripediums yet raised. One of the finest is C. Morganæ, a cross between C. Stonei and C. Veitchi, between which it is precisely intermediate in character, and far handsomer than either; in fact, we consider it to be the most beautiful of the genus. The particular points about it are the large pouch-like labellum and the long, broad lateral sepals, profusely spotted, as in the platytænium variety of C. Stonei, to which it is a dangerous rival. C. euryandrum, between C. Stonei and barbatum, is a distinct and handsome plant, as is also C. ænanthum, between C. Maulei and Harrisianum, of which latter it partakes strongly. The latest addition to these hybrid Lady's Slippers is C. grande, between Roezli and caudatum, a truly grand flower, having a large bold pouch and long slender tails. C. Dominii is in the same way, but inferior. C. marmorophyllum, between Hookeræ and barbatum, is a chaste and neat flower, a decided improvement on both of its parents, being stronger in growth and having larger flowers of a more pro-

nounced colour. *C. porphyrospilum* and *pyncotermum* are both between *Lowi* and *venustum*; neither is very remarkable, except as being exactly intermediate between the parents, and it is somewhat singular that two distinct varieties should have been obtained from the same pod of seed. *C. selligerum* is among the finest hybrids. It is between *barbatum* and *lavigatum*, and well it bears the impress of both. There are some handsome specimens which show well what a really fine plant it is for decorative purposes. *C. Sedeni* has now become an established favourite, but it is likely to be supplanted by another in a similar way. This is *C. albo-purpureum*, between *Dominii* and *Schlimi*; the flowers are larger and the colours brighter and clearer. *C. superciliare*, a cross between *venustum* and *barbatum*, is likewise in bloom.

Among other hybrid Orchids in flower here is *Lælia callistoglossa*, a real beauty, having for its parents *L. purpurata* and *Cattleya gigas*, two of the finest in their respective genera. The progeny combines the characters of both parents in a striking degree, but partakes most of *C. gigas* in growth. The flowers are much larger than those of an ordinary *L. purpurata*; the sepals are of a delicate soft purple-pink, while the capacious labellum is of an extremely rich amethyst. The great value of this new Orchid, apart from its distinctive beauty, lies in the fact that it flowers after its parents have for the most part done flowering. Though at present unique, we hope that this superb Orchid may be distributed as quickly as the other fine hybrids from this nursery have been. It is one of Mr. Seden's successes, as is also another *Lælia* in bloom, *L. Philbrickiana*, a cross between *L. elegans* and *Cattleya Aclandiae*. It is a perfect gem of an Orchid, combining all the richness of colour in both parents with smallness of growth. The colour of the labellum is even finer than that in *C. Aclandiae*, but the sepals are not so profusely spotted. Other hybrids in flower we have alluded to previously. They are, *Dendrobium Rhodostoma*, *Zygopetalum Sedeni*, a very handsome plant, which has undoubtedly a bright future before it, and *Masdevallia Chelsoni*, between *Veitchi* and *amabilis*. This last is better now than we have seen it before, and it promises to become a good Orchid, combining the freedom of flowering of *amabilis* with the size of bloom and rich colouring of *Veitchi*. W. G.

NOTES AND READINGS.

DIURNAL REST FOR PLANTS.—No one doubts that plants require periodical or annual rest, and up to the present time the necessity of diurnal rest has also been fully acknowledged, but it indicates the uncertainty of their convictions in such matters that botanists and physiologists now tacitly admit that the necessity of diurnal rest is an open question. The recent experiments with the electric light have led to this, but meanwhile gardeners will do well to hold on by Lindley, and others of the same school, who affirm that "diurnal repose is as necessary to plants as to animals." Should it be discovered that Lindley was wrong, we shall be prepared to believe anything afterwards, and doubt everything in regard to plant life. Orchids living and growing without the old bulbs and the like would be nothing to the discovery that plants thrive as well without diurnal rest as with it, for that would involve changes in the physiological creed of the most momentous description. The report of the Paris experiments states that they afford "no grounds for supposing that nocturnal rest is necessary to the assimilation of the food imbibed in the daytime," which may be true, but nothing has been more confidently asserted hitherto than that the organs of plants perform quite different functions during the day and night respectively. "The processes of assimilation are suspended; no digestion of food and conversion of it into organised matter takes place; and instead of decomposing

carbonic acid by the extrication of oxygen, plants part with carbonic acid and rob the air of its oxygen." Changes that are going to completely upset this arrangement of Nature must, it appears to common sense, exert a corresponding influence upon plant life, and produce changes something akin to what would happen if human beings were to begin to inhale carbonic acid instead of oxygen, and exhale the latter instead of the former. The changes suggested by the no-rest hypothesis in plant growth are strictly analogous to this.

SETTING UP THE DESSERT.—Good fruit is the best ornament of the dining-room table, and it surprises one to hear so much about the flowers and plants upon it, and so little about the fruit. The *entrées* from the kitchen or confectionery are usually served in a sensible shape and manner, and the fruit only looks forbidding. Not so much fault is to be found with Strawberries or Peaches dished up in the shape of cones when they are nicely garnished with leaves; but Grapes, the main ornament of the dessert, or *pièce de résistance*, heaped up on what has a strong resemblance to a soup tureen, or hung round a china pagoda several storeys high, shocks one's sense of propriety. Sometimes Melons and Pine-apples, too, cut extraordinary figures in strange positions. The artist delights to pourtray fruit in the inevitable basket, and after all he is right. For mixed or single dishes, there is nothing so appropriate on the dessert table. The basket may be simple, cheap, or expensive, but it always looks natural and pretty, and it affords more scope for the exercise of taste in the arrangement of the fruit than any other receptacle. You can put one thing in it, and you may put everything in it, and it can be handed to the guests much more conveniently than a basin, or any fine structure of china that the attendant dare not move, lest it should collapse in his hands, like the blanc mange in the memorable catastrophe recorded in "The Six of Spades." In one of the latest compendiums on horticulture very little is said on this point, though much is written on table decoration; but among other things, Strawberries and Gooseberries are recommended to be decorated with Maiden-hair Fern, than which "there is nothing better," we are told, and variegated Sycamore leaves are more "suitable and prettier" than anything else for all other fruits except Pines. The Ferns are to be inserted among the Strawberries, which is itself a great objection, as, apart from the inappropriate character of the leaves for such purposes, they hide the fruit, and the main object should be to let it be seen and admired. Nothing should be neglected to bring the fruit into prominence and show its quality—if it is fit to be seen—and for Grapes and other fruits, green, not variegated, leaves are best, except in the case of black Grapes, which look equally well or better in their own foliage when the tints of autumn are upon it.

PEREGRINE.

ABUSE OF A PRIVILEGE.

DEARLY as all lovers of gardens like others to join them in the admiration of their pets, as well as to receive any instructions they can give, and that friendly criticism which is so essential to our advancement in the cultivation of the varied subjects of a garden, yet, unfortunately, certain events make one at times think that that loneliness which Mr. Wolley Dod laments is not an unmixed evil. I am reluctantly forced to think so for the following reasons: My employers in their generosity, throw open a certain portion of the grounds here to tourists and others every day throughout the year, allowing them free liberty to go about without being hampered with guides or

guards of any kind, and miles of walks of easy ascent, leading to various points, are kept in order mainly for their use and convenience. And as the scenery here is generally admitted to be equal to that of any part of Wales, such generosity is much appreciated and availed of to a large extent, numbers visiting our place annually. In return nothing more is expected than that visitors should behave themselves and leave the plants and flowers growing in the grounds untouched; but I regret to say such is not the case; limbs of *Rhododendrons* are torn off and carried away, choice hardy Ferns and plants uprooted, irrespective of season, and taken to embellish other spots, or more probable in many cases to die; and now we find choice Foxgloves, planted among common ones, taken up even when in full bloom, so that all our trouble to add interest to this place meets with but little encouragement or success. We are, therefore, obliged to keep many things within the enclosure that would thrive well in the woods open to all comers to see. I readily—and am very pleased to—admit that such practices are carried on but by few, and would be discountenanced by all true lovers of Nature. Still, the occasional abuses of the privileges thus freely given are not calculated to encourage their extension, and should they be withdrawn, the perpetrators of the deeds would have themselves to blame for it. In future I hope that such acts will be discontinued here and elsewhere, the result being to the benefit of all concerned. JOHN ROBERTS.

Tan-y-Bwlch, N. Wales.

PLANTS IN FLOWER.

PELARGONIUM HYBRIDUM COMPACTUM MULTIFLORUM is an almost constant blooming plant, and the flowers are extremely pretty.—T. SMITH, Newry.

STATICE AND EVENING PRIMROSE form a capital hardy bed in full bloom now; the Statice is a cloud of bluish grey, and the Evening Primrose covers the ground with large pale lemon flowers.—J. G.

BORDER PINKS.—These, from Miss Owen, are very good and varied—single ones among them. The fragrance and colour are admirable. When are we to see more of these little dwarf Pinks that require no stakes?

CERINTHE BICOLOR, at least the purple-leaved form, is worth growing if it did not flower for the sake of the leaf colour alone, but is a pretty flowering thing besides.—T. SMITH, Newry.

THE DOUBLE SWEET WILLIAM.—This pretty plant comes to us in fine condition from Mr. Crook, Fariborough Grange. It is so distinct in habit from the ordinary Sweet William, and so showy and good in a mass, that it deserves to be widely cultivated.

A FOXGLOVE.—I measured the other day a Foxglove in Mr. Harting's garden at Harting 9 ft. high, and not yet fully grown. The flowering part of the spike was about two-thirds of this length, and below that point the plant had thrown out a number of minor flowering spikes. It was one of the finest plants I have ever seen.—V.

TROPÆOLUM SPECIOSUM.—This plant is now most brilliant in the garden at Munstead. We usually consider it as best fitted for darting through a group of evergreens, but it also may be grown even in the home counties on a wall. It is impossible to give an idea of its splendour and brilliancy of effect, as it hangs in wreaths; soon the berries will be coloured.

ERICA PARMENTIERI ROSEA.—This is one of the most beautiful of what are known as intermediate Heaths, but from its "miffiness" not likely to become common. Its deep rose-coloured flowers, borne in the greatest profusion, on the

ends of the numerous twiggy branches, are very pretty. There is a small plant of it in the Cape house at Kew, which appears to be the fine variety known as Ward's, the lighter coloured kind being represented by larger, well-flowered specimens.—B.

INDIGOFERA CORONILLEFOLIA.—Under this name there is a small, somewhat loose and spreading shrub in the collection of Leguminosæ at Kew which for the last few weeks has been very showy. Its small dense spikes of bloom are borne in great profusion, and the colour, an uncommon shade of rosy pink, is so very different from that of most flowering shrubs as to command attention. Indigoferas are very handsome, but they require the protection of a wall, as in the open, unless the winter is mild, they get severely injured.—H. P.

PANSY SUNBURST, "called about here the Wallflower Pansy, is the freest of its colour, and grows and blooms away all through the season." So writes Mr. Smith, from Newry, in sending a Pansy that is certainly very pleasant in a sort of golden Wallflower hue, so to say. "Of Pansy Thos. Granger," he writes, "we try all the good sorts, and, so far, this proves to be the best of the high coloured ones—a free grower, constant bloomer, and good all-round kind." In point of colour, it is less cheery than Sunburst.

LILIUM LONGIFLORUM WILSONI.—A beautiful gathering of this noble Lily comes to us from Messrs. Carter's nursery at Forest Hill, where hardy flowers are being grown well and extensively. Of all the numerous forms of *L. longiflorum* this is the finest; it is dwarf; the flowers are large and of a pure waxy whiteness, and not liable to split. This variety is, no doubt, identical with *eximium*, by which name it is often known. In a cut state this Lily would be very valuable were it not for the overpowering perfume emitted by the flowers.

A WELL-GROWN COCKSCOMB.—We have received from Mr. Clarke, gardener to Lord Trevor, Brynkinalt, Chirk, a fine sample of what he calls Sutton's Prize Cockscomb. The plant is dwarf, not more than 9 in. high, and very stout and vigorous; the broad-crested flower-head, which measures 14 in. along the top, is surrounded by healthy green foliage, which shows the bright crimson of the plush-like comb off to advantage. We should like to hear from Mr. Clarke how he grows the Cockscomb so finely. He adds that he has nearly a hundred plants as fine as that sent.

ZEPHYRANTHES CARINATA is the most beautiful of the several species in cultivation. Very fine flowers of it come to us from Mr. Smith, of Guernsey, where it evidently thrives well. It is certainly a plant adapted for a warmer climate than ours, for it seldom succeeds well in the open here; being a native of Mexico, it flourishes best under greenhouse protection. The flowers sent measure upwards of 3 in. across, and are of a beautiful deep rosy pink colour like that of *Colchicum speciosum*, a flower which it much resembles. The flower-stalks are nearly a foot long, so that the flowers are well adapted for cutting, and they last a long time in perfection in a cut state. It is a plant well worth pot culture in a greenhouse.

CEANOTHUS GLOIRE DE VERSAILLES is not only one of the finest of all the varieties of *Ceanothus*, but also one of the most beautiful of hardy shrubs, among which, indeed, it may now be included, as it has proved itself capable of withstanding even our most severe winters. In the arboretum at Kew, as well as in several other gardens about London, it has been a beautiful object for some time, wide-spreading bushes of it being covered with a profusion of plume-like

clusters of blossoms of a delicate pale blue. It is one of the varieties of *C. azureus*, which now number upwards of a dozen, all more or less distinct, but none has proved to be so thoroughly at home in our climate as the *Gloire de Versailles*. It is somewhat remarkable that a garden variety, as this is, should differ so widely from the type and others with respect to hardiness. Other fine varieties of *C. azureus* are *Lucie Simon*, *Arnoldi*, *Lemoineana*, *corymbosa*, and *grandiflora*, which some seasons flower fairly well.

MUSA VITTATA.—A large specimen of this fine Plantain is now flowering in the Victoria house at Kew. There appears to be no record of its ever having flowered before, though, as the blossoms are not in any way ornamental, the circumstance may not have been thought worth attention. The inflorescence resembles that of *M. sapientum*, the large brownish bracts and whitish flowers being both in size and shape similar to those of the last mentioned species. The handsome marbling on the foliage of this species, which when young is so very marked, almost disappears as the plant gets older, as, in fact, happens in the case of all the variegated Musas.—B.

MONTBRETIA POTTSII.—Some beautiful flower-spikes of this bulbous plant, from Mr. C. Smith's nursery at Guernsey, show how well it succeeds in the genial climate of the Channel Islands. To those who do not know the plant it may be described as similar to the well known *Tritonia aurea* in growth and habit, but the flowers are much smaller, tubular, and arranged in opposite rows on branching spikes a foot or more in length. The colour is a bright orange-scarlet, which is very effective when seen in a mass. In this country it likes a warm, sunny border and sheltered, so as to protect the young growth. In a cut state in water the flower-buds open in quick succession all up the stem. It was well figured in *THE GARDEN* two years ago.

A FINE IRIS KÄMPFERI.—We send you a flower of an *Iris Kämpferi* from a plant we imported from Japan. It is extremely large—the first flower was much larger than that now sent—but winds and rains have split up the petals and spoilt it. The one now sent has had quite enough of the bad weather. You will observe that it has six petals (usually three); should we be justified in calling this a double flower?—**NEW BULB AND PLANT COMPANY, Colchester.** [The flower sent measures over 6 in. across, deep, rich purple, with a yellow blotch at the base of each petal. The outer petals, which are the widest, measure $3\frac{1}{2}$ in. across. The flower, though certainly not double, differs from ordinary Irises in having the usually narrow, erect petals broader and placed on the same plane as the outer or "fall" petals.]

DR. PATERSON'S ODONTOGLOSSUMS.—Again we have from the Bridge of Allan such a gathering of *Odontoglossum vexillarium* as we have seldom seen. The good doctor grows these apparently as easily as he does other Orchids, and he cuts them as freely as generous men do Wallflowers in more southern latitudes. We hope, when time allows him, he will tell us a few of the secrets of his success in Orchid growing, if secrets they be. Probably in these, as in many other things, simplicity, not mystery, is what has to be sought, but then it is arrived at through experience and observation. The specimens sent represent the finest forms of this lovely Orchid, some of the blooms measuring 4 in. in length, varying in colour from a deep purple-rose to a delicate rose-pink. The number of flowers on each spike is from six to nine, the latter being an unusual number, and shows how well this Orchid is grown by Dr. Paterson.

NEW HÆMANTHUS.—We have just seen a new variety of *H. Catharinæ* at Messrs. Barr & Son's new premises, 34, King Street, Covent Garden. It is larger in every part than the type, itself beautiful and rare, and the colour is much brighter, being a scarlet vermillion. The large globular head of flowers measures nearly 9 in. across, and terminates a stout stem accompanied by broad, handsome foliage. The name of the new variety is *Alice Barr*.

A PANSY.—Mr. Elmes, nurseryman, Hammersmith, has asked me to obtain for him your opinion of a Pansy that appears to be suitable for borders, and is, I think, superior to the *Empress of India*. Be so kind as to oblige Mr. Elmes with your opinion of it.—**A. CLAPHAM, 24, West Kensington Gardens.** [We think it a very lovely Pansy, a rich brown touched with deep purple in centre, and with a fine velvety bloom. The edge is crimped and yellow.]

PLATYSTEMON CALIFORNICUM.—I send you a little box of flowers of this pretty border annual. I sowed the seed on a dry border four years ago, and every season since I have been repaid by a beautiful lot of flowers which are admired by many. I know of nothing that gives a greater return for so little trouble.—**T. B. FIELD, Stanley Hall, Bridgnorth.** [A very pretty and refined little annual plant, very tender in colour, a pale lemon with yellow spots in the centre. We have never seen it so well grown, and quite agree with all Mr. Field says in its favour. No doubt it sows itself on a dry border.]

FROM A LONDON BORDER.—From Colonel H. Stuart Wortley, a very fresh handful of flowers from his London garden border, among them double *Ranunculi*, *Lilies*, *Thriffs*, and *Meadow Sweets*. There is no reason why we should not have many flowers in London if we had not the smoke. Worse still is the shading of the ground by walls and mean shrubberies, which shut out the sun and give place to much that plants dislike. The waste of time and means in London gardens is enormous. It speaks much for the hope people have in gardening that they should go on sowing, seldom to reap anything worth having.

CIENKOWSKIA KIRKI.—The more we see of this plant the more are we convinced of its high value as a garden plant. A few days since we were much impressed with its beauty associated with Orchids. It will compare favourably with any Orchid; indeed, it is more like *Odontoglossum vexillarium* than any other flower we know, and it even possesses a greater delicacy of texture. It is also remarkable for its extreme floriferousness, even plants in small pots bearing fine spikes of bloom. The continuous way in which it produces its flower is also another desirable property, there being few, if any, stove plants that flower so long and so continuously. It is of simple culture if treated as an ordinary stove plant. It was well figured in *THE GARDEN* last year. In flower at Mr. Bull's nursery, Chelsea.

Australian big trees.—The Minneapolis *Lumberman* has an article on the gigantic trees of Australia, of which the following is an extract: "The trackless forests in the west of Tasmania contain huge timber, and bushmen report that they have met with specimens of *Eucalyptus* measuring 200 ft. from the ground to the first branch, and fully 350 ft. in all. Until 1873 there was standing on the eastern slope of Mount Wellington, within four miles of Hobart Town, a *Eucalyptus* which measured 86 ft. in girth and more than 300 ft. in height, and its ruined bole still forms a grim chamber in which many a merry party have enjoyed a picnic. The famous tree of the Huon Forest measures 70 feet in girth 6 ft. from the ground, and is stated to be 240 ft. high

but in the deep gorges of this grand forest the writer has seen higher trees than this, though not of quite equal circumference. Victoria, however, now claims the glory of holding the biggest of all the living 'big trees' in the world, so far as height is concerned. In the Dandenong district at Fernshaw has recently been discovered a specimen of *Eucalyptus amygdalina* or Almond-leaf Gum, which, accurately measured, reached the enormous height of 380 ft. before throwing out a single branch, and 430 ft. to the top, and having a girth of 60 ft. at some distance above the ground. Some idea of what a height of 430 ft. represents, may be gained from the fact that this Gum tree, if growing by the side of the Houses of Parliament at Westminster, would overtop the clock tower by exactly 100 ft.

FLOWER GARDEN.

BORDER CARNATIONS AT CHELSEA.

THE Carnation and Picotee season has again come round. The other day we had an excellent opportunity of making a selection of the finest in the Royal Exotic Nursery, Chelsea, Messrs. Veitch having for the last two or three years made quite a speciality of both Carnations and Picotees, consisting of nearly every kind grown. The collections occupy several beds, which, in order to protect the flowers as much as possible, are covered by a canvas awning. That Carnations and Picotees are pre-eminently town flowers is admirably seen here, for it would be difficult to imagine plants more healthy or vigorous, or more profusely furnished with flowers. Some of the beds are occupied entirely by one kind, and such dense masses of colour are very effective. All or nearly all of the named show varieties of both Carnations and Picotees are planted in long beds by themselves, a few plants of each; therefore, the different varieties may be readily compared. There is something quite fascinating about show Carnations and Picotees, but as ordinary garden flowers we mean those that everybody can grow and yield an abundance of bloom, they cannot compare with the border varieties, which now have been brought to such a high state of perfection. There are several dozens of varieties grown in the collection here, but as several are so much alike, we will only make a selection of the most distinct, and these embody all that is good. Of pure white-flowered varieties there are two whose merits are about equal; both are good and indispensable, as one flowers earlier than the other; they are The Bride and W. P. Milner. The first is the earliest and now past its best, whilst the other is just in perfection. Both are large, full flowers, pure in colour, and with a delicious fragrance. There are also two or three purples that are very fine, but the best by far is Royal Purple, a large and full flower, and much brighter in colour than the older variety of a similar tint named Auctioneer. Of scarlets there is a host of varieties, all differing more or less widely in tone of colour. The finest among them are Coroner, Dan Godfrey, bright vermillion; Fire-eater, Fireman, and Magnum Bonum, all of which are extremely prolific in bloom and remarkably vigorous in habit. There are also numerous yellow selfs, of which it is difficult to make a selection, as they are all so beautiful, but, taking into consideration the various desirable points, we should select from the Chelsea collection those called Chromatella, Sulphur King, King of the Yellows, and Florence, the last flushed with red, but very fine.

Among deep crimson ones now there are few that can surpass the old Crimson Clove, which may be seen here in perfection, several spacious beds being entirely filled with it. A similar variety, but scarcely so full in the flower, is one called Black Knight, which is of the same

colour and possesses a delicious Clove-like perfume in addition to being better in constitution. Heaton Bank is a fine deep scarlet, as is also Archibald Grant, a very free flowerer and a vigorous grower. A very fine new variety, raised by Messrs. Veitch, is called James Wilkins, a remarkably vigorous grower, and possessing large, full flowers of a beautiful deep scarlet distinct from the crowds of other varieties of a similar type. Another new variety raised here is one called Admiral Seymour, an unusually large flower, very full, and of a lively flesh tint, pencilled and streaked with deeper shades of colour. Being a good grower and a very profuse flowerer, it will doubtless become a prominent variety.

Of other colours we should select as the best pinks Lothair and Gertrude Teignor, both most delicate and pleasing, and of a deeper tone is another called Mrs. Teignor. A beautiful yellow ground Picotee is Lady Armstrong, fine in every way, as are also those named Walter Ware and Redbraes' Lord Rosebery and Sparkler. The show Carnations and Picotees are too numerous to select from, but here may be seen varieties of all descriptions—scarlet, crimson, pink, and purple bizzarres and flakes among Carnations, and Picotees with edges both light and heavy of the same colours.

CORBULARIAS.

SOME few weeks ago one of your correspondents spoke highly in praise of this beautiful family of Daffodils, and expressed surprise that they were not more commonly grown. My own belief is that they will never be commonly grown, at least in the open border, and for this simple reason that, though in a few localities they flourish and increase like Onions, in nine cases out of ten they simply refuse to grow at all. I have myself in cultivation *C. monophylla*, *C. Bulbocodium*, *C. Bulbocodium minor*, *C. citrina*, *C. Graellsii*, *C. nivalis*, *C. serotina*, *C. tenuifolia*, and *C. citrina minor*. The first-named absolutely refuses to bloom under any circumstance whatever. I can bloom the others in pots in a cool greenhouse or frame, or planted out in a glazed pit. I have gathered all these in their native habitats, with the exception of *C. monophylla*, *tenuifolia*, and *serotina*. It is difficult to imitate the conditions under which they grow. They are almost invariably found in ground which is exceedingly wet in winter and early spring, often under water, but very dry in summer, when the bulbs are at rest. Under these conditions I have found them in several different soils, but generally they are found in sandy bog earth. *C. Graellsii* grows in rather drier situations than the rest, but the meadows between the Escorial and the stations of Naval Grande and Naval Peral in which it abounds must be very moist in winter. I have tried raising Corbularias from seed in English soil, and then planting them out in the open border, but they succeed no better than the imported bulbs.

H. HARPUR CREWE.

Drayton-Beauchamp Rectory, Tring.

EXHIBITING HARDY PLANTS.

THIS is a subject that just now requires discussion; for my part I could not see the grievance that your correspondents, writing in reference to the late Manchester show, seemed to have discovered. No doubt the end and aim of horticultural societies should be to encourage a taste for horticulture, but unfortunately there is another point they have to look after, and that is to make their shows pay if they can. We are all familiar with the provincial journeys of the Royal Horticultural Society, whose main end was to promote horticulture, pure and simple; but, alas, when the funds failed to come in, they left off promoting it. Choice groups of rare alpine and other hardy plants are sources of much interest for the connoisseur, but not for the masses, who, by paying

their shillings, really promote horticulture. I will venture to assert that for everyone who selected Mr. Brockbank's collection as a centre of interest ten would select the next one, Mr. Broome's; and this is just what the managers have to provide for, and as far as I can see it does not make the least difference whether the hardy plant is hurried into flower before its time, in order to complete the group, or whether it has come naturally into flower at the appointed time. The idea of providing classes for hardy plants was, I suppose, to show the masses how many beautiful forms there are amongst outdoor plants; but I think these things will never become as popular as they should be until they are shown in masses sufficiently large to convey the impression of any particular plant that a fully developed specimen alone can do—at least they will never attain to the popularity they should do if we are to have nothing better than a *Phyteuma*, which may, in the ordinary course of things, come into bloom during the next week or two. "A. D.'s" idea to provide separate classes for hardy plants forced into bloom and for those coming in naturally at their proper time could not be complete without adding another for retarded plants. Cultivators know the difficulties met with in attempting to have any given number of hardy or other plants in bloom at a given time; some have a provoking habit of promising to be in time, but when the show is only a day or two off, one gets convinced that they want another fortnight. Others come too quickly, and again others will last good for a month. The last are of course the ones we want most to discover and disperse, but still if we are to have every phase of plant life, the gems, that like meteors come and go all too quickly, must be coaxed either to come before or stay after their time.

Hardy plants at exhibitions is a subject upon which so little is at present known, that a good deal of latitude should be allowed to growers. I see that in the last issue of the schedule of the Royal Horticultural Society of Ireland a class for hardy plants is introduced, but the competition is limited to plants in 9-in. pots. Now I dare assert that not one of those who made this rule ever grew a hardy plant fit to grace an exhibition table. Who better than the grower himself knows what sized pot to put his specimen in? He would not aid his cause if he put it in a pot too large; and, on the other hand, if the pot was too small it might not thrive, and so he would suffer that way also. We all know what wondrous plants of *Pelargonium*, *Cinerarias*, *Fuchsias*, &c., may be grown in 7-in. or 8-in. pots, but then this is fairly understood, and one *Pelargonium* or *Fuchsia*, &c., is so much like another, that the same treatment suits them all; but not so twelve or twenty-four hardy plants. These vary greatly as regards their requirements, and therefore, being a subject upon which schedule makers as a rule know least, growers should be left to their own knowledge and devices. What is really wanted is that well-grown showy specimens shall be produced, developed to the fullest, and calculated to show what a wealth of real beauty there is in plants that can safely spend their whole life out-of-doors. It may, perhaps, be that the "little beauties" so dear to the specialist should have a class to themselves, say under the head of "Alpines," and so have two classes—one for these, and the other for the larger and showier species; but I do not think that "A. D.'s" fifty plants dug the day before in a Manchester garden would be at all attractive or possess any remarkable feature other than their sootiness; nor do I think the taste for hardy plants can be much encouraged by showing merely cut flowers. No, if the culture of these is to be encouraged, strengthened, and satisfactorily extended, we must have everything well done; no matter whether it be *Lilium auratum* or *Hoteia japonica*, they must be good specimens of their respective kinds.

T. SMITH.

Newry.

Reseda Golden Queen.—This yellow-flowered Mignonette, received at Chiswick for trial from Messrs. Benary, Carter & Co., E. G. Henderson, and Veitch, is said to make a good pot plant, being dwarf in habit and a free flowerer.

DOUBLE BUTTERCUPS.

AMONGST early summer flowers in open borders few are prettier than the double-flowered kinds of *Ranunculus* of the herbaceous type. Having been established favourites for ages, most of them are familiar to us, and poor indeed is that hardy plant border which does not contain a good healthy tuft of what are termed Fair Maids of France, or Bachelor's Buttons, the double-flowered variety of *R. aconitifolius*. The small, pure white rosette-like flowers produced so plentifully, and in such a graceful manner, make it an extremely pretty and, though common,

develop fully they require good culture, a good, deep loamy soil, enriched with well-decayed manure, and if the border be moist, so much the better, for these *Ranunculuses* delight in a cool, moist soil. Treated liberally in this way, these double Buttercups are indeed fine plants.

W. G.

THE *RANUNCULUS* IN NEW ENGLAND.

THANKS, many thanks to "Delta" for his notice of this beautiful flower. It is hardly possible to believe that two individuals so removed from each other and at the same period of time

beds of Tulips, Hyacinths, &c., and resolved to try some of the dry-looking roots bought at auctions. They grew and flowered, and this only increased my determination to have some of the superb varieties figured by Sweet. But how to get them. Luckily, Mr. Tyso had a relative living near Boston, and seeing that he had done so much for this flower, at my request he sent an order for 100 named kinds at £5—a large price, but I would have them. They came in due time, and after reading every treatise that I could procure upon their culture, I went to work in earnest. The bed was prepared upon scientific principles, and a frame placed over it to keep out the frost, which would otherwise penetrate too deep. We might not be able to plant till May, and then our hot, dry weather would overtake and ruin them. They were duly planted, and the result was the most enchanting display of flowers I have ever seen from that day to this. To some of my friends I showed the bed with more pride than if it had been the Koh-i-noor diamond, and their appreciation of it endeared them to me, and rekindled my enthusiasm for all flowers. But the labour of keeping up 100 distinct kinds was too great; after one more year's trial they were mixed together. Additions were made of the common kinds, and for three or four years their culture continued; but increasing sources of care were too much to allow me to grow them well, and they were given up, never since renewed to this day. The palmy days of florists' flowers have gone by, but I do hope somebody will continue the cultivation of a flower never surpassed in the superior colour and make-up of a perfect blossom. I only wish I had time to grow them again.

C. M. HOVEY.



Double Buttercups.

valuable plant, particularly useful in a cut state. It is one of the kinds shown in the annexed engraving. Of double Crowfoots there are three others, the types of which are *R. bulbosus*, *acris*, and *repens*. All these are very pretty, having bright yellow, compact, rosette-like flowers, as perfect in form as that of some of the finest sorts of the Asiatic or Persian *Ranunculus* of the florists. Both the double *R. acris* and *repens* are profuse flowerers, but *R. bulbosus* is not so; it, however, bears much larger flowers than either of the others, and on this account is named *R. speciosus*. These four plants are indispensable, yielding, as they do, flowers in such abundance and in such long succession. In order to enable them to

should have precisely the same estimate of this flower. The *Ranunculus* has for me a strange fascination; it takes me back to the days of boyhood, of freedom from thought and care. A young man whose father had just purchased a country residence near me, and who was fond of flowers, exhibited three or four dozen *Ranunculuses* to the Massachusetts Horticultural Society in 1831. Oh, how lovely! Whoever saw the like? And yet they were only the common mixtures sold among Dutch bulbs at auctions. I went to see his bed. What a grand sight! More than fifty years have come and gone, and yet that display seems just as vivid as at that time. I had never cultivated the *Ranunculus*. I had

THE ROCK GARDEN AT HOOLE HOUSE, NEAR CHESTER,

Is of large dimensions, and many plants in it exhibit great luxuriance. *Arenaria balearica* ramble carelessly over every ledge of rock, climbing its sides and tightly fastening itself in its onward course till it covers a considerable area with a dense carpet of miniature leaves, from which arise numerous starry white flowers. *Erinus alpinus* and its variety *albus* grow here in abundance; the seeds of these, together with *E. hispanicus*, are allowed annually to fall where they like, except perhaps when it may be deemed expedient to collect a small portion to scatter broadcast on another part of the rock where this species is less plentiful. The alpine Snapdragon (*Linaria alpina*) has the same privilege allowed it; this is one of the most charming of alpine annuals. It is of dense procumbent habit, and has glaucous leaves and flowers of a bluish-violet tint, with rich orange palate. The great variety of alpine and other plants to be found in this garden have made a fine display during the past two months, and week by week some fresh charm presents itself. Primulas, consisting of such kinds as *rosea*, *cashmeriana*, *denticulata*, *acaulis* and its varieties, *Sieboldi* and its varieties, and many others, have played their part well. Phloxes of the alpine section have also been remarkably fine in masses and on raised mounds of rock. *P. frondosa*, *setacea*, and *setacea atropurpurea*, together with some of the newer kinds, such as *Vivid*, *compacta*, *The Bride*, *Model*, and others, have all flowered well. *P. reptans* has also flowered freely, as has also *P. Nelsoni*. *Iberis gibraltarica* was finely in flower in a sunny fissure of the rock, its massive heads of bloom producing a striking effect. A rich collection of Saxifrages is also cultivated here. *S. Burseriana* may well be styled the queen of spring flowering Saxifrages. *Caltha palustris* and *C. palustris minor* fl.-pl. were each gay with golden blossom. *Androsace sarmentosa* was just beginning to flower, as was also, in a damp nook, *Ourisia coccinea*, a plant not always to be found in good condition. *Anthyllis montana*, some 2 ft. or more across, and bearing

about 200 flower-spikes, was a sight worth seeing. This is raised some 2 ft. above the ordinary level, and is allowed to ramble at will. Planted *en masse* on the higher portions of the rock are Aubrietias, Myosotis, and Alyssum. Some large circular beds on the lawn are filled with hardy perennials, amongst which were Liliun auratum growing very strongly. In short, in very few gardens have I seen a better collection of hardy plants than is to be found here.

E. JENKINS.

JUDGING HARDY PLANTS AT SHOWS.

In the ordinary course of judging it is customary, after passing to and fro before the exhibits, to fall back a pace or two, and, after deliberation, award the first prize to the showiest group; this may be right in a certain sense, but if set down as the rule, our collections of hardy plants at exhibitions will soon consist of little else than that of which every cottage garden has its complement. Where, however, as is the case at Manchester, competitive groups of hardy subjects include both alpine and herbaceous plants, mere display should have but small weight with the judges compared with the rarity and value of many an alpine gem. Several of the specimens which Mr. Brockbank showed are undoubtedly rare, especially *Phyteuma comosum*, which is to be found only in the choicest collections, and one of those plants seldom seen at exhibitions; unless, however, judges are well acquainted with the objects placed before them, such plants as this, *Ramondia pyrenaica*, *Saxifraga lantoscana*, and *Onosma tauricum* are apt to receive simply a passing glance. To obviate disappointment in future, a revision of the schedule in this particular class of plants is absolutely necessary. There should be two classes instead of one, as heretofore, say, for instance, thirty-six or even fifty hardy perennials in flower to be arranged for effect, and a like number of alpenes in or out of flower, special attention being paid to the rarity of the individual species; it may also be expedient to confine the alpenes to pots or pans not exceeding 8 in. in diameter, thus avoiding a huge pan of this against a small, but still rarer plant of that. Hardy perennials grown for exhibition purposes should be potted early in autumn, so as to give them an opportunity of making new roots before winter sets in. When plunged to the rim, they are prepared to withstand severe frosts with impunity. If a little backward in coming into flower, they may be introduced into slight warmth; and being well established in their pots, no injury is sustained. All plants, however, which may be introduced into heated structures should be placed out-of-doors in full sun upon all favourable occasions, in order to infuse into the flowers their normal colour.

E. JENKINS.

Francoa ramosa.—In "Brockhurst's" interesting notes on herbaceous plants his mention of this plant puzzles me, for he speaks of it as pink, and as if in flower now. The plant which I have known by that name has white flowers and does not flower until much later. I have grown it most in the greenhouse, as its long white sprays of bloom are very useful for cutting for vases. Have I wrongly named the plant? or how is the difficulty to be solved?—DELTA.

Weeds on walks.—Some dislike using salt to destroy weeds on walks; they think it acts as a manure, and that it increases rather than diminishes the weeds, but I do not find it to do so. I have employed salt for years on long lengths of walks and have found it to not only effectually kill the weeds, but to give the gravel a bright, clean face unobtainable in any other way. The great secret lies in putting it on in fine weather. When the barometer indicates a period of dry weather, that is the time to salt; there is then a prospect of its lying on the surface and dissolving gradually, and that is when it will do the most good. Thus applied, the result will be safe and sure, and the expense small compared with that of hand weeding.—J. C. C.

INDOOR GARDEN.

RIVINA LÆVIS.

THE brilliant little scarlet berries of this plant render it when well grown one of the prettiest of ornaments for the hothouse, conservatory, or even for a warm room. It is quite easily managed, stray seeds of it even growing where they fall, and making handsome specimens. For indoor decoration few subjects are more interesting, and a few plants may be so managed as to have them in fruit in succession all the year round. Any kind of soil will answer for this *Rivina*. Cuttings of it strike freely, but it is easiest obtained from seeds. Either one plant or three may occupy a 6-in. pot, and that is the best size for table decoration. Usually it is best to raise a few plants every year



Rivina laevis.

and discard the old stock, but some may be retained for growing into large specimens. These should be cut back before they are started into growth. The berries yield a fine, but fugitive red colour. Miller says that he made experiments with the juice for colouring flowers, and succeeded extremely well, thus making the *Tuberosa* and the double white *Narcissus* variegated in one night. Of this species there is a variety with yellow berries which are not quite so handsome as the red, though very attractive. *R. humilis* differs from *laevis* in having hairy leaves, those of *laevis* being quite smooth. It also differs in the duller red colour of the berries, *laevis* being much the prettier. Both are natives of the West Indies.

R. I. L.

TUBEROUS-ROOTED TROPEOLUMS.

OF *Tropeolums* some are annuals, including the well known *T. aduncum*, or the Canary flower; others are of dwarf habit, and nearly all of them form very ornamental and free flowering decorative plants for open air culture in this country during the summer months. *T. Lobbianum* is a fine winter flowering plant. Among the tuberous-rooted perennial species one or two are quite hardy, and succeed well in the open air, such as *T. tuberosum*, a kind which forms an exceedingly ornamental object when trained on a wire trellis or arches of any kind in the flower garden or elsewhere. Being of a free habit of growth as well as a profuse bloomer, it continues in such situations in the greatest beauty throughout the entire season, at the end of which the tubers may either be taken up and stored away in sand or dry soil, or they may be allowed to remain where they grow during the winter, and separated the following spring. Most of the other tuberous species, however, are best suited to the front part of a greenhouse or some similar situation under glass. When well grown they produce a remarkably pretty effect in spring, trained to wire trellises of any desired form, or over the top of a young Larch tree, a grotesque branch of a Thorn or other plant, which should of course

be securely fixed to the pot containing the tuber, or, if desired, the shoots may be trained to wires or strings, stretching along the front of the house, extending under the rafters or otherwise. In whatever form they are trained, few plants are capable of producing a better effect during the early months of spring than the tuberous *Tropeolums*. Among the best varieties for greenhouse culture are *T. speciosum*, *T. tricolorum grandiflorum*, *T. Jarratti*, and *T. azureum*. The flowers of the latter are of a light blue colour, and produced in profusion, and when well grown it is altogether a charming plant. About the middle of October is possibly the best time to start the bulbs or tubers, unless they start into growth of their own accord before that time, which they sometimes do, when they should be at once potted. The tubers may be started in small pots, from which, as soon as the plants have made some progress, they should be carefully transferred to their flowering pots, which need not exceed 8 in. in diameter. Most growers prefer to place the tuber in its flowering pot at once, which is possibly the best plan, and if this is done it is necessary that the pots used should be perfectly clean, inside as well as outside, as well as carefully drained, which is, perhaps, best accomplished by inverting a small, or 2½-in. pot over the hole, filling all round it with clean pieces of potsherd, or charcoal to the height of the small pot; over all place a thin layer of Sphagnum Moss, which will effectually prevent the soil from mixing with the drainage.

In order to grow these plants to the greatest possible perfection a somewhat rich compost is necessary, which may be formed of nearly equal parts of well decomposed hot-bed or stable-yard manure and rich turfy loam, with possibly a portion of silver sand added if the loam is inclined to be heavy, and in addition to this a handful of ½-in. bones may with advantage be scattered over the Moss which covers the drainage. Where this or a similar practice is pursued, it is found that when the roots of the plants lay hold of the same a freedom of growth as well as a profusion of bloom is generally the result. When the tubers are planted at once in their flowering pots they should be placed in the centre of the pots; they should not be planted deeply, but should be merely covered with the soil, which should be pressed somewhat firmly around them, and to settle all down properly a slight watering with a fine rosed watering-pot may be given. No more water will then be required for some considerable time, as the plants will not for some time root into the soil—at least not until considerable progress has been made in the development of the young shoots. In order to prevent the soil becoming too dry, the surface of the pots should be covered with Moss or some other mulching material, which will tend to check evaporation, and the pots should for a time be placed in a pit or frame. When the plants have made some growth, they may be placed where they are intended to flower, and a commencement may be made in training or regulating the shoots in order to induce them to cover the wires or trellises intended for them. Water should at first be given sparingly, or until the pots are well filled with roots, when an abundant supply will be required, and if the pots are small compared with the dimensions of the plants, weak manure water may with advantage be given to them occasionally. But if soil and pots of the size recommended are used, this will seldom be necessary.

As the flowering season draws towards a close, the supply of water should be gradually diminished, and ultimately the tubers should be shaken from the soil, and may be stored in sand or dry earth until the time for planting again arrives. Under favourable conditions the tubers of most sorts will be found to have more or less increased, and the largest of them should be selected for flowering the following season; while the smaller ones may be planted in pots or seed-pans, and will, under proper treatment, generally be found large enough for this purpose the second season.

P. GRIEVE.

CULTURE OF ALLAMANDAS.

THE bright weather which we experienced in the spring favoured Allamandas, as we were able to give them abundance of air, which induced the formation of short, stout growth, in every way likely to produce plenty of flowers. Although they will withstand a large amount of sunshine, they are much benefited when in flower by slight shading during the hottest part of the day. Allamandas are, as is well known, useful both in pots and as roof climbers in conservatories during the latter part of the summer. Thus used, if well grown, they produce a fine effect. For this purpose they should be treated liberally, and if healthy and vigorous will keep in flower at least eight months out of the twelve; they are easy to grow and do not require so long a season of rest as many people suppose; eight or nine weeks' rest will be quite sufficient. They will succeed without bottom-heat, but are much benefited by it when making their growth. I like large pots better than planting out, as in that case water can be given and withheld at any time, and the soil can be partially removed and renewed when required.

In propagating use cuttings made of the young shoots taken off close to the wood of the previous year. They should be inserted in small pots singly, and placed in the propagating house or pit, and shaded from bright sunshine. In their early stage Allamandas are not particular as to soil. We employ light turfy loam, with a small portion of sand in the centre of the pot for the base of the cuttings to rest on, and then place them in a bottom-heat from 80° to 85° with bell-glasses over them. I should add that *A. grandiflora* does best grafted on some of the stronger species, such as *A. Schottii* or *A. Wardiana*. In grafting it is important that the wood be ripe enough both as regards stock and scion. Allamandas may also be inarched similar to Vines. Let us suppose that the stock, in the case of plants to be grafted, is in a 4-in. or 5-in. pot; it should be shortened back to within 3 in. or 4 in. of the soil. The scion should contain three or four buds, and after carefully fitting the two together, as in Rose or fruit tree grafting, they must be made secure with matting where the union is to take place, and be then well rubbed over with grafting wax. This done, they must be placed in a propagating pit, where they can be carefully attended to until growth has commenced and the union has become completed. When root action is getting vigorous, they should be shifted into large pots. *A. grandiflora* grows much weaker than any of the others, but its flowers are produced very freely. *A. nobilis* and *A. Schottii* are both worth growing where a collection is the object, but *A. grandiflora* and *A. Wardiana* are the two best. The latter will produce double the amount of flowers that *Schottii* will, and the flowers are equally large, and even larger in size, equally good in substance, and with more prominent markings in the throat or tube. The treatment that applies to the one will also suit the other, but *grandiflora* requires more careful cultivation. *A. Wardiana* should be propagated early, and the young plants must be grown on rapidly, but not so rapidly as to cause weak growth. To guard against this the wood must have light, sunshine, and air to ripen it. Another important point is firm potting; the plants will then rest, and when cut back and again started in January or February, will grow freely, while, on the other hand, if not potted firmly and the wood is not ripe, the shoots often die back when pruned. On plants in 16-in. pots, and treated as has just been recommended, we have had thousands of fully expanded blossoms and buds.

Young plants when well rooted in 3-in. pots should be transferred to 7-in. ones, using this time loam, sand, and a sixth part of sheep manure which will assist them to start freely into growth. After this the compost which we find most suitable is rich fibry loam and one-third sheep manure. In this the young plants grow rapidly, and should be moved into 12-in. pots the first season. The leading shoots when about 1 ft. in length should have their points nipped out, and

two shoots should be allowed to grow instead of one. No better place to train them can be found than under the roof of a stove in an upright position. By the end of the season the two shoots will be well ripened and should receive a good rest. Our mode of resting is to withhold water when the wood is ripe until the foliage flags, and very little is given afterwards—only just sufficient to keep the wood plump. The pruning before starting into growth must be in accordance with the condition of the wood and the distance the shoots can be laid to the right and left of the pot; if thoroughly matured, a yard on each side may be left. The ball of earth, if very dry, should be partly shaken out and steeped in tepid water. After being thoroughly soaked and the water well drained from the soil, the plant can be placed in a pot the same size or a little larger than that it was in, using the compost recommended, which must be rammed firmly into the pots. As soon as pruned back the plants may be potted, but I prefer leaving them for a time for rest after the final pruning, but the plants should not be allowed to break into growth before they are potted. Very little water is needed at the roots until root action and leaf growth have well commenced. If at the pruning time the wood was well ripened, blooms will be produced when the young shoots are about 18 in. in length.

The second season a good quantity of blooms will be secured, and the plants will continue branching and flowering until late in the season, when they should be allowed to rest. With two batches of plants, one started early and the other later, Allamanda blooms may be had all the year round. If it is desired to extend the plants, two shoots, one on each side, should again be left at pruning time a yard or more long, and trained horizontally as before; the other shoots should be pruned back to one or two eyes like Vines on the spur system. Plants thus managed may be extended until they fill the whole side of a house. Syringing will be necessary if the small yellow thrips makes its appearance on the points of the shoots, for, if allowed to remain, it soon does much damage; nothing is better than syringing to keep down this insect. It dislikes water. However, with plenty of moisture in the atmosphere and the plants growing rapidly, little fear need be entertained of its attack. Under our mode of treatment the syringe is seldom used—never after the first flowers make their appearance. Allamandas while growing rapidly require liberal applications of water three or four times daily, and are much benefited by applications of liquid manure when the pots are full of roots. It is wonderful what a large amount of growth these plants can support with but limited room, provided they are liberally supplied with water, and their wants in other respects are attended to. D. D.

Nash Court, Faversham, Kent.

CULTURE OF SHRUBBY CLERODENDRONS.

FEW warm house plants are more effective than these when well grown. *C. fallax* and *C. Kämpferi*, two exceedingly showy species, bear panicles of bright red flowers, set off to advantage by broad, handsome green foliage, so characteristic of well-developed specimens. These shrubby Clerodendrons are usually increased by means of cuttings, free young growing shoots striking readily when inserted in silver sand, and placed under a handlight in a temperature of 70°; when rooted pot them off in sandy peat. The first year they will not be very strong, but if well matured when growth is finished, they will be in good order for growing into flowering plants the following year, and will make effective specimens, carrying generally larger flower-heads than older plants. Seed may also be sown early in the year, growing the young plants along freely, and getting them into 2½-in. pots by the middle of July, so that they have time to become well established before winter. Shrubby Clerodendrons are generally wintered in a stove temperature, but they do not require so high an average warmth at that season as such things as Marantas, Crotons, &c., being

benefited by bringing them into a more complete state of rest than is generally practised in the case of such heat-loving subjects. If, when growth is completed late in the summer, they are gradually inured to a free circulation of air, they will acquire sufficient hardiness of constitution to winter safely in an average temperature of 50°. When thus wintered they will need but little water—only just enough to keep the roots from perishing and the wood from shrivelling. By the beginning of March they should be shifted into larger pots, but the first shift should not be a large one, giving only just enough fresh soil to encourage the production of new feeders and stimulate growth. Two-thirds loam, if fibrous, and one-third leaf-mould with plenty of silver sand will suit them at this early stage of growth, adding, however, a little fibrous peat should the loam be deficient in this respect. When once in full growth they will make rapid progress, and will be fit for 8-in. pots, giving good drainage, and employing this time some thoroughly rotted manure, or a little of some artificial fertiliser. Be careful not to sour the soil by over-watering, and the foliage will develop with great luxuriance.

Old specimens.—These, having been wintered as advised for young plants, should be pruned about the beginning of February, and when they start into growth they should have as much of the old soil shaken from them as can be done without injuring the roots, first allowing the soil to become nearly dry. Replace them in the same sized pot, or in a size smaller, shifting on as required. Although kinds such as *C. fallax* may be flowered well year after year, they do not produce such large panicles of bloom, nor does the foliage attain such handsome proportions as that of younger plants. During the spring months the day warmth should never range lower than 65°, rising on fine days some 10° or 15°. Although these shrubby kinds, like the rest of the genus, delight in heat and moisture whilst making their growth, they need more light and air than most stove plants do, and it often happens that, through lacking these essentials, they fail to attain the size and substance of foliage indispensable to the formation of fully developed flower-heads. Where a graduated stage occupies the centre of the house, a suitable place for Clerodendrons will be found on the topmost portion of it, where they will be fully exposed to the light, and get the amount of air necessary to render them sturdy and vigorous. Where no such position is available, they should be placed on inverted pots, so as to raise them a little above their neighbours. A little shade, just to break off the fiercest rays of the sun, will be necessary; but I have never seen them in perfect condition where the house was perpetually shaded during summer, except, perhaps, in large, roomy structures, where a greater volume of light necessarily exists than can be the case in small or moderate-sized houses. It follows, therefore, that the smaller the structure, the nearer to the glass should the plants be placed.

Insect pests.—These consist mainly of green fly, mealy bug, and red spider. Of these, fumigating will destroy the first, and so will Tobacco-dust promptly applied. Mealy bug may be kept down in the usual manner, taking care that it does not get established upon the flower-heads as they form; whilst red spider is easily kept under by syringing the under-surface of the leaves in fine weather. If, however, the atmospheric moisture is well kept up, this pest will not be troublesome. JOHN CORNHILL.

White-flowered Lobelias.—I saw at the Huntingdon Nurseries the other day quite an interesting collection of white Lobelias. Messrs. Wood & Ingram have been successful in raising a very good variety, for which they recently obtained a certificate at South Kensington. Before exhibiting their seedling they procured all the white Lobelias they could get in the trade for the purpose of comparison, and *Lobelia pumila* Ingrami, the kind in question, is certainly the best, and quite distinct. It will, I think, prove a de-

sirable plant for bedding purposes. It appears to be a cross between the pumila and speciosa sections, with a very decided leaning towards pumila. It has an erect, rather dense habit, and carries a profusion of pure white flowers without any trace of blue in them, which forms the weak point in so many of our white Lobelias.—E. HOPDAY.

Tuberous Begonias as basket plants.

—There are numerous collections of these in this locality both for indoor decoration and for bedding purposes, one of the finest being that at Annerville, near this town. Here a large conservatory is almost wholly devoted to them, and wondrously varied they are. There are single, semi-doubles, and doubles, erect and drooping, flowers with petals almost transparent, and petals as thick and fleshy as a healthy Camellia, with colours varying from scarlet, orange-scarlet, pink, and rosy pink, salmon, and yellow, with the numberless shades of these colours, to pure white. If Begonias continue to grow varied in this way from year to year—and so far I have not referred to the ever-varying foliage—and to improve at the rate they have progressed for the last few years, houses and grounds in the future may be made very showy with tuberous Begonias alone. At present, however, I meant principally to direct attention to certain varieties for basket and suspension purposes. I noticed baskets filled with Calypso (Lemoine), a dwarf drooping rosy pink variety, a perfect mass of bloom, and that, I was assured, had been blooming two months, and will for several yet to come. The plants were started in the wire baskets, in soil and green Moss, and grown on.—W. J. M., *Clonmel*.

Thunbergias.—These beautiful tender annuals are by no means so extensively cultivated as their merits for decorative purposes would lead one to expect; for, in addition to their graceful drooping habit, they produce abundance of bright flowers of quite distinct shades of colour, and when freely used in drawing-room stands, or drooping over the edges of stages or wherever plants are arranged for effect, they give to the whole a finished aspect such as plants of a stiff or erect habit of growth are unable to impart, however well put together. We usually make several sowings during March, April, and May, so as to always have plants coming on in succession, for, like most other annuals that are easily raised after the first flush of flower is over, it is better to grow on young plants than to try any remedial measures in the case of old ones. Sow the seed in pots or pans of light soil, and pot off singly as soon as the young plants are large enough to handle; pinch out the points, and shift into 3-in. pots; grow them on stages or kerbs where the shoots can fall down in a graceful manner, and they will soon be covered with beautiful blossoms. A moist warm atmosphere is the main thing to ensure success. They grow freely in any mixture of light rich soil. We sometimes peg the first shoots down on the surface of the pot, an operation which induces more lateral shoots to push out. Thunbergia alata, yellow, with nearly black centre, is an excellent kind, also T. alba, white, with dark eye, and T. aurantiaca, orange, with dark eye. Packets of seeds consisting of mixed varieties may be bought cheaply, and in addition to their value as pot plants they have a very lovely effect in hanging baskets in conservatories.—J. G.

Brugmansia suaveolens. I saw at the Barchet Show the other day in a group arranged for effect a fine specimen of this Brugmansia, a most useful plant for indoor decoration. Its scent is very powerful, and altogether it is a plant that deserves to be much more extensively grown than it is.—J. CROOK, *Farnborough Grange*.

Seeding Carnation.—What is your opinion respecting the Carnation flowers which I send? They are from a seedling tree or perpetual Carnation, which I have grown for four or five years. It is a very free bloomer; I had this spring as many as thirty flowers open at one time on plants in 6-in. or 7-in. pots.—GEORGE KEMP, *Edgeley House, Stockport*. [A very handsome smooth rose-coloured flower, which, if vigorous and free blooming, as you say, should be valuable.]

Scutellaria Mocciniana.—This beautiful flower, that may be had at almost any time of the year, is especially welcome about midsummer, when the blaze of early flowers is over for a time. Its colour is a peculiarly rich orange, and the blooms are arranged something like those of the Bottle Brush. I find it most serviceable in a small state in from 3-in. to 6-in. pots; it keeps sending up fresh suckers or ground stems that soon flower, and a plant in a 4-in. pot, with half a dozen good flower-heads on it, looks extremely well in any drawing-room stand or vase. It strikes readily from cuttings, and grows well in a mixture of peat, loam, leaf-soil, and sand; plenty of moisture is essential to its well-being in hot weather, or it will fall a prey to red spider. It grows freely in an ordinary stove temperature, but will keep in good condition for a long time in the conservatory or intermediate house.—J. GROOM.

Pelargoniums in the midland counties.—Some of the finest specimen Pelargoniums I have ever seen were exhibited at Leeds a few days ago. The largest of them were in 10-in. pots; many of the plants measured 5 ft. and 6 ft. through, and were finely furnished. Not a stalk and scarcely a leaf could be seen, so well bloomed were they. They were certainly far in advance of anything the Pelargonium Society brought out at South Kensington. At Leeds, prizes of £12, £8, and £5 were offered for twelve plants, while at South Kensington the society in question only gave £5, £3, and £1 10s. for eighteen plants. At Leeds, Messrs. Lazenby & Sons, York, stood high among the prize-takers. Their best plants consisted chiefly of the following: Digby Grand, Sultana, Mary Hoyle, Salmonda, Duchesse de Morny, Madame Hallin, Duchess of Edinburgh, Aughton Favourite, Queen Bess; and in another section Amarantha, Lord Derby, Mrs. Wm. Paul, Princess of Wales, Mrs. Lowe, and François de Boil.—CAMBRIAN.

Cordylina indivisa.—What is the best way of growing and propagating this plant? I have a large specimen of it in a 12-in. pot, and it is sending up young plants to such an extent as to weaken the main stem. These young plants I have on several occasions taken carefully off with a little piece of peel attached to them and tried to root them, but I have never succeeded, although I have tried them in both stove and greenhouse under a bell glass.—P. G. R.

—The species here alluded to is probably C. australis, which in gardens is generally met with under the name of C. indivisa, but the true C. indivisa is much less vigorous and far more difficult to cultivate successfully. The soil best suited for C. australis in a young state is loam, with a little leaf mould and sand added, and when large good turfy loam alone, unless it be somewhat adhesive, in which case some sand must be added. A large specimen may be grown in a comparatively small pot, and as "P. G. R.'s" plant is already in a 12-in. one, it probably does not want a larger one. The best way will be to turn it out of the pot and examine the roots; if in good condition it may be slipped into a size larger, but if not remove as much of the old soil as possible and repot. The suckers of young plants will undoubtedly weaken the main stem, and should be removed. I cannot understand why they do not root. My practice is to put them in small pots of sandy soil, and place them in a close case, the temperature of which is slightly above that in which they have been grown. I keep them moderately moist, but on no account do I overwater them, and air is given every morning. In this way scarcely any fail to root, and I can only attribute "P. G. R.'s" want of success to their being either overwatered, or kept too close, or the two combined. A good way will be to remove the soil around the young shoots for a little distance below the surface; if no roots are to be seen, make an incision on each side of the stem, and replace the soil, putting some sand around the cut portion. The check thus sustained will soon induce the formation of roots, when the young plants may be cut off with safety and potted in small pots.

C. australis only requires a greenhouse temperature and may be placed out of doors in summer, but it soon goes yellow if allowed to become dry, while on the other hand it must not be over watered. Of course when the pot is crammed full of roots there is not much likelihood of the latter taking place, and when in that condition a little stimulating manure applied now and then will keep it in health.—H. P.

GARDEN FLORA.

PLATE CCCXLVI.

CATTLEYA TRIANÆ.

THE great beauty, endless variety, and easy culture of this plant should recommend it not only to Orchid growers, but to all lovers of showy and durable flowers. In days gone by, when the number of specimens of it in the country was but limited, most of the distinct varieties, and many of those which differed but slightly from the type received distinctive names, but now when, through the enterprise of Orchid collectors, considerable quantities of it have been imported, newly introduced varieties have superseded the old ones, and the buyer of imported plants now-a-days is not satisfied unless the majority of them are better than those which used to be held in such high repute. As it is, most Orchid growers have their pet varieties of this Cattleya, all when in flower truly lovely, but they now seldom receive distinctive names unless they well deserve them. One of the finest varieties ever introduced is the C. Trianæ Backhousei, represented on the right-hand side of the annexed plate; for size of flower and distinctness of marking this stands unrivalled, the bright coloured feather so difficult to show properly in a drawing giving the flowers a very charming appearance. The other coloured variety represents a bloom of the ordinary type, and the lovely white one a very fine form of C. Trianæ alba, flowered by Mr. Crawshay. It is one of the loveliest and most attractive varieties we have ever seen. No one need be afraid of having too many plants of Cattleya Trianæ; a buyer of a score or two will on blooming them pronounce them all to be beautiful, and will find it difficult to discover two exactly alike. This, together with their flowering in winter and spring, makes them very desirable.

The culture of C. Trianæ is very simple; it does best in proportionately small pots in crocks and charcoal, with a thin layer of fibry peat on the top for the roots to run into. Thus potted, the plants may be frequently watered (almost every day) when growing and rooting freely without fear of their becoming sodden, as they too often are when much peat and Sphagnum is used. In winter a temperature of from 55° to 65° is all that is necessary, and in summer the temperature of an ordinary intermediate house, but at all times there must be pure air and plenty of light. A very thin shading is all that is necessary for Cattleyas, even in the brightest weather; they make harder growth, and bloom more profusely when the sun is allowed to shine on them to a reasonable extent than when too much shaded.

Narrow-on-the-Hill.

JAMES O'BRIEN.

Ourisia coccinea.—The best flowered patch of this plant that I have seen is in Mrs. Barker's garden at Oaklands House, Stokesley, Yorks. It is growing on a flat rockery, consisting of "slag" from the pig iron blast furnaces, the soil being chiefly mountain surface peat of no

* Drawn from flowers sent by Messrs. Backhouse, York and Mr. Crawshay, Sevenoaks.



special quality. The *Ourisia* grows most luxuriantly between the rough blocks. I mention this because there is an opinion that rough slag blocks are unfavourable to the culture of alpine plants. I can state from experience that *Ourisia coccinea* does not succeed well under pot culture. I may add that Mrs. Barker cultivates alpine and herbaceous plants with rare success.—CHAS. McDONALD, *Stokesley*.

ROSE GARDEN.

JOTTINGS FROM THE ROSE SHOW.

THE chief element of satisfaction to exhibitors at the recent National Rose Show was the innumerable number of classes, all admirably arranged so that all might have a chance of picking up a prize. Of course, it is desirable that small as well as large growers should have a chance, that is, if they have meritorious blooms to exhibit; but visitors who have seen A. K. Williams, La France, or Marie Baumann fifty times already naturally long for some fresh sensation, and, unfortunately, do not get it. If the committee could introduce some classes or arrangements that were productive of novel results, it would be, indeed, a gain. The slight break in the common method of carpeting boxes introduced by Mr. Whitwell, of Darlington, was very acceptable; and although opinions may differ as to whether the change is a desirable one or not, yet it was pleasing on this occasion because it was novel. Mr. Whitwell had discarded the usual Moss bank, always pleasing enough when it is composed of clean and truly green Moss, and had covered his boxes with a dark violet-shaded velvet or plush. As a base or foil the effect was admirable; but still more marked was the good effect resulting from the higher and more even elevation of the blooms above the box. In using a thick base of Moss, which is soft in texture and does not grip, it is necessary to ensure ordinary firmness for the tubes to press them too much into the Moss. As a result, the whole of the stand has a squat, crowded appearance, and much of the good effect that would result from the display of fine flowers is lost. Exhibitors will, however, doubtless say that they cannot afford velvet-covered stands. That may be. Still, further, all may plead that such covering must, even with the greatest care, soon become stained and dirty, and then all its charm is lost. After all there seems to be no carpet so cheap or so generally fitting as green Moss, but if longer tubes were employed the effect of any good stand of flowers would be enhanced.

As ladies are great admirers of Roses, cannot the committee of the National Rose Society exhibit their cosmopolitan sentiments by establishing some classes for ladies in which they may show their decorative powers? Baskets, vases, pans, anything in reasonable size and fitness, except the now hateful glass epergne, dressed with Teas only, or with Hybrid Perpetuals only, or mixed, or, better still, with common garden Roses that find no representatives on the tables, using only Rose foliage of any kind, would offer admirable methods of displaying their decorative art, and would, further, lead them to take an interest in the cultivation of those dear old garden Roses which the show, as it is, only treats with cold neglect. Many of the prizes now offered are a long way in excess of the needs of the show or of the exhibitors. £4 for twelve moderate Roses is a wanton waste of money; 20s. might be docked off that amount and from others proportionately, and be given to ladies without detracting from the merits of the exhibition.

Many begin to view exhibiting as by no means a bad investment, and, looking at it in a thoroughly business aspect, inquire for the best Roses to grow with which to win prizes. Now, if such an exhibition as that upon which I am commenting does not afford ample opportunity for noting which are the best flowers, but also those most widely grown, its lessons must be valueless indeed. The following list of twenty-four Hybrid Perpetuals, dotted down after careful scrutiny, I think are all first-class, at least they appeared to

me to be the most widely represented flowers in the show, and I submit them as being a good selection of variously coloured kinds: Marie Baumann, Alfred Colomb, A. K. Williams, Thomas Mills, Star of Waltham, Mons. E. Y. Teas, Beauty of Waltham, Madame Charles Wood, Charles Darwin, and John Stuart Mill, all dark flowers; Madame Marie Finger, Marie Rady, Etienne Levet, Dr. Andry, Madame Victor Verdier, Madame Prosper Laugier, Countess of Oxford, and François Michelin—these have all bright colours; and La France, Baroness Rothschild, Captain Christy, Madame Hippolyte Jamain, Marquise de Castellane, and Madame Lacharme, all pink or pale hued flowers. Of Tea Roses, the best appeared to be *Devoniensis*, so sweet, pure, and pleasing; Niphetos, the finest of white kinds; Souvenir d'un Ami, rosy pink; Souvenir de Madame Pernet, shaded rose; Homère, a lovely rose tinted flower; Catherine Mermet, one of the most exquisitely formed of all the Teas; Jean Ducher, a salmon shaded kind that is very beautiful; Madame Lambert, a rich rose shaded flower and one of the most striking; Madame Falcot, delicate yellow; Marie Van Houtte, yellowish white with creamy centre, a very beautiful kind; Souvenir d'Elise, a grand rosy white flower; and Cheshunt Hybrid, cherry carmine, a fine bold flower. Perhaps in one or two points some more experienced rosarian may think the list worthy of correction, and if so, none will be more pleased than myself.

Just two other little jottings and I have done. First, as I gazed over that immense gathering of floral beauties I thought were some of them to be sent into our hospitals and the homes of the poor and wretched in our huge metropolis, with what delight would they be received. Who that has not been sick, poor, and wretched themselves can realise the joy and delight the possession of but one beautiful flower gives. I commend to many of our rosarians a perusal of "Dagonet's" simple poem of "Billy's Roses." Secondly, let me suggest that the committee offer prizes for the best keeping stands of Roses, and have the awards made at five or six o'clock in the evening. How many a lot of blooms which get prizes at 11 a.m. are hopelessly disorganised at 2 p.m., and literally all abroad at 6 p.m., especially if the atmosphere becomes heated.

A. D.

AMONG THE ROSES.

ONE of the richest treats I have had this year was afforded by the Rose show at Ipswich, on the 6th inst. Nearly the whole of the Roses shown were good, excepting, singularly enough, the sixes (a class reserved for those who could only muster so many). These seemed to come from a lower and inferior plane of culture. In the other classes the blooms were fine, and Marie Van Houtte was, perhaps, never seen in such form and colour as on that occasion. This flower had also unusual size and substance, while its soft yellow was not only edged, but largely suffused with the most delicate rose. My object is, however, less to point out the merits of individual flowers than to give the contents of the premier forty-eight collection exhibited by Mr. Benjamin R. Cant, of Colchester, with the exact mode of their arrangement. The flowers were each perfect, and were said by some who had seen both to be superior to those with which he had, a few days before, carried off so many of the metropolitan trophies and other prizes. Good, however, as the blooms were, without speck or flaw, the stand owed a good deal to its arrangement. Hence the latter is likely to prove particularly useful to amateur exhibitors, who as often fail through faults of setting up as through inferiority of material selected for exhibition. For the information of those not familiar with Roses we add the colours after each name. The forty-eight Roses were arranged in the following order: Standing in front of them and beginning at the left hand, and proceeding to the right the back row in the box was arranged as follows: Ferdinand de Lesseps, shaded crimson;

Madame Ferdinand Jamin, carmine-rose; Egeria, rosy pink; Etienne Levet, carmine-red; Camille Bernardin, brilliant crimson; Annie Laxton, rich cherry-crimson; Constantin Tretiakoff, rich cerise-red, deeper in the centre, a very telling Rose; Countess of Oxford, carmine shaded violet; Edouard Morren, carmine-pink; Sénateur Vaisse, brilliant crimson; Madame Thérèse Levet, bright cherry-rose; Maurice Bernardin, crimson; La France, silvery rosy lilac; Marie Baumann, soft carmine-red; Marquise de Mortemart, pale flesh coloured. With the exception of this variety and La France, it will be observed that almost all the back row are bright coloured varieties, the last in the row at the right hand corner being the brightest of them all, the brilliant vermilion kind, Duke of Edinburgh. In the next two rows it will be observed softer colours prevail, the lighter ones mostly being placed in front of the dark ones. By this arrangement the rich colours are toned down, and distance not only lends enchantment, but softness as well as richness to the hue of the deeper coloured Roses. The middle row was arranged as follows: In front of Ferdinand de Lesseps was Madame Ducher, very fine; then followed Niphetos, pure white, slightly suffused with pink; Louis Van Houtte, bright scarlet-crimson; General Jacqueminot, in its full brilliancy of scarlet; *Devoniensis*, a fine, rich, creamy white; Xavier Olibo, velvety black; Marquise de Castellane, clear, bright rose; Prince Arthur, a brilliant, deep crimson-rose, raised by Mr. Cant; Countess of Rosebery, reddish salmon, fine shell-like form, exceedingly beautiful; Souvenir d'Elise, creamy white, tinted rose; Le Havre, brilliant vermilion; Innocente Pirola, white, tinted with pink, delicate, and exquisitely beautiful; Horace Vernet, reddish purple, shaded crimson; Madame Van Houtte, rich yellowish white, tipped with rose; A. K. Williams, brilliant carmine, perfect in size and form; Mons. Alfred Dumesnil, rich red, new Rose. The Teas were wonderfully effective in this row, tending to bring out and throw up by their soft, contrasting colours not only the prevailing brilliance of the back row, but likewise of the high-coloured Perpetuals with which the lines in the middle row were mostly alternated. In the front row, as will be seen, there were also several delicately coloured varieties, the full beauty of which was the better revealed from being brought nearer to the eye. Rubens, white, shaded with rose; Auguste Rigotard, bright cherry red; Comtesse de Paris, bright clear red; Duchesse de Vallombrosa, light pink, changing almost to white; Mrs. Baker, rich deep carmine; Madame Caroline Kuster, very choice Noisette Rose, of a rich, soft, pale yellow colour; Dupuy Jamain, bright cerise; Madame Lacharme, almost white; Baroness Rothschild, light pink, very fine; Marie Rady, rich brilliant red; François Michelin, rose, with reversed petals silvery white; Duke of Teck, bright crimson-scarlet, very telling as placed between François Michelin and Mdle. Marie Cointet, a pink satiny flower of great delicacy; Mrs. Laxton, bright rosy crimson; Madame Bravy, rich cream coloured Tea; Duke of Wellington, bright velvety red, shaded with black.

D. T. FISH.

TEA ROSES, ADAM AND NIPHETOS.

I WAS pleased to see Mr. J. Cornhill's favourable notice (p. 24) of the Tea Rose called Adam, as its merits cannot be too generally known. Only a few weeks since I called attention to its extraordinary floriferousness; under glass it perhaps beats the Gloire de Dijon in this respect. By the way, I see that the Rose Society pronounces Adam to be identical with President, a classification with which I can hardly agree, and should be glad to hear the opinion of Rose growers on this point. With me President has the greater substance and the deeper shade of pink. So much is this so, that for button-hole or other delicate bouquets I prefer Adam, which I think is also more floriferous than President. In writing thus I am, of course, well aware that situation, soil, and special culture greatly affect and determine the depth or faint-

ness of the pink in these and other Roses of a similar character. The fact of their being grown under glass or in the open air is still more potential in determining their depth of tint or shade of colour. But under the same conditions the President seems to me to have in colour, substance, and size sufficient to warrant its retention as a distinct variety. But this is by the way, and by no means affects the extreme value of Adam as a perpetual-blooming, most useful Rose. Mr. Cornhill does not name the other two he would choose to make up his three favourite Teas. It is almost obvious, however, that Gloire de Dijon is one of them; and if he wants a snowy white to run abreast with them throughout the year, he can hardly choose a better than Niphetos. This Rose grows and blooms throughout the year if the temperature is not allowed to sink under 50° to 55°; and no Rose, not even Adam, can compete with it in usefulness for button-holes, bouquets, wreaths, vases, or for general decorative purposes.

D. T. FISH.

Roses in the north of Scotland.—It was mentioned in THE GARDEN the other day that Roses have been much attacked this year with green-fly and other Rose pests, that there are many deformed buds, and that the foliage is bad. I cannot endorse that opinion; my Roses have been very free from green-fly and other insects, and very fine and rich in foliage and in colour and size of bloom. Several measure from 4 in. to 5 in. across, and Paul Neyron 6 in. The young wood is strong and healthy and are still making excellent shoots both those on their own roots and standards. To-day (10th July) the richness of the flowers was well worth seeing, and a lady assured me who came from the south that she had seen nothing to equal them as regards size, colour, and abundance. I never thin out the buds, but cut off those that fade or wither as soon as possible. Sénateur Vaisse, La France, Marie Baumann, Olga Marix, Gloire de Dijon, Empress of India, Baroness Rothschild, St. George, The Shah, Capt. Christy, Miss Hassard, Miss Ingram, Mad. Lacharme, General Jacqueminot, Jean Cherpin, and several others have never been finer, and also the old Cabbage and Moss Roses. During April and May we had cold, frosty nights with a good deal of east wind. I did not prune till April 12.—C. A. C., *Achaideh, Nairn*.

The old double yellow Rose.—I, like Mr. Fish, regret very much to differ with so experienced a rosarian as M. Jean Sisley, but I am an utter disbeliever in the worn-out theory as applied to this Rose. It has always grown strongly enough here, throwing out long, straggling, rampant shoots in all directions, but as it took up room and seldom produced a perfect bloom, I have discarded it, and have only one plant left. This, though almost smothered by an evergreen Honey-suckle, still manages to maintain a very healthy growth, and throws out long shoots every summer. When I was a boy there grew on the east wall of a vicarage house near Aylesbury a magnificent specimen of this Rose. It reached nearly to the top of the house, and the owner used to cut basketfuls of magnificent blooms almost as big as those of Maréchal Niel. He used, I remember, to say that they smelt deliciously sweet at sunrise and for an hour or two afterwards, but later on in the day became perfectly scentless.—H. HARPUR CREWE, *Drayton-Beauchamp Rectory, Tring*.

Diseased Rose leaves (E. C.).—You say, "in every other respect," with the exception of these diseased leaves, your plant is "healthy," yet the leaves have many examples of the Rose aphid upon them. There is no fungus of any account, and we incline to believe that the plants are not quite up to the mark in consequence of something wrong in the culture, but without further information we cannot say what.

Lamarque not blooming.—Would some practical Rose grower inform me what can be the reason that a plant of Lamarque on its own roots against a south wall never shows the least symptoms of bloom? It has been in the same position

for three years, and grows vigorously, and throws up an immense quantity of young wood from the roots. What is the best time to prune it? and does it bear on the old wood? The plant is about 3 ft. high.—CONSTANT READER.

MARKET GARDENS.

MARKET GARDEN NOTES.

Strawberries under glass.—The past spring has once more furnished proof that bright anticipations formed early in the year are too often not realised. In April there were signs of a good season, prices ranging somewhat higher than usual, but deaths in royal circles at once cast a gloom over the forced fruit trade, which lasted over what to all concerned in fruit culture under glass is certainly one of the most important months of the year. I was told that one large grower of forced Strawberries, anticipating, as the result of the royal marriage, a lively demand for his Napiers, had kept them back so as to be able to push them into market just when wanted. Instead of the increased demand there was a sudden and severe drop in price, so that the individual in question had the mortification of seeing his fruit in a manner sacrificed. This is a fair example of the reverses and disappointment incidental to market culture, and I am sorry to say that during the last half decade they have not been few or far between. This season has, however, been more than usually bad, or, as a large salesman in Covent Garden said, "One of the very worst I ever knew." Sometimes even in bad years one gets what is termed "a good pull," that is to say, there is a great demand rather exceeding the supply for a few days, but last month and that of May formed a period of unvarying dullness, unrelieved by any transient flash of activity. Sir Joseph Paxton is, I find, growing in favour for forcing, being in one large market garden the only kind grown, but we do not find it realise so much as Sir C. Napier and Marguerite. President is a good reliable kind and, well grown, is sought after in Covent Garden, and I would certainly prefer it for market work to Sir Joseph Paxton. Mildew appears in many places to have been very troublesome, but although we neglected our usual precautions, we did not get it to any extent, for which we may thank our good luck, as all who trust to chance in this matter deserve to lose their crops.

Cucumbers.—Not many years ago Cucumber forcing was to those who well understood the work one of the most profitable of market industries, but I do not think that prices are quite so good in early spring as formerly, probably owing to the fact that Cucumber culture is in some localities now carried out on a very large scale indeed, and that the free growing, hardy, so called, hybrid varieties, which are such sure and heavy bearers as to render the production of a crop a matter of perfect certainty, are much grown. From February to the middle or April is the best time for price. In May not more than from 4s. to 6s. per doz. can be relied on, but a friend of mine tells me that at that low figure they pay him better than any other crop.

Carrots.—A large proportion of the long Surrey Carrots sold in Covent Garden are grown on the light sandy loams in this neighbourhood. Sowing commences about the beginning of May, and is continued at intervals of a week until June, as when it is a question of some twenty acres, they would not in a general way get hoed and thinned out in time were they all sown at once. A dripping June is good for Carrots on light lands, as they are apt to suffer intensely from fly and drought in the seedling stage; when fairly on the way, and have got well hold, they do not so much mind a dry time, although a hot, dry summer means a short crop here, whilst of the two it is favourable to the Essex men, who on their stiff, clayey loams grow a large quantity of the "bushel" Carrots, so called in contradistinction to the Surrey produce, which is always

sent to market bunched. Having been once "flat hoed," they are now being "cut out," a tedious operation requiring experience and dexterity, which only the professional Carrot hoers can get through creditably. The hoeing is let hereabouts to experienced men at about £2 per acre, the contract being to "keep them clean and cut them out"—not too much money for the work, as many of the men will tell you.

Peas.—The first crops were unusually early, though not heavy, but prices were good, and I hear of as much as 10s. per bushel having been obtained for good samples. Peas here are sown 2 ft. apart, and as soon as they come into flower a small plough is run between the rows, which earths them up and destroys weeds. Early crops will have paid well this year, and as much is said of the late ones; but owing to the unusually large breadths of main crops having been sown, and the fine rains which brought them along so nicely, it is feared there will be a great glut when they come in. The main Pea crop is a very uncertain one, sometimes paying well, at others just the reverse. Many cultivators grow Peas and sell them to middlemen, who perambulate the country in search of them. Sometimes upwards of £10 per acre is given; but not unfrequently the selling price is so low in the London markets that dealers refuse to speculate, and the crop remains on the ground. This is a great loss, as white Peas cannot be used for cattle, and seedsmen generally get overstocked at such times. A few years ago a friend of mine had his granary full of Champions, and could not sell them at any price.

J. C. B.

GARDENING WITH COVERED SOIL.

THIS has been tried again and again and always with the most unsatisfactory results, except as regards mulching, which is Nature's way of covering the soil and protecting roots. This kind of covering not only shelters the roots, but coaxes them to the surface where the mulching provides them with food and moisture, and we have only to imitate Nature's deposit of decayed leaves, grasses, &c., to produce the best results. This may easily be done by the use of any littery manures, which if applied to Peas, Scarlet Runners, or any other quick growing vegetables of that kind, work wonders and add enormously to the yield. Trees on walls specially need such assistance, as the ground in which they are growing is exposed to the blazing sun, or, what is as bad or worse, has a crop of some kind on it, and the roots of the trees are in consequence either baked or starved; but with a mulching these evils are avoided, and when rain falls or water is given, the earth becomes thoroughly moistened, as the wet has time to soak down instead of passing off in evaporation. To be of the greatest use mulching should be put on early, and I would particularly recommend it for Peaches and Nectarines, which without it often become affected with red spider, an insect that is more generally brought about through poverty than from any other cause. A dry border not only starves the tree, but prevents the swelling of the fruit, which, after the stoning period is over, requires much moisture in the soil to get it to anything like full size and of fine quality. Before the mulching is put on, the ground should be just broken by very slightly forking the surface so as to let in rain or water, and as soon as the manual matter is spread regularly on, it is advisable to give a good soaking to settle it in its place at once and thus keep it down. In cases where trees have much of a crop to carry, sewage is a great help if not given too rank or strong, the best kind of liquid being that which drains from a farm-yard where it gets diluted with rain. This and soap-suds or anything of that kind may be given with safety, and the more they have of it in reason the better will both trees and crops do. Apples and Pears will bear and enjoy it stronger than stone fruits, and as to Vines, they cannot well be overdone with it. They are gross feeders, and when growing in well-drained borders, will take any quantity of liquid manure. Where the

roots are outside the houses, the borders should always be mulched during the summer, for which purpose horse droppings are as good as anything if shaken out so as to contain a little short, strawy litter with them so as to make them lie light and open.

Concreting the ground, as used to be done by spreading mortar or other material to form a covering, is a great mistake, and the practice is well-nigh abandoned. It has few advocates now, and no wonder, for though it appeared to answer for a time, the injury it did by impermeably sealing the earth from the air was so patent, that those who put it down soon took it up again. I well remember some Vine borders being covered with concrete many years ago at Bowood, and others at Melchet Court, but the Vines at both places gradually became weaker, and the Grapes failed to colour. As they had always finished off their crops well before, the cause was not far to seek, and the removal of the concrete soon improved matters, although the soil never regained its sweetness, nor did the Vines succeed so well as before. I remember a case of some Muscats in a house at Colchester that were much improved by having the border covered by a paving of new, porous, red bricks, but this was an inside border, and it is more than likely that before these bricks were put on, the border was dry, though not having sufficient water, which, if ever given in proper quantity, may have escaped by passing away down cracks at the sides. When I saw the house, which is now some twenty years or more ago, the roots had formed quite a mat of roots under the bricks, to which they were attracted by the warmth and moisture they absorbed, instead of threading their way in search of the latter below. The bricks were simply laid on the border close to each other, as they would be in forming a floor, and were not jointed. As they were open there, liquid manure or water poured on found their way through directly and none could be lost. Whether these same Vines are still in existence I know not, but, judging from what I saw of them, I think it is more than probable that common house tiles, which are so porous and great absorbers of heat, might do good on some borders.

Parchmentised paper, such as that noticed lately at page 351, may also be beneficial in some cases, but for my own part I am very well satisfied with a manure mulching which we use extensively and apply to almost everything we grow. Calceolarias and other moisture-loving plants in the flower garden are mulched with Grass from the lawn mower, or manure from old Mushroom beds, and Peas and Celery and Broccoli and similar crops are mulched with seaweed, when it can be gathered, which latter is excellent for any crops that do not mind a dash of salt being washed into the soil. For small choice plants, Cocoa-nut fibre forms a capital mulching, as it is light and keeps the roots snug. S. D.

SOOT AS A FERTILISER.

THERE can be no doubt that soot is an excellent fertiliser, and it is possibly less appreciated as such than it deserves to be. I recollect trying experiments with various kinds of manure, including soot, with the view of ascertaining their effect upon the production of various culinary crops, such as Peas, Potatoes, French Beans, Cauliflowers, &c., and, so far as I can remember, the crops obtained from the portion of land dressed with soot were next in point of produce, or nearly equal to those obtained from land heavily dressed with well decomposed stable-yard manure. At all events, the two fertilisers just named proved much better than all the others tried, consisting of bone dust, nitrate of soda, gas lime, wood coal and other ashes, spent Hops, &c. Soot should therefore be secured whenever it is possible, and as it is of great importance that it should be kept dry, a bin or large box of some kind should be placed under cover for its reception. It may with benefit be applied to all kinds of land, light as well as heavy, and there is hardly a crop cultivated in the garden to which it

may not with great advantage be occasionally applied.

Soot water is found to be exceedingly beneficial to Pine-apple plants either when grown in pots or planted out. It drives worms from the soil, and repeated applications soon shows their effect in the increased vigour and healthy appearance of the plants. Its effect upon the Grape Vine, too, when applied in the form of a dressing to the surface of the border, whether inside or outside, is soon apparent. The soot is gradually conveyed to the feeding roots by the action of rain or the repeated applications of water, and the texture and colour of the foliage soon show the good results derived therefrom. Strawberry plants in pots may also be greatly benefited by repeated applications of soot water, which has the effect of driving earthworms, maggots, &c., from the pots as well as acting as a fertiliser. Indeed, there are few, if any, plants grown in pots which may not be more or less benefited by its occasional application, and I have never known plants to be injured by it, although I have known it to be applied even to Cape Heaths and Epacris, and it is known to be a valuable stimulant in the case of the Camellia.

It is also admitted to be a powerful manure for most kinds of culinary crops; in the case of the Onion it is of the greatest value. This crop is frequently attacked by the maggot, which, if not checked, soon commits sad ravages, and the best remedy is a good dressing of soot. As, however, prevention is better than cure, the land intended for this crop should, in almost all cases, have a good dressing of this material shortly before the seed is sown, in addition to any other manure which may have been given during the preceding winter. Nearly all plants of the Brassica tribe are liable to be attacked by what is known as the club, which frequently proves very troublesome, and the best known preventive of this is what is called puddling the roots of the plants—an operation easily performed by merely making a hole in the soil near to where the plantation is intended to stand; in this hole place a portion of fresh soot, and to this add a portion of fine soil, and water until it acquires the consistency of thick paint, and into this dip the roots of the plants before planting them. Seed-beds of the various kinds of Cabbages, Lettuces, Radishes, &c., when the seed is just about to germinate are very apt to be attacked by birds of various kinds, and this may sometimes be prevented by giving the surface of the beds an occasional slight dressing of fresh soot, the odour of which the feathered predators do not by any means relish. A slight dusting of this material round newly planted Lettuces and other plants will also go far to keep slugs and snails from attacking them, which they are apt to do, before the plants have recovered from the effects of transplantation. Grass lawns and belts in the pleasure grounds, &c., may also be frequently much improved by the application of soot, or a mixture of soot, wood ashes, and fine soil; this appears to have the effect of encouraging the growth of the finer sorts of Grasses, and as it were assists them to overcome and to finally extirpate the coarser kinds, together with weeds and Moss. There are no doubt many other purposes to which soot may be usefully applied, but enough may have been already said to prove its value in the garden. P. GRIEVE.

Bury St. Edmunds.

Merciless letters.—Mr. Ruskin asks his friends to refrain from troubling him with unnecessary letters. There are a good many other distinguished veterans who will echo for themselves the wish he expresses. He says: "I venture to hint to friends who may at any time be anxious about me that the only trustworthy evidences of my health are my writings and that it is a prettier attention to an old man to read what he wishes to say, and can say without effort, than to require him to answer vexing questions on general subjects, or to add to his day's appointed labour the burden of accidental and unnecessary correspondence."

TREES AND SHRUBS.

SEASIDE SHRUBS.

THE value of some plants as ornamental subjects is greatly augmented by the fact of their flourishing in situations where few others would thrive; for instance, the number of shrubs that succeed when exposed to salt spray is but limited, and on that account the few that do thrive well under such circumstances are doubly valuable



Tamarix tetrandra.

from a planter's point of view. Such is the Tamarisk (*Tamarix gallica*), a vigorous-growing shrub, producing long, feathery branches terminated during summer by loose open panicles of small reddish flowers. This shrub delights in a deep sandy soil well supplied with moisture, requirements frequently met with near the sea, and for such places it is indispensable. This and the Furze form fine bushes even on the most easterly parts of the coast of Suffolk. A little known species of Tamarix is that represented in the annexed woodcut. It is the *T. tetrandra* of Pallas, which is, we believe, a Caucasian shrub. It is quite as elegant as the common *T. gallica*, and flowers later, which is its chief value. It is little known apparently in this country, though it is to be found in Continental arboreta. A near ally to the Tamarisk, and one that succeeds well under similar conditions, is the German Tamarisk (*Tamarix* or *Myricaria germanica*), a slender upright-growing shrub, which bears great general resemblance to the foregoing, but which only attains about one-half its height and has longer leaves. The Sea Buckthorn (*Hippophae rhamnoides*) is another shrub well adapted for planting in the most exposed spots, as strong winds off the sea have but little effect upon it; indeed, the beautiful silvery appearance of its foliage is much heightened when stirred by the breeze. Besides the glistening white colour of the foliage during the autumn it becomes laden with bright orange-coloured berries, and when in that state is remarkably handsome. The Sea Buckthorn is a large prickly shrub, which, under favourable conditions, becomes almost a tree. The tree Purslane (*Atriplex Halimus*) is a loose, rambling plant, with brittle, half woody branches and silvery leaves; of little beauty when grown under ordinary conditions, but by the seaside, where plenty of

moisture exists, a really valuable shrub; it succeeds perfectly in such places, and forms fine masses totally indifferent to the salt spray. Of this there is a smaller kind, a native of Britain, viz., *A. portulacoides*, but it is insignificant compared with the preceding. Among other subjects fit for seaside planting, but requiring to be a little sheltered from the full force of the wind and spray, may be named many of the Leguminosæ, as, for instance, the Spanish Broom, the Laburnum, the white Broom, *Halimodendron argenteum*, and the Coluteas. These are among the most suitable, while, under like conditions, the Elder, Box Thorn (*Lycium europæum*), the Tree Groundsel (*Baccharis halimifolia*), and the various kinds of Lilacs will also thrive.

Among evergreens mention may be made of the different varieties of *Euonymus japonicus*, the *Arbutus*, *Laurustinus*, and *Portugal Laurels*, while trees that may be specially noticed doing well near the sea are the Evergreen Oak, Austrian Pine, the Cluster Pine (*P. Pinaster*), the Mountain Ash, and *Cupressus*. All the above are well-tried subjects and sure to succeed in almost all positions. For planting on the southern coast there is a much wider range to choose from. Even *Veronicas* there make useful seaside shrubs, and the same may be said of *Fuchsias*, the lemon-scented *Verbena* (*Aloysia citriodora*), *Myrtles*, and the *Pittosporums*, which form handsome bushes, while by far the finest plant of the beautiful white Heath-like flowered *Fabiana imbricata* that has ever come under my observation was growing in a small garden close to the sea on the coast of Devon. There it formed a large bush, and when in full flower was most conspicuous.

H. P.

CATALPA SYRINGEFOLIA.

A LARGE tree of this *Catalpa*, such as may be met with occasionally, is both distinct and ornamental, especially about the end of July or August, when in favourable seasons each shoot is terminated by a branched panicle of flowers, as shown in the annexed illustration; their colour, which is whitish, is marked more or less with yellow and purple. When young the growth is vigorous, especially in good soil, but after a height of 20 ft. or so has been attained, its progress is much slower, although a large, massive-headed tree with, as a rule, the trunk divided into branches at a short height from the ground is the ultimate result. The *Catalpa* is in no way particular as to soil, though of course its rate of growth is slower where dry and sandy than under more favourable conditions. It is a native of North America, whence it was introduced during the first half of the last century; but, like many old inhabitants of our gardens, it seems to be now almost overlooked by planters, a circumstance perhaps owing to the fact that it greatly dislikes to be crowded up even in a young state. It likes a light, yet somewhat sheltered, position; in fact, isolated specimens of it succeed best. This *Catalpa* is also known by the name of *C. bignonioides*, and there is a variety of it which produces in spring and early summer foliage of a bright yellow colour, but becomes greener as the season advances. It is, however, owing to its large leaves and conspicuous tint, a really valuable kind, and one which is in no way injured by sun; on the contrary, it is just as free and vigorous as the common form. *C. speciosa* has from time to time been put forward as in every way superior to *syringefolia*. It is said to grow wild in some parts of North America. It was, however, first detected in a bed of seedlings about the year 1852, since which time it has been largely propagated, and has spread through-

out the United States, where it is often employed for street planting. The distinctive characteristics claimed for this *Catalpa* are a more erect habit, larger and purer white flowers, which open two or three weeks earlier than those of the ordinary kind, and a greater degree of hardiness, but the specimens of it met with in England are not yet sufficiently developed to determine if such be the case or not; judging, indeed, by small plants, the difference between the two appears to be but slight. The *Catalpa* also occurs in both Japan and China, *C. Kämpferi* being a native of the first named country, and *C. Bungei* of the latter. *C. Kämpferi* in England greatly resembles the American *Catalpa*, but has rather darker leaves, especially when they are young; they are also apt at times to vary a good deal in shape, a character not found in the common kind. A good deal of confusion exists in British gardens as to the actual difference between the three kinds—*syringefolia*, *speciosa*, and *Kämpferi*; in all probability they are but varieties of one species. The Chinese *C. Bungei* is quite a shrub of rather slow growth;

downwards and collecting at the foot of the tree in the way described. We have syringed the bark and the base of the tree with diluted carbolic acid, but it seems to have no injurious effect on insect life. The insects resemble somewhat the green blight on the Rose trees, but are rather larger and of a browner colour.—Y. Shortlands.

Ligustrum sinense or Fortunei.—Scattered throughout the shrubberies at Kew, especially in the neighbourhood of King William's Temple, this Privet is now very conspicuous, being absolutely laden with its beautiful plumes of white flowers, which, in addition to their light feathery appearance, are also very fragrant. The general aspect of this Privet is very different from that of any of the others; its branches grow out horizontally from the main stems, a circumstance which, coupled with the regular arrangement of the leaves, gives them a frond-like appearance unlike the confused growth of the common kind. The Chinese Privet is in no way particular as to soil, for although it does well in good loam, the plants of it at Kew show that in light sandy places it can be thoroughly depended upon, and, like the ordinary kind, it will grow in the shade, but so



Catalpa syringefolia.

indeed, with us it is not often seen in a thriving condition. The flowers are said to be of a yellowish colour, marked with red.

The propagation of *Catalpas* is very easy, as besides seed, which is readily obtainable, they strike without difficulty from cuttings of the roots. The latter should be cut up into pieces of 4 in. or 6 in. long, and inserted perpendicularly in light soil in a sheltered position, and should not be allowed to become too dry. The top part of the root should be from 1 in. to 2 in. below the surface, according to the amount of exposure to which the soil is subjected. Smaller pieces of the roots may be used if put in pots or pans and sheltered by a frame till growth takes place. In taking cuttings of any except *C. syringefolia* take them from ungrafted plants, as the common kind is often used as a stock for the others, and especially for its golden-leaved variety.

ALPHA.

Green blight on Oaks.—Can anyone tell me of any remedy for green blight on Oak trees? Several of my trees are badly affected, one in particular being so densely covered, that the ground round it looks as if a painful of bran had been thrown down. The insects seem to be running

situated flowers sparingly. It is met with in nurseries under both of the above names, while that of *sinense* is sometimes used for the Wax tree (*L. lucidum*).—H. P.

Planting trees on the road-sides.—At the auditing of the accounts of the Tottenham Local Board objection was taken by a parishioner to an item of £117 10s., the cost of trees planted at the sides of the high road; also to an item of £258 15s., the cost of tree guards. The ground of objection was that as the roots grew they would choke the culverts, and prevent the storm waters from being carried away. A case tried at the Essex Assizes in March, 1852, was cited, in which a nurseryman, who planted trees in a certain road, by order of the Chelmsford Local Board of Health, was indicted for a nuisance for so doing, and found guilty, and the whole of the newly-planted trees had to be removed from the road. The auditor took time to consider the legal bearings of the question.

Cunninghamia lanceolata.—I shall be glad if any one will kindly give their experience of this conifer out-of-doors. The specimen here is about 20 ft. high, and, so far as soil and drainage are concerned, should have nothing to complain of, its only enemy apparently being a *Gymnocladus*, which is planted close to it and

which consequently towers above and over it. The young growth is looking well, and it is breaking hard back, but the older foliage is brown; the branches also present a half-withered appearance, and altogether the tree is not at all a nice subject in any position. Does it succeed well farther south or south-west?—E. B., *Claremont*.

Mezereon berries.—These are now bright on the bushes. I find the best berried plants are those close to the shelter of buildings. This old favourite is still grown largely by cottagers; its fragrant flowers open early in spring, and now its berries come in to enliven the garden, when the first flush of beauty in Roses and many other flowers begins to fade.—J. GROOM.

PRICES OF RHODODENDRONS.

"J. S. W." (p. 26) is quite right; it really seems a very queer thing that while the prices of all other flowers, to go no further than your own advertising columns, are very reasonable, one sort of flowers—Azaleas and Rhododendrons—should be so very dear. There are few, if any, finer shrubs to plant about a place than Rhododendrons, whether of fine sorts or only the common ponticum, and they make excellent under-cover in woods, because in places where hares and rabbits abound and where it is impossible to raise Laurels, either Bay or Portugal, or to grow Mahonias on account of the rabbits, they never touch Rhododendrons, while the old idea that pheasants do not like them is a fallacy; at any rate, they like them to nest under. But in how many places do you see Rhododendrons planted out in any quantity? In very few indeed, and only in the grounds of very rich men, and those are but the common ponticums, seldom the finer kinds, which would so much beautify their woodland walks, &c. And the cause is that they are so unreasonably dear. Take up the first catalogue that comes to hand and you will find them at all prices, from 2s. 6d. to 5s. apiece, which is prohibitive. No doubt they must be grafted and a great deal of trouble taken with them, but doubtless also there is a large demand and a large profit waiting for the man who will supply it with plants at 6d. and 1s. apiece. For instance, I myself plant every year a few, both common and named sorts, but I would plant very much more if they could be obtained cheap. Nor do I want them to be all the last new kinds shown in the Regent's Park or at South Kensington. There are plenty of fine old sorts quite good enough to plant out and which would make most striking and beautiful objects by the side of walks and through the woods and shrubberies round a country house. I do not plant Azaleas; but, as your correspondent says, "nothing but the price prevents me," and as they lose their leaves in winter they are harder than Rhododendrons, but those few I have are gorgeous in spring. Do not let it be supposed that peat is necessary for Rhododendrons; they will grow equally well in sand or clay or good loam—any soil will do for them; they are not at all particular. Though they do not flower so well under the shade of trees, they grow tall and make a fine evergreen undergrowth which is beautiful in winter.

A COUNTRY GENTLEMAN.

SHORT NOTES—TREES AND SHRUBS.

The purple Hazel.—This comes to us from Coombe Wood in fine colour, and bearing fruit that is purple, too. Rightly used and well grown it is a good thing.

Umbrella Magnolia.—This beautiful flowering tree is now in great beauty; its perfume is not only powerful, but of a most agreeable kind.—J. G.

The late-flowering Deutzia is invaluable for cutting, and by planting some in a sunny position against a south wall, and some in a cool, north aspect, a long season of flowers is the result.—J. GROOM.

Araucaria frutigena.—We had a large tree of *Araucaria imbricata* planted on our lawn about thirty years ago, and now for the first time it has ten large green cones upon its upper branches on the south side. Possibly this may not be an unusual occurrence in the south of England, but here in Cumberland it has never been known before. The tree in question is about 50 ft. high.—C. STANLEY.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J., SURREY.

FEW summer flowers are so valuable for cutting as *Alstroemerias*. They have every good quality for decorative purposes—easy to arrange, lasting long in water, and their varied colours always in perfect harmony. Except the hardy Azaleas, whose colouring theirs so much resembles, no family of tall-growing flowers gives us such a fine and varied range of warm colours. A bold bunch, cut over 2 ft. long, stands in a tall glass with some leaves of Globe Artichoke. In another large upright glass some spikes of palest blue *Delphiniums* are arranged with the foamy double *Meadow Sweet* and side flowers of white *Foxglove*. A brilliant effect is got by a combination of orange *Eschscholtzias* (some Mandarin) with yellow and orange *Nasturtiums* in a wide oval bowl of blue and white earthenware. Holly with green berries and single white Brier Roses make a pretty table bouquet in a silver cup, and a silver basket holds pale pink Tea Roses. The dinner-table is dressed with red and pink *Alstroemerias*. Various *Begonias* are in sitting-rooms as pot plants.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Saxifraga.—The varieties of this genus are very numerous, but I will confine my remarks wholly to kinds well suited for parterre work in association with ordinary bedding plants, and particularly such varieties as can be used in lieu of tender plants. The kinds in question are *Aizoon*, *Aizoon minor*, *cæsia*, *ceratophylla*, *hirta*, *hypnoides*, *oppositifolia*, *rosularis*, *sarmentosa*, and *serratifolia*. These are all of a dwarf spreading habit of growth, and are excellent for carpeting the ground under tall-growing plants of any kind, and also for edgings to beds of the common kinds of bedding plants, and for forming the divisional lines in geometrical patterns, or what are more generally termed carpet beds. For the most part the foliage of the kinds named is either greyish white or green, colours that harmonise with any of the fine-foliaged kinds of bedders, and, what is more, they are perfectly hardy, and can be left in their places throughout the winter.

General work.—The zenith of the flower garden season, every branch of it, having now been reached, it will be well to make note of the best arrangements, in order that, if thought desirable, they may be repeated another year; also to note errors of arrangements and kinds of plants that have failed to give satisfaction, that the one may be rectified, and the other excluded next season. Perfection of keep, both as to turf, beds, walks, and all the surroundings, should now be the one great aim, for however perfect the arrangements and flowers may be, weeds, decaying flowers, and long grass will mar their enjoyment. Our own routine at this season is something like the following: Beginning with shrubby clumps, *Rhododendrons* and *Azaleas* are freed from seed-pods, suckers are pulled off, straggling shoots cut in, weeds destroyed, and verges cut fortnightly; fernery and rock garden weeding, cutting in shrubs that encroach on walks or over the Ferns, cutting off old flower-stems on rockwork, clearing rusty fronds off Ferns, and weeding out any of the common kinds to give room to the best varieties. The common Bracken we find very troublesome, owing to the soil having been brought from land where it grows naturally, every particle of root with a joint soon making a large plant. Sub-tropical beds are looked over weekly, in order to keep the plants well up to their supports, and for the present the flowers are kept picked off *Castor-oils*, *Cannas*, *Tobaccos*, and any of the plants that we wish to grow large rather than flower. The under-growths are either pegged down or are kept dwarf, and spreading by repeated stopping, according as may be needed, by the kinds of plants used. When no such undergrowth plants are employed, the beds are kept

mulched either with leaf-soil or decayed manure. On the parterre there is always much to be done by way of trimming of formal bedding arrangements. *Mentha*, *Mesembryanthemums*, *Herniaria*, *Sedums*, and *Saxifrages* require to be clipped or pressed down at least once a week; *Verbenas*, *Petunias*, and the like to be pegged down; and part of the flowers should be picked off *Calceolarias* and all the seedling flowers off *Violas*; they are also kept mulched with rotten manure, and under such treatment never wane, either as regards vigour or flower, in the driest season. Roses are gone over once a week for the purpose of cutting off bad flowers and shortening long shoots. Climbers are twisted or tied to their supports, and those on walls syringed to keep them free from insects. Mowing and clipping turf verges and clipping Box edgings, Privet, Laurel, and Yew hedges complete the round of flower garden labour at the present time.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Pelargoniums.—Such of the large flowered varieties of these as were stood out in the open air after flowering and have sufficiently matured their shoots should be headed back; but though it is desirable to get this operation completed without delay, as upon its being early carried out depends the time when they will bloom next year, still heading down should never be attempted until the bases of the shoots have attained a woody condition and are quite hard. If the plants are already as large as it is desirable to have them, all the shoots should be cut down to within two or three eyes of where they were shortened to last year, letting the earth in the pots get quite dry before they are cut in; if this is not done many of the roots will perish. After cutting down they should be put in a cold pit or frame, and kept moderately close to induce them to break; no water should be given them until they have broken, but a slight moistening overhead every afternoon will be an advantage. Should it be desirable to increase the stock of any kind, cuttings ought to be put in. Many who have the management of private gardens are now beginning to appreciate the merits of the decorative kinds; their profuse flowering disposition and compact habit make them most useful, and if well managed they make pretty blooming plants in one year from the time the cuttings are struck.

Fuchsias.—In the pot culture of *Fuchsias* the system often followed of keeping old plants on for a number of years is quite a mistake, as they usually get bare and naked at the bottom, and are deficient in the fresh vigorous character which young stocks possess; if small specimens of the freest blooming kinds are grown, pretty plants can be had by midsummer; but where really fine examples are required either for exhibition or home decoration, to bloom from July to the end of September, there is no method by which they can be had equal to that of striking cuttings about the end of July, and keeping them growing slowly in an intermediate temperature through the winter; treated so they can be had from 4 ft. to 5 ft. high, and 3 ft. through, furnished with shoots bearing a profusion of flowers and healthy foliage that will all but hide the pots. For this system of cultivation cuttings should at once be put in, selecting shoots for the purpose that are free as regards growth and not producing flower-buds, as if the latter are used they will strike slowly, and make slow progress afterwards. Where large examples are wanted early in the season, old plants will answer best; when these have been flowering for a considerable time they will begin to get exhausted. Where such is the case they may be turned out-of-doors to harden a little for a fortnight, and then have their shoots shortened in to about half their length, placing them in a close house or pit, syringing well, and as soon as they begin to push growth freely keeping them regularly supplied with weak manure water; managed in this way they will again start away and flower

until late in the autumn. A matter of importance in *Fuchsia* growing is to keep them freely syringed regularly two or three times a week, being careful to get the water well to the undersides of the leaves, without which they are all but certain to become infested with red spider; freedom from this pest, accompanied with the seed-pods being picked off as soon as formed, is the only means of keeping these plants flowering freely the length of time they are capable of.

Celosia pyramidalis.—At no season is this elegant plant of more use than when late, so as to be in flower up to the end of the year. If small stock newly vegetated are not already at hand, a pinch of seed should at once be put in; the plants resulting from this last sowing will, if well cared for, yet succeed, and come in either for cutting or intermixing with other things. Where a sufficient stock of this *Celosia* is grown they help to brighten up a conservatory or greenhouse better than most plants, their erect form of growth relieving the even surface which bushy specimens present. They are sometimes affected with red spider, but this pest can easily be avoided if the syringe is sufficiently used.

Hydrangeas.—The panicle-flowered variety of *Hydrangea* is one of the best subjects for forcing or bringing on slowly in a cool house we have, being very superior to the old variety. Where it has been so used, now, when the blooming is over, the plants ought to be turned out of the pots in good soil in an open, sunny place, have their strongest shoots well shortened back, and if the weather becomes dry, be well supplied with water; so treated, after another season's growth they will be ready for again using in pots. Plants of the ordinary kind that have been used for pot work should be similarly turned out of the pots, have the old bloom-shoots cut out, and the young growth usually existant at the base of forced stock encouraged, so that it may be in a condition to flower next season, which many of these forced plants will do if well cared for, although in their case it will be well not to attempt forcing, simply letting them come on in a cold house or pit, when they will be found very serviceable to follow the early-flowered examples. Young stock of this species struck from cuttings in the spring should be moved to the pots in which they are intended to be forced, and plunged out-of-doors in the full sun, well attended to with water so as to ensure stout growth and get it well matured, on which their ability to produce fine heads of bloom next spring depends.

Chrysanthemums.—Easy as these beautiful autumn-flowering plants are to manage, the press of other work in the busy summer season often is the cause of their being so little attended to that a fine head of bloom is out of the question. The stronger and more vigorous the plants are the more sustenance they will require in the shape of watering. Now that the pots should be getting fairly full of roots they are best plunged in ashes, as then the temperature of the roots is more equable, and they are less likely to suffer through want of water. If the best display obtainable for a long period is required, a few of the earliest blooming sorts should also be cultivated. These will very soon be showing their bloom buds, and will bear weak manure water using altogether.

Destruction of red spider.—This diminutive insect is one of the most troublesome pests that gardeners have to contend with, as it cannot be destroyed by fumigation like aphides. Its presence is invariably followed by much worse consequences to the leaves of the plants it gets established on than with aphides. Many people are deterred from attempting the growth of such subjects, as it is especially partial to, which necessarily limits the variety present in greenhouses and conservatories during the summer months when it is most prevalent. Yet this is a mistake, as where sufficient means are taken from the spring onwards to prevent its ever getting a lodgment, there is no danger of any plant being injured through it. All that is necessary is a daily and sufficient use of the syringe with clean water, not simply sprinkling the upper sides

of the leaves in the way too generally deemed sufficient, but which, in most cases, is wholly useless so far as keeping down the pest which instinct teaches, both for protection and food, to keep on most plants almost entirely to the undersides of the leaves, consequent upon this no amount of water that only reaches the upper surface can affect it. This is one of those small matters in gardening that are so obvious to everyone who has any knowledge of insect life, so far as it affects plants, that it would seem all but unnecessary to mention it were it not that little observation is needed to see that for want of getting enough water continuously through the growing season to the parts where the spider takes up its quarters, unlimited numbers of plants suffer in a way that makes them more an eyesore than an ornament.

ORCHIDS.

J. DOUGLAS, LOXFORD HALL.

East India house.—There will not be such a wealth of bloom in this house now as there was a few weeks ago. The temperature of our house has been kept about 5° lower and the atmosphere rather drier than usual to prolong the bloom as long as possible. Now we will keep a rather moister atmosphere and will take advantage of fine weather to shut up earlier in the afternoon in order to keep up a higher temperature by sun-heat, although it is not possible to do so altogether without artificial heat, the weather during the last few weeks having been abnormally cold. Many are giving their Orchids a greater amount of sunlight than has been usual heretofore, but of all the sections of Orchids, those grown in the East India house are the most likely to suffer from too much exposure to the sun, and it would be better to shade too much at this season than to risk scalding the leaves, a misfortune which cannot easily be repaired. Pay particular attention to *Angræcums*, and see that they do not become infested with thrips; if they are, dip the leaves or wash the pest off with soapy water. I have alluded on previous occasions to the shy-flowering *Grammatophyllum Ellisi*, a striking Orchid, recently exhibited by Messrs. H. Low & Co., of Upper Clapton. All their plants had been grown in a warm house, potted in shallow pans or baskets, and suspended close to the glass. Their experience is that this species requires to be kept very dry after growth has been completed. When the next growth is being formed the flower-spike comes up with it. *Cypripediums* requiring the temperature of this house may now, if necessary, be repotted. Most of them do best in the usual potting material, that is, peat and Sphagnum, but some like turfy loam to root into. The pretty *C. niveum* is one of these, and one would take it for granted that *C. Spicerianum* would also do in loam, as imported plants seem to have been collected off a bed of moist loam. *C. Stonei*, *superbiens*, *Lowi*, and hybrids from these may now be potted in peat and Sphagnum, using plenty of drainage, and also charcoal and crocks amongst the compost. In hot weather these and other *Cypripediums* may be syringed overhead.

Cattleya house.—Attend to watering the plants in this house and to keeping them clean. "How often do you water your *Cattleyas*?" it may be asked. To this question it is not possible to give a direct answer. Some plants may want water once in a week or in two weeks; others may require it almost every day. Small plants suspended near the glass require it very often. Large specimens on the stage do not need water oftener than perhaps once in a week or ten days; all depends on whether the plants are resting or making growth, and whether the pots are well filled with roots or not. It will thus be seen that no definite instructions can be given as to the quantity of water which the plants ought to have or how often it ought to be applied. The earliest *Dendrobiums*, such as *D. Wardianum*, have now made their growth; it will be necessary to remove them to a cooler, drier, and more airy house. If this is not done when growth is completed they

will start again. The largest proportion of our plants have been removed to a warmer house, as I find that such species as *D. Dalhousianum*, *D. thyrsoiflorum*, and *D. suavisimum* take all the season to make up their growths, and they have not time to complete them unless they are pushed along very rapidly during the growing period. *Vandas*, such as *V. suavis*, *V. tricolor*, and similar species, certainly do best in the *Cattleya* house temperature. They are now pushing out fresh roots from the stem above the Sphagnum. The best way is not to interfere with them, but to see that no slugs or other depredators get near them. Most of the plants in this house are now making growth, and require a moister and rather warmer atmosphere than hitherto to aid them to do so. They also ought to have as much light as possible without allowing the sun to shine directly upon them. The temperature of the house may be about 65° at night, and it can be kept up to this with very little artificial heat indeed.

Cool house.—We are not much troubled with thrips in this house at any season, but if they do appear it is generally during the summer months. The plants should be frequently examined in order that they may be destroyed on their first appearance. I noticed traces of them on some plants of *Odontoglossum cirrhosum*, but they have been washed with Tobacco water, and in case the pest had spread further the rest of the plants were also dipped or washed. Green-fly is likewise rather troublesome, but that is much more conspicuous and more easily destroyed than thrips. We usually dip the plants for it, or if on the flowers it is brushed off. If it is necessary to do any potting, let it be done without disturbing the plants more than may be necessary. If it should be thought essential to shake all the compost from the roots, as it sometimes is, I would rather delay the potting of such plants until later, or, what is better, leave it until January or February. I have shaken the roots free from all potting material at that time without injuring the plants in the least, but have seen them suffer a little when this has been done in summer. The usual occupants of the cool Orchid house do not like the excessive heat of the summer months, and if growth is checked at that time, they may be seriously crippled, and some of them may even die. We keep the temperature as cool as possible by day, and leave the ventilators partly open at night.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Pines.—Plants intended for starting early next year will now be rooting freely in the pots they are to occupy until the fruit is ripe. As the principal point in the management of this batch is the early maturity of stout plants in medium sized pots, give gentle stimulants at each watering to help them on, and syringe lightly overhead after closing for the day. The general stock of plants now swelling off fruit will require good feeding with diluted liquid and plenty of atmospheric moisture whenever the house can be closed at the maximum of 85° to 90° with sun heat; the surface of the bed and the axils of the lower leaves may also be kept moist by having a little clear liquid applied with the syringe at nightfall. Remove all fruit to a dry, warm place to ripen up as soon as it begins to change colour, otherwise *Queens* will soon go black in the pip and the fruit will not keep. Renovate the beds in succession pits and give the plants more room as they increase in size. Keep them well fed, damp all available spaces after closing, and economise fire heat when the weather again becomes favourable to forcing without it. Remove suckers from old stools, trim and pot them at once, and plunge in a strong bottom heat of 90°. Use the soil in a rough, dry state, make it very firm, and give a gentle watering, unless the plunging material is heavily charged with moisture, when watering may be deferred for a week or two. Keep them close and moist by 'dewing' them over with the syringe on fine afternoons, and shade from bright

sun when we are again favoured with a change to summer weather. If any of the spring suckers have not been shifted, lose no time in getting them into larger pots as they become ready. At one time the potting of Pines was a biennial operation, but now growers who have to maintain a steady supply of fruit find it best to shift a Pine, like any other plant, when the pot it occupies is full of roots and fresh food is absolutely necessary to its progress.

Vines.—Muscats now beginning to take their last swelling should have their internal roots well mulched with half rotten stable manure, the ammonia from which will be found inimical to red spider, while its stimulating properties will benefit the foliage and draw many of the active surface roots to the influence of warmth and air so essential to the perfect finish of this valuable Grape. Keep a sharp look out for scalding in the Lady Downes house should the weather continue as cold and unsettled as it has been of late, and counteract its injurious effect by maintaining a night temperature of 70° with a little top air, and by ventilating freely through the day. To insure the ripening of this and all the best kinds of winter Grapes by the middle of October, the above figures should be continued as the minimum with a corresponding rise through the day, and if these cannot be secured from solar heat alone, steady firing, while it increases the size of the berries, will be found more economical now than sharp forcing with double the amount of fuel in the autumn, when the Grapes should be sufficiently advanced to require cool treatment, and the Vines will derive great benefit from comparative rest.

Houses in which ripe Grapes are hanging will require just enough gentle fire heat to prevent condensation of moisture on the berries, and in the event of their being wanted to keep for any length of time, two or three folds of fishing-net thrown over the roof will break the direct rays of the sun, as black Grapes soon lose their colour and freshness at this season. It may also be necessary to protect outside borders from extremes of heat and drenching rains by adding more non-conducting material, or by drawing tarpaulings over them until all the Grapes are cut. It is not, however, a good plan to allow Grapes to hang longer than is absolutely necessary, as late hanging is almost as great a tax to the Vines as early forcing; but where heavy crops have to be kept, the cutting of the last bunch should be followed by liberal supplies of diluted liquid to the inside borders, and good syringing to keep the foliage clean and healthy. Encourage newly-planted Vines to make rapid growth by closing early with plenty of solar heat and moisture. Keep the laterals pinched to one or two buds, stop the leaders when they have filled two-thirds of the trellis, and then allow an unrestricted growth up to the end of the season. Discontinue the use of stimulants when pot Vines begin to ripen up their wood, but do not let the roots feel the want of water. Syringe regularly to keep the foliage fresh and free from insects, ventilate through the early part of the day, and close early in the afternoon with plenty of dry sun heat.

Figs.—Maintain a steady circulation of dry, warm air in succession houses in which Figs are now ripening, and expose the fruit to the full influence of sun and light by cutting away all useless growths. Add fresh mulching as the roots find their way to the surface, and keep it constantly moist by the liberal application of warm liquid or guano water. Gather the fruit when it is quite ripe for home use, and before it attains that state if intended for market. When the fruit crop has been taken from the trees in the second house take out all the wood that can be spared, apply clean water to the foliage twice every day, and shut up with strong sun heat. Young trees in pots and tubs will require constant pinching to keep them in proper form. Clean, straight, single stems look and answer best, as there is no trouble with suckers, and the pyramidal form of training exposes the greatest number of Figs to the sun. Look well to the trees in cold houses and wall cases, as they will

do good service long before ripe fruit can be gathered from open walls. Lay in no more wood than is actually necessary, pinch the points out of gross shoots, mulch, feed, and syringe well, and shut up in time for the sun to raise the temperature to 80° on fine afternoons. Pot trees intended for forcing should now be fit for removal to a warm, airy house where they can thoroughly ripen up their wood. Syringe the foliage to keep it clean, withhold stimulants, and drop the pots into others a size larger to protect the roots from drought, or cover them up with spent tan, leaves, or litter.

Hardy fruits.—Peaches, Nectarines, and Apricots which have not been nailed in must have immediate attention, as there is at the present time every appearance of a cold, wet, sunless summer, and horticulturists whose experience carries them back to 1860 know what that means. Fortunately, the crops of fruit generally are good, and this circumstance will have a favourable influence in keeping the growths of the current year within bounds, while a fine autumn may ripen up the wood. Before nailing is commenced, stop all laterals and sub-laterals, and pinch the points out of growths which are likely to become too strong, and carefully guard against overcrowding by laying in a single shoot that will have to be cut away in the winter. If mulching has been neglected, the use of strong stimulating manure which does a great deal of good in hot seasons may be dispensed with, particularly in cold districts, and a covering of fresh stable litter or old lime rubble, an excellent covering for stone fruit tree borders, substituted with advantage to the trees and comfort to those who have to work upon the borders in wet weather. Follow up the removal of breastwood from Plums and Pears on walls and espaliers, commencing at the top and working downwards, and lay in no more wood than is wanted, as the spurs and buds will require all the warmth and light that can be secured to them. Net Morello Cherries to protect the fruit from birds, but first of all see that the tips of the shoots are free from black aphids, and, if necessary, repeat the dipping in Tobacco water. Prune and net Currants, but do not cut the young growths too short, as a moderate quantity of foliage protects the fruit from sun and rain, and favours its keeping well into the winter. Strange as it may appear, while nearly all kinds of fruit trees and many forest trees have been devoured by insects, we have not yet seen a single caterpillar on the Currant or Gooseberry. Strawberries, a very heavy crop, have been much injured by wet, particularly where the plants have not been well trussed to keep the fruit quite clear of the ground. Vicomtesse Héricart de Thury and the good old Elton are two of the best for preserving purposes. Paxton resists wet better than President. Oxonian, Loxford Seedling, and Frogmore Late Pine, now coming in, are at the head of the list of late varieties. We plant Oxonian extensively on north borders, and find it the most valuable and profitable crop we can grow. If Cherries or Currants occupy the wall, a fishing-net supported on slating laths running from the top of the coping to the margin of the walk protects the two crops, and the fruit is accessible at all times. When the gathering is over for the season, beds that are to be retained may be dressed out and well mulched with rotten manure or fresh loam, which is equally valuable in old gardens. Follow up preparations for new beds, and get them planted before the young plants become pot-bound.

Seed testing.—I agree with "J. C. B." that the conditions under which seeds are grown in the open air and under glass are so diverse as to render the latter no test whatever. I often sow seeds in the open ground; that being of my own saving arc, I am sure, quite ripe and sound, and yet I meet with failures. This spring two sowings of a yellow Wallflower were made in the open ground, and they almost entirely failed, but a third sowing from the same seed under glass came up thickly. In reference to the sowing of many quite hardy things that it is the rule to sow in the open ground and let them take their chance,

I prefer to advise that they be sown in pans or boxes in a greenhouse or a frame, so that good growth may be ensured, even if the needful labour of replanting in the open ground later on may seem troublesome. It is not only that the soil is often too wet and cold or too sour, or perhaps too poor, or it may be too dry, to promote free germination, but even more troublesome are the myriads of insects and vermin which infest the soil, and which will often make a clean sweep of all the seedlings in a night, whilst the blame is thrown upon the seeds. A number of shallow wooden boxes, say of 12 in. in width and 13 in. in length, are always of the greatest service for the raising of seeds, and when not thus required they may be usefully employed in wintering cuttings of many kinds of tender bedding plants. In raising such tender seeds as Cinerarias, Calceolarias, Cyclamens, Primulas, and similar things, I find a large piece of glass laid over the pan or box in which the seed is sown to be of great service in maintaining an equable temperature and moisture, whilst a slight sprinkling of sand will suffice to exclude any scorching sunlight.—A. D.

GARDENING UNDER DIFFICULTIES.

FOR several years my ruling passion has been the cultivation of hardy herbaceous and alpine flowers. My facilities for studying them have, however, been of a very limited character; there is no botanical garden within 80 or 90 miles of me (at Edinburgh and Glasgow), and I have only once had a hurried peep through each of them. Choice of soils, too, is almost a total prohibition, and, to crown all, my means are also on a very limited scale, and the time at my disposal precarious. Yet, as we Scotch say, if we "set a stout heart to a stay brae," or, in English, a strong heart to a steep hill, it is wonderful what obstacles one may and does overcome. The first work which gave me a start was "Alpine Flowers." I commenced by begging two or three cart-loads of sods or turves from the top of a sandpit; these I laid up to rot, afterwards mixed them up with granite sand; then dug out the old black garden soil, and filled up a border about 90 ft. long by 3 ft. 6 in. wide with the new material, keeping it high at the back and tapering down to the edging in front. In this I placed my plants at proper intervals and sufficiently separated by large boulders, and now when the plants are established and in bloom, as the greater portion of them are just now (July 14), I may say it is a sight which lovers of flowers do not every day see. To name all the plants would lengthen out this communication rather too much; but I may say that I have *Acantholimon glumaceum*, *Achillea tomentosa*, *Adonis vernalis*, *Ajuga pyramidalis*, *Alchemilla alpina*, *Allium Moly* and *pedemontanum*, five or six varieties of *Campanulas*, the same of *Anemones*, *Aubrietias*, *Primulas*, *Geraniums*, *Silenes*, *Sisyrinchiums*, *Pentstemons*, *Alstroemeria aurantiaca*, *Dianthus*, *Wulfenia carinthiaca*, *Libertia ixioides*, *Yucca Whipplei*, filamentosa, and gloriosa, *Xerophyllum asphodeloides*, *Helonias bullatus*, various varieties of *Iris Kämpferi*, *iberica*, *tenax*, *pumila*, and others, *Gentiana acaulis*, *asclepiadea*, *Burseri*, and *gelida*, *Potentillas*, *Foxgloves*, *Delphiniums*, *Lilium candidum*, *chalconicum*, *Humboldtii*, *lancifolium* album, *longiflorum*, *Martagon album*, *dalmaticum*, *pardalinum*, *testaceum*, *umbellatum* and *tigrinum*, &c., all, at least at one end, nicely interspersed with beautiful varieties of hardy Ferns, which, taken as a whole, make up a most interesting collection. I have been led to jot down the foregoing observations merely with the view of encouraging others similarly circumstanced as myself. If they have a taste for flowers do not be deterred; on the contrary, make a start in earnest and the battle is half won. Friends who have duplicates to spare will assist you, and suppose you do spend a few shillings yearly on rarer things which are not so easily obtained, still, you had better do that than perhaps spend it on something worse while who is to estimate the benefit to health arising from this and kindred pursuits? The thoughtful mind, too, can lay up stores of know-

ledge, which may in some degree be beneficial to others, and thus help forward good work.

Marnettown.

J. M.

KITCHEN GARDEN.

UTILISING MANURE HEAPS.

ADJACENT to or in most kitchen gardens there are leaf, manure, or other heaps which, during summer and autumn, might, much more generally than is the case, be rendered attractive mounds of living green, as well as turned to profitable account—not that such heaps in themselves are objectionable, for it fares well with that garden where they are both large and numerous. Nor do I mean heaps of such materials as it is necessary to turn frequently to bring them into usable condition, but there are often others, such as old hot-beds and the like, made to forward early crops which are allowed to remain bare and ugly until wheeling-out time comes. Now these might be speedily covered and made pleasing instead of unsightly by planting them with Vegetable Marrows, for which no better position could be found. The growth they make is amazing, and the fruit tender and succulent, while with a little attention to pinching and regulating they will continue to bear abundantly until cut down by frost. Gourds and Pumpkins, too, may be grown in similar positions. The bright coloured, ornamental and fantastic Gourds are curious, and we find them much sought after for church decoration with other fruits at harvest festivals. We have here a form of the Turk's-cap Gourd, the fruits of which are liked for table use. Seeds of it were sent from Nice, under the name of Turban Grand Mameluke. I grew it last year on an old Carrot bed, whence it rambed a great distance, bearing profusely. The fruits were large, flat, and depressed at the end, with a raised ring or turban in the centre. The flesh is bright yellow, the skin very thin, and when cooked the flesh, so to speak, is tender and delicious. Tomatoes, also, as I have proved, grow to perfection planted on hills of any decayed or decaying materials. The shoots should be led away from the top or middle of the mound, fastening them with strong pegs as they grow to prevent wind-waving. The main stems should be allowed to run without stopping, and also a few laterals as the heap widens—sufficient to cover it, but not too thickly, as it is necessary to be able to get about among them. All side shoots should be pinched regularly off. Wherever the stems touch the surface they root, thus imparting to them fresh vigour and luxuriance. Opposite or between every third and fourth leaf they throw out great clusters of fruit, which require to be elevated above the foliage by means of pieces of lath or tile, or anything at hand. Of course, the situation must be sunny and exposed.

Cranmore.

A. MOORE.

Beans as food.—Speaking recently to a medical expert who, though not a vegetarian, strongly commends the more extended use of vegetables as an indispensable article of food, and less meat, he, for hygienic reasons I need not refer to further, specially mentioned the Bean. From practical experience I fully agree and believe with the authority quoted, where easy digestion, strength, and muscle are required, in addition to its dietetic properties, the Bean, especially from this time forward, when it is so tender, is altogether under-estimated. I have Carter's Leviathan Long-pod 16 in. long now and the plants 6 ft. high. The amount of delicious food—cooked in gravy—produced from 20 yards of a drill few people have any idea of.—W. J. M., *Chonnel*.

Peas at South Kensington.—It is gratifying to read "Cambrian's" remarks upon our new Peas. We ought to add, however, that the question of judging is one with which we have nothing whatever to do. The nomination of the judges is entirely in the hands of the Royal Horticultural Society, and we should hesitate at any time to identify ourselves with their appointment because we should then be open to the

charge of partisanship. We can only refer dissatisfied exhibitors to the Royal Horticultural Society.—JAMES CARTER & Co., *High Holborn*.

—If "Cambrian" was so satisfied that the two dishes of Peas in my collection (to which his remarks in your last week's issue refer) were identical, I must in justice to myself say that I regret he did not take advantage of the opportunity he had to call Mr. Barron's or the judges' attention to the matter when it could readily have been set right. The only course left me now is to invite "Cambrian" to come here and inspect the plants from which the Peas in question were gathered, and see the places where they were grown. He will doubtless then discover his mistake.—GEO. T. MILES, *Wycombe Abbey, Bucks*.

Early Purple-top Munich Turnip.—There have been from time to time contradictory statements as regards the merits of this Turnip. It is now, however, pretty well known, and the general opinion is that it is well worth attention, on account of its earliness, and it is very much liked for some culinary purposes. It has, however, a somewhat strong taste, and is not to be compared for mildness of flavour with the old early Dutch or Stone varieties. It will doubtless hold a place in gardens where very early vegetables are in request, but I do not think it will supersede the old sorts where quality is the first question considered.—J. GROOM.

Slugs are unusually busy amongst the freshly planted Brassica tribe. I find a layer of coal ashes put round the stem of each plant to be a great protection. Lime soon loses its caustic properties; it is excellent for giving light dustings on dewy nights, as every slug which it touches perishes, but those under ground defy it; they cannot, however, get over the ashes. Push on the planting of Broccoli, Leeks, Endive, &c., for a week now is worth a fortnight later on; depend most on such winter greens as defy an ordinarily severe winter. We ought to remember that ours is a northern country, and should be prepared for the worst.—JAMES GROOM.

Woodlice and Mushrooms.—Will some reader of THE GARDEN kindly advise me as to the best way of getting rid of woodlice in a Mushroom house? Last summer there were thousands of them, and they eat up every Mushroom as soon as it appeared. In order to get rid of them the house, which is built of brick, was cleared of all the wooden framed beds, the walls were whitewashed with hot lime, and new woodwork was fitted up, when it was thought they would be got rid of. However, they reappeared this spring as numerous as ever, and continue making great havoc amongst the Mushrooms. By sliced Turnips in baskets of moss we capture hundreds every day, and by pouring boiling water between the beds and near the wall a great many are got rid of; still they increase so fast that they seem as numerous as ever.—C. F.

SHORT NOTES—KITCHEN GARDEN.

Late Broccoli.—On the 1st inst. I cut two heads of Sutton's Late Queen, very good in quality and measuring about 6 in. across. Has anyone cut Broccoli later?—J. ATFIELD.

Hawfinches and Peas.—I send you a sample of the havoc that hawfinches are making with my Peas.—G. F., *Beeston*. [The pods sent were quite empty and ragged, and torn into holes, through which the contents had been abstracted.]

Late Queen Broccoli.—"J. R." surprises me when he says that Carter's Summer Broccoli is more compact than Late Queen. With me the latter has proved to be the most compact, and it is also the hardiest and latest of any I have grown during twenty-five years' experience. In the severe winter of 1879-80 it was the only kind that did not succumb, and its lateness prevented a break between Broccoli and the now early varieties of Sutton's and Veitch's Cauliflower, Late Queen keeping on quite till the kinds just named can be obtained.—C. LOTT, *Wokefield Park*.

Large Cauliflowers.—We have had several very fine heads of Cauliflower (Sutton's Early Erfurt Mammoth). Our soil is cold and clayey, and the ground rather slopes to the north, but my gardener has just cut two heads of this Cauliflower which are the largest we have as yet had, measuring—one 25 in., the other 24 in. in circumference, close and compact, and 10½ in. and 9 in. respectively across. We have had a coldish June, and up to this date a good deal of rain. Our Gooseberries have been a complete failure, scarcely a couple of dozen on each bush. Can this be the result of hard pruning? Strawberries flowered profusely, but those dreadful east winds and fogs came and blighted every blossom. I think the thrushes and blackbirds have been more numerous than usual. At all events our Currants and Peas have suffered considerably, but such a volume of song is poured out morning, noon, and night that I am ready to forgive the raid upon the fruit.—C. M. D., *Edinburgh*.

PRODUCTION OF ROOTS.

IN THE GARDEN of April 29 you suggested, in reference to this matter, that "my experiment would have been more conclusive had plants of equal strength, to begin with, been placed in different pots, and had soil, however poor, been used instead of sand." I have now carried out that suggestion, so far as the compost is concerned; but I am still of opinion that the same plant fairly placed between two evenly divided composts affords the best test, the contention being that the roots will multiply more in the one compost than in the other. With this I send you a plant potted when a seedling in a 5-in. bell-glass. A piece of pasteboard, made to fit, was placed in the centre of the glass, dividing it into two exact halves, marked now by a wooden peg at each side, but clearly enough distinguished by the soil and roots themselves. In one division was placed pure good loam only, sifted through a fine ½-in. sieve to remove the vegetable fibre. In the other was placed the same loam sifted in the same manner, but added to it, and thoroughly mixed with it about one-third of its bulk of rotten leaf-soil, Mushroom manure, and Standen's manure. The paste-board was then withdrawn and the seedling Cauliflower inserted in the slit between, and the pot was plunged in ashes in a cool frame until the present date. I have now to ask you—first, to note the much greater quantity of roots in the rich compost than in the poor, and, secondly, that while in the poorer loam there are fewer main roots, they have also but few fibres. In the rich compost, these fibres, which denote more than anything else the disposition to multiply, are far more abundant.

The experiment may be verified by anyone. It will prove but one thing, viz., that "a wretched soil, hungry as a hunter," is not the one to cause "any tree or shrub to send out hundreds of thousands of fibry roots," as was stated some time ago, without, I fear, the writer knowing whether he was right or wrong, just as another writer on composts declared a week or two back, that it was "a fact that gardeners use sandy composts to hasten root production and increase the number of roots," although I do not suppose the author of that statement could produce anyone who would certify to his "fact." Gardeners use sand alone to strike cuttings in, but not because of its poverty, for cuttings will strike just as well, or better, in charcoal dust laden with plant food, decomposing vegetable fibre like sawdust, or in other substances, but using sandy composts to produce roots I never knew one instance of. But of all that has been written on this subject, a communication of Mr. Temple, of Impney Hall, in the March number of the *Florist* is the most unaccountable. Mr. Temple, it will be remembered, less than two years ago sent an essay to the Scottish Horticultural Association on fibry roots, in which it appeared that from long experience in different parts of the country he had come to the conclusion that a rich soil was the very best thing for encouraging the production of roots. The famous crops of fruit in southern orchards, he assured his readers, were due

to the roots "growing in a strong, tenacious soil; the roots had struck out into the sweet and wholesome upper stratum of earth, and at every inch of root-growth bunches of fibres were formed." The result of this experience on Mr. Temple's part was that he recommended a particularly rich compost to induce fibrous roots. "He recommended," we are told, "the application of calcareous matter to the soil and top dressings of rotted manure to induce the roots to form fibres near the surface."

Calcareous matter and pure rotted manure is about the richest compost that could be devised for a top-dressing, the first "supplying carbonic acid and ammonia, as well as potash and soda," by decomposition, and the manure food in a still more concentrated form. This was Mr. Temple's formula for the production of fibrous roots in 1880. Now we find him making the incredible statement "that in no case had he ever found" a rich soil to be as productive of roots as a poor one, but the reverse. "Trees growing in a poor, sandy soil were matted with roots," he now tells us, "but it was not so with those which were in a rich soil;" and he quotes examples of fruit and other trees, including Vines, to prove that the advantages were all on the side of the poor soil, "which was crammed with fibry roots," and *vice versa*. Notwithstanding his Edinburgh essay that recommended a rich soil instead of a poor one to produce fibrous roots, it is now "a notable fact," in his own experience, that he has not found it to do anything of the kind! Comment on the value of Mr. Temple's testimony in reference to this subject would be superfluous.

Mr. Temple's article in the *Florist* has doubtless been suggested by what has been written on this subject lately. Although I did not agree with all Mr. Temple stated in his essay at Edinburgh, still I was pleased to see him endorse my views so conclusively on the subject of fibrous roots, and pleased also to read that the members of the association who heard it "strongly endorsed the soundness" of the essayist's views, but I am now probably as much staggered as they will be to read his recantation in the *Florist*. J. S. W.

[The roots in the case in question were certainly plentiful enough in the rich compost, while in the poor soil there were hardly any.—ED.]

NOTES OF THE WEEK.

APPOINTMENTS.

July 14.—Agricultural Hall, Islington, Horticultural Exhibition and Market opens.

25.—South Kensington, Meeting of Fruit and Floral Committees.

South Kensington, Show of National Carnation and Picotee Society (Southern division).

26.—Newcastle-on-Tyne, Summer Show.

Glasgow, show of West of Scotland Pansy Society.

EXHIBITION OF ROSES.—At the Royal Botanic Society's Garden at Regent's Park, the Cranston Nursery and Seed Company, Hereford, have an extensive exhibition of Roses, which remain on view until the 25th.

SOME OF OUR CORRESPONDENTS who generously offer seeds of their plants are, we regret to learn, in receipt of requests from persons who do not send stamped and addressed envelopes. We need hardly point out that those who give to all who ask should not be expected to furnish stamps and stationery in addition, and be put to the trouble of writing addresses.

AMERICAN APPLES.—The reports which we have received from Messrs. J. W. Draper & Son, Covent Garden, the principal London agents for the sale of these fruits, indicate that the crop is most prolific this season. From personal observation we gather that in England the crop is comparatively a failure; in France a poor half crop is calculated upon; in Germany one-third crop only; in Holland only half a crop

and in Belgium not half a crop—thus the prospects were never more favourable for shipments from America to England than they are this year. The American Apple trade, formerly monopolised by Liverpool, has during the last few years (in consequence of direct steam communication) been gradually diverted to London, which market now competes favourably with that of Liverpool.

GILBERT'S NEW VEGETABLE, CHOU DE BURGHLEY.—We have received a circular thus headed from Mr. Gilbert, of Burghley, in which there are many testimonials, all from good sources, speaking highly of this new winter vegetable, the Cabbage Broccoli, as it has been called. We have ourselves tried it, and found it to be in every way excellent.

PRIZES FOR PEAS.—In our report of the last meeting at South Kensington we omitted to mention that on that occasion competition was invited for four prizes (amounting to £4 4s.) offered by Messrs. Sutton & Sons, Reading, for half-a-peck each of their new President Garfield and Reading Giant Peas. There was but one exhibitor, Mr. White, gardener at Glenhurst, Esher, who had good examples of these two fine new varieties.

HART'S-TONGUE FERN DISEASE.—To the long list of diseases to which plants are subject in this country must now be added another which attacks the common Hart's-tongue Fern (*Scolopendrium vulgare*). It occurs on both sides of the frond, and grows over the ruptured masses of spore-cases, and even amongst the free spores. It is called *Didymium effusum*. Specimens of it were placed before the last meeting of the scientific committee at Kensington.

THE HOLLYHOCK DISEASE.—The destructive fungus to which the Hollyhock is subject seems to be rife again this year. Nor does it confine itself to the Hollyhock alone; on the contrary, it attacks other plants of the Mallow family. At the last meeting of the scientific committee at South Kensington, Mr. W. G. Smith exhibited fruits of the common Mallow (*Malva sylvestris*) attacked by it. They were sent by Mr. Phillips, who gathered them near Shrewsbury. These fruits confirmed the correctness of Mr. Smith's observations, that the fungus-infected fruit or seeds of the Malvaceæ fall to the ground, and are then capable of producing seedlings diseased without an intervening *Æcidium* condition.

AN ENORMOUS SLUG.—Mr. Albert Killick brings to our office from his garden a very remarkable slug. We hope, for the sake of vegetation in the home counties, that there are not many of the species in existence. We really notwithstanding so many sad experiences of slugs—had no idea they attained such dimensions in this country. Mr. Killick informs us that he made a rockwork out of tree roots and stumps quite near to which last Sunday evening the monster was found. Measured at its full length, it was $8\frac{1}{2}$ in. long, and thicker by a good deal than we have before seen a slug. It is a very fine specimen of the cellar slug (*Limax cinereus*).

M. HENRI VILMORIN.—We learn with much pleasure that this gentleman, so well known to many of our readers, has received the decoration of the Legion of Honour on the occasion of the National Fête on July 14. Coming of a family well known for its honourable conduct of one of the largest houses in Europe, and one second to none in trustworthiness, Henri Vilmorin, unlike many young men who have "all the chances," early betook himself to the earnest and active study of various questions of agricultural and horticultural importance. He was an early student of the coniferæ, but the many experi-

ments and reports on crops of various kinds, plants, and cultivated vegetables have hitherto been the themes of most of his published works. Recently a noble book for agriculturists was published in Paris, a history of the Wheats, each variety being illustrated in colour and life size. The matter of this book, apart from the illustrations, is of much interest and value. The most important work from his pen, however, is about to appear in Paris, and that is a book on cultivated vegetables, to the appearance of which we look forward with interest. It will be of great value to horticulturists. M. Vilmorin is one of the judges of the Tribunal of Commerce in Paris. At his own home near Paris (Verrières) are cultivated many species of plants of the hardy race, and also numerous bulbs and annuals. He has lately acquired a property in the south of France, at Antibes, which we hope will be no less interesting with vegetation of a different character.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The simultaneous collection in aid of the Pension Augmentation Fund made last year having proved a great success, it has been resolved that it be repeated annually, and Monday, the 31st inst., has been fixed upon for the day of collection this year. The object of this movement is to increase the pensions £4 yearly. The amount collected last year was £500 2s. 5d., clear of all deductions. Before the committee can recommend that the pensions be increased, it is imperative that the reserve fund be £20,000. The amount of the reserve fund is £15,350, thus leaving the sum of £4650 to be secured. Taking the large number of horticultural establishments into account, and the increasing interest everywhere taken in gardening, there should be no great difficulty in procuring this amount, provided the work of collection is heartily entered into. As an incentive to increased exertions it has been determined "That upon any collector obtaining the sum of £10 10s. he be qualified by such collection as a life subscriber, with all its privileges, from the date on which the sum of £10 10s. was completed. During the time the society has been in existence, about forty-four years, it has relieved 298 persons, at a cost of upwards of £28,127, and it has now upon its funds ninety-three pensioners.

AIX-LES-BAINS, SAVOIE.

Two or three months ago I put a query in *THE GARDEN* respecting the flora of this now very favourite watering-place, but elicited no reply. Since then I have spent nearly three weeks there, and I have, as our American cousins say, been "around" a good deal; so perhaps a few notes as to its floral characteristics may be of interest to the readers of *THE GARDEN*.

Aix-les-Bains is situated nearly due south of Geneva, in a valley running nearly north and south, the basin of which is occupied by the Lake of Bourget, a sheet of water some twelve miles in length by two in breadth. The village lies on the eastern shore about a mile and a half from the water, just at the base of the slope which culminates in the Revard and Nivolet, a ridge rising to about 5300 ft. above sea level; on the opposite side of the lake is the Dent du Chat, of about the same elevation. The rock is a white limestone, weathering into deep and tortuous fissures.

There is a pretty little public park, abounding with *Tamarix gallica*, which early in May formed sheets of blossoms. There are also numerous nice specimens of Conifers, *Cercis*, purple Hazel, and several large trees, apparently of a leguminous nature, but which were not in flower. Close to the park on the limestone rocks grew *Globularias* of two

species, *Colutea*, *Amelanchier vulgaris*, resembling a small Pear, *Polypodium Robertianum*, *Helleborus foetidus*, &c.; while in gardens and hedges more or less wild occurred the beautiful *Cydonia vulgaris*, with myriads of its lovely pink and white buds and flowers. Perhaps the most noteworthy point respecting the flora of Aix is the number and variety of Orchids. I collected within a small area twelve or thirteen species in flower, including three species of *Ophrys*, *Cephalanthera ensifolia*, *Orchis ustulata*, *O. purpurea*, &c. The latter is fine and very showy in form, white spotted with rich purple, and having a large deeply cleft lip.

Truly alpine plants are comparatively rare, and are represented by *Draba aizoides*, *Primula Auricula*, *Saxifraga aizoon*, and one or two more, while *Dryas*, *Androsaces*, *Primula farinosa*, *Sempervivum*, *Soldanellas*, &c., are conspicuous by their absence. On the Dent du Chat, which rises abruptly over Bordeau, a village opposite Aix, I collected *Aquilegia vulgaris* in great abundance and very variable in tint; *Asplenium viride*, *A. fontanum*, yellow *Auriculas*, *Draba* (the last two also on the Revard), *Calamintha grandiflora*, while on the slopes a thousand feet or so above the lake, *Lily of the Valley* (*sic*) grew in abundance, as well as both species of *Polygonatum*. These forms of Solomon's Seal were plentiful throughout the district, as was *Lilium Martagon*.

On the slopes of the Revard, both near the summit and also as near as the hamlet of Mouxy, a couple of miles from Aix, *Gentiana verna* grew in abundance, and in the woods higher up, *Dentaria digitata*, both white and mauve, mixed with *Paris quadrifolia* and the beautiful golden *Anemone ranunculoides*, a lovely companion to our wood *Anemone*. High up in glades in the Fir woods the sod was carpeted with small *Crocuses* (*C. vernus*) of various shades, from purple to white. Along with these grew *Primula elatior*, and lower down *Trollius europæus*. In the vineyards *Ornithogalum umbellatum* and a curious dingy *Muscari*, probably *O. neglectum*, met one at every turn; while the meadows swarmed with *Colchicum autumnale*, of course not then in flower, and on the Tresserve Hill, *Hops*, *Convolvulus*, and *Clematis* contended for the mastery in the climbing section with red and black *Bryony*, wild *Roses*, &c. The foregoing includes but a very few of the plants to be met with in and about Aix in the month of May. It would have been easy to make the list much longer, and no doubt many more interesting forms would have been found had my ramble included the mountains of Annery, the Semnoz, &c. Still, I think that I have shown that anyone interested in plants will find abundant employment during a visit to Aix in the spring season; the autumn, too, would doubtless have its own flora, but probably not so abundant or interesting as that of spring and early summer.

GREENWOOD PIM, M.A., F.L.S.

Horological flowers.—I believe it is a fact that certain flowers open at a particular hour during the whole of the day of twelve hours, and even several also open in the night. Will someone kindly supply me with the names of them? or if not, tell me where I might be likely to get the desired information? I may observe that I am going to have the face of a clock painted, and instead of the ordinary numerals, to have a flower, the one that opens at that particular hour.—A. R.

La Semaine Française, a Weekly Newspaper and Review in French for the United Kingdom. — Politics, Literature, Science, Art, Society, Varieties, Notes; for general and family reading. "Will be highly valued in households where French is cultivated."—*Queen*. Price 3d., at Newsagents and Bookstalls; copy by post 3½d., in stamps.—37, Southampton St., Covent Garden, London, W.C.

BOOKS.

HOT-WATER HEATING.*

WE have received a copy of Mr. Fawkes' small treatise on this subject. He says it has been produced because of "many applications from country gentlemen, clergymen, churchwardens, engineers, gardeners, and others." It certainly contains some useful information, but the abstruse calculations and formulæ given in the opening pages are enough to deter most of the class of inquirers just referred to from proceeding further; what, too, is the use of first ascertaining "the number of cubic feet of air to be warmed per minute" if "the value of all these calculations from a practical point of view is contested" (p. 26)? Of more utility is the table of piping required for various purposes, though there is a discrepancy between 35 ft. of pipe (per 1000 cubic ft. of air) to keep out frost (or say 35°) and 45 ft. to maintain a temperature of 60°, and 55 ft. for 65°. The advice given as to its being better to have a larger amount of heating pipes at a low temperature than to have a small quantity at a great heat is good, and likewise that which asserts that radiating heating should never be worked from a kitchen range. The following is also true as to stoking: "A boiler," he says, "may be the best for the purpose, the boiler-setting everything that is desired, the pipes be properly fixed and have the correct quantity of heating surface, yet it frequently remains with the person who has charge of the apparatus whether success or failure attend its working."

As boilers play a prominent part in heating, it might be expected that much would be said of the various forms, so as to guide people in selecting one, the four forms referred to not being the only ones by any means. Some must be better than others for heating 200 ft. and 2000 ft. of piping respectively, and some are suitable for one position, some for another. Some indication might have been given of the real or supposed gain or waste of brick-setting outside boilers, while gas need not have been so severely condemned as it is considering the improvements as regards its safe and economical use in small places introduced of late years. A lean-to vinery, heated as is shown in fig. 31, would have a mass of hot air in the back and upper half of the house, while two-thirds of the Vine in front would be in a temperature many degrees lower. On the whole we fear this little treatise—though it does not claim to be exhaustive—will, from its omissions, be disappointing to people seeking for practical guidance in regard to heating; there is little in it that is new, and much that is doubtful and disputed is brought forward without any qualifying remarks. Such are the references to relative effective heating surfaces of a boiler; the abandonment of water-jacketing for fire-brick settings; and the value of water-way fire-bars set down as nothing at all, though the author says they are provided with his boiler, and the one firm that uses them most largely says they are equal to 25 per cent. extra power. Facts, too, disprove and two out of three persons will dispute Mr. Fawkes' conclusions as to the best make of boiler—"that cast-iron is better than wrought; tubular boilers better than saddle; and boilers with horizontal tubes better than those with vertical."

BOOKS RECEIVED.

Dictionary of Economic Plants. By John Smith. Macmillan & Co.

Elementary Botany. By Henry Edmonds. Longmans, Green & Co.

Transactions of Iowa Horticultural Society. Vol. xvi., 1881.

Reports of the Montreal Horticultural Society.

CATALOGUES RECEIVED.

T. W. Robinson's (Stourbridge) illustrated catalogue of boilers and other hot-water apparatus fittings and gratings. M. Godefroy Lebeuf's (Argenteuil) special list of Orchids.

* "Hot-water Heating." By F. A. Fawkes, F.R.H.S. London: E. T. Batsford.

HORTICULTURAL IMPOSTERS.*

THE life-time experience of any man is not too short to be imposed upon by many of the hundreds of old varieties of fruits, flowers, or vegetables that are sent out annually under new names. Any well-posted nurseryman can easily detect when a Bartlett Pear or a Baldwin Apple appears under a new name; or a florist, making a specialty of Roses, knows as, for example, when, some years ago, the old Solfaterre was sent out under the name of Augusta—claiming it to be hardy in every State of the Union, and sold as a great bargain at \$5.00 a piece—that the vendors thereof were either swindlers or ignorant of the business they had embarked in; or when the confiding market gardener is induced to buy a new and superior Cabbage or Tomato seed, at \$5.00 an ounce, and finds them identical with varieties that he can buy at half that price per pound, he has good reason to come to the conclusion that the man from whom he purchased was either a swindler, or else unfitted, from his ignorance, to engage in the business of a seedsman.

But, unfortunately, from the varied nature of these impostures, it is exceedingly difficult to mete out justice to those who, knowingly or otherwise, place such swindles on the horticultural community. For the man who grows fruit trees is as likely to know as little about Roses as the man who grows Roses is to know about fruit trees, and either is less likely to be posted on the merits of vegetables. So, then, if the partly experienced horticulturist may be imposed upon in such a way, how safe is the field when the swindler tries his tricks on the general public. The sharp man of the city falls as quickly into the trap of the horticultural swindler as the veriest rustic, because his city experience of impostures in other matters helps him nothing in this. He may not be much troubled when he sees a bootblack fall off the dock into the river, particularly if his companion plays off the heroic role, and plunges in after him to the rescue; he understands it all, for both can swim like ducks, and there was no more danger for the first than for the second, and none for either. A well-stuffed pocket-book snatched from under his feet is an incident that does not in the least arouse his cupidity, for he has long been conversant with the trick of the pocket-book dropper. The mock auctioneer may scream himself hoarse, offering gold watches at \$5.00 apiece and it hardly elicits a smile of derision. The tears of the benighted orphan in search of his uncle does not bring a dime from his pocket, for he understands it all, together with a score more of the tricks of the great city. But in the spring-time when his garden instincts begin to bud, and he sees in some window in Broadway flaming representations of fruits and flowers, he falls into the trap and is ready for the spoiler.

Some years ago I had occasion to act as an amateur detective in one of these horticultural swindling shops, the owners of which are now known in New York as the "Blue Rose Men." When I arrived, there were at least a dozen ladies and gentlemen engaged in buying seeds, bulbs, and plants, the flowers and fruits of which were represented by the pictures on the walls: for example, Asparagus was shown as having shoots as thick as a broom-handle, the seeds of which were selling rapidly at one cent a piece, warranted to produce a crop in three months from time of sowing; an old lady had just become the possessor of \$5.00 worth, and seemed delighted with her bargain. One of the most attractive pictures on the wall was an immense coloured engraving, showing a tree on which Strawberries were growing, and as big as Oranges. My gaze was attracted to a handsome plate of Blue Moss Roses, and I modestly asked the price of the plants. The polite Frenchman (who was doing the principal selling for the concern) whisked out from beneath the table three plants, representing them to be Moss Roses (which, by the way, were all alike, and were all

* Essay, read by Mr. Peter Henderson, at a late annual meeting of the National Association of Nurserymen and Florists, Chicago.

our common Prairie Rose), and said, "This one he bloom only once; I tell you the truth, so I sell him for two dollar. This one, he be the Remontant, he bloom twice—just twice—I sell him for three dollar; but this one, he be the everblooming, perpetual Blue Moss Rose, he bloom all the time, he cheap at \$5.00." I quietly remarked, if it bloomed all the time, why was it not blooming now? He looked at me pityingly, and said, "My dear sir, you expect too much; these Moss Rose just come over in the ship from Paris. You take him home and plant him, and he bloom right away, and he keep on blooming." I did not take him home, but I took the story something in the shape in which it is now told, and had it published, and in less than a week the "Blue Rose Men" had pulled up stakes, but, no doubt, to pitch their camp somewhere else, and set their traps for fresh victims.

These swindlers in horticulture have their comical side. The other year, in passing St. Paul's Church (Broadway), New York, an old negro had squatted on the pavement with a great bundle of plants carefully mossed up, lying alongside of him. On inquiring what they were, he said they were Rose bushes—Rose bushes having all the attributes wanted in a Rose, fragrance, hardness, and everblooming, and the price but 50 cents a piece. He had got them, he said, from the boss, and was selling them on commission. The poor darkey was only an innocent agent. He no doubt believed he was selling Rose bushes, but the boss, whoever he might be, undoubtedly knew better, for the plants were not Roses at all, but the common Cat Brier (*Smilax sarsaparilla*) one of the worst pests of our hedgerows, but the plant of which is near enough in appearance to a Rose to deceive the ordinary city merchant.

The bulb peddlers, a class of itinerant swindlers, deserve brief attention. They have always some wonderful novelty in bulbs; and their mode of operating, to the uninitiated, has a semblance of fairness, as they are liberal fellows, and frankly offer to take one half cash on delivery, and if the goods do not come up to the representation the other half need not be paid. For example, when the Gold-banded Japan Lily was first introduced, bulbs the size of Hickory nuts sold at 250 dols. per 100. About that time one of these worthies came along with samples of a Lily of fine size and appearance, with which, he said, he had just arrived from Japan. There was no doubt of its genuineness, for he had seen it in flower. He had a large stock, and would sell at 100 dols. per 100, but he was willing to take half that amount down, and the other half when it flowered and had proved correct. It did not prove correct, and he never called. The bulb he sold was the common white Lily (*Lilium candidum*) which is sold everywhere at 5 dols. and 6 dols. per 100. These same scamps flood the rural districts every year with blue Gladioli, scarlet Tuberoses, and other absurdities in bulbs and seeds, usually on the same terms, of one half cash down, the other half when the *rara avis* has feathered out. It is needless to say that they never try it twice on the same victim, but avail themselves of our broad continent to seek out new fields for their operations.

One of the most successful swindlers of this type was Comanche George, whose fame became national. George made his advent in New York in 1876. He was, he said, a Texas scout, and for years his rifle, revolver, and bowie-knife had been the terror of the red men, but one day in his rambles on the lone Texas prairies his eye was arrested by a flower, whose wonderful colouring eclipsed the rainbow, and whose delicate perfume was wafted over the Brazos for leagues; in short, never before had eye of mortal rested on such a flower. The man of war was subdued. He betook himself to the peaceful task of gathering seed, and turned his steps to the haunts of civilised man to distribute it. We first heard of him in Washington, where he wished to place it in the hands of the Government, and accordingly offered it to Mr. William Smith, superintendent of the Botanic Gardens there, but the Government, so

Smith said, was not just then in a position to buy, and with his advice George trimmed his sails for New York and a market. His success in Baltimore and Philadelphia was so great (where he started the sale of the seeds at two cents a piece) that it induced him, when he struck New York, to advance the price to five cents a seed. He put up at one of the best hotels, and claimed that for a month his sales of the seed of the Cockatelle—the beautiful Texas flower—reached 50 dols. a day. But his success threw him off his balance; he took to fire-water, and in an unguarded moment fell into the hands of a newspaper man, who extracted from him all the facts connected with the enterprise. George never was a scout, had never been in Texas, but he had been a good customer to the various seedsmen of the different cities, where his purchases of Okra or Gumbo seed, at about 50 cents a pound, had made nearly a dearth of the article. His victims (whose names he gave by the score, and which were duly chronicled in the newspaper article referred to) were from all classes: the enterprising florist, who secretly went into it in a wholesale way, with a view to outwit his less fortunate fellows; the grandee of Fifth Avenue, who anticipated a blaze of beauty on his lawn—the hotel man whose window boxes were to perfume the air—all had fallen easy victims to the wiles of Comanche George. George disappeared from New York, though there is but little doubt that his business had been too successful for him to abandon it. A newspaper paragraph, cut from a paper the other day, which reads as follows, looks as if it might be the Texas scout in a somewhat different role:—

"The prepossessing appearance, gentlemanly demeanour, and foreign accent of the man who called himself Carlo Corella, botanist to the Court of Brazil, convinced a number of wealthy San Francisco ladies that he was truthful. He said to each that the failure of a remittance compelled him to sell some rare bulbs of Brazilian Lilies which he had intended to present to Mrs. R. B. Hayes. 'The flower,' says the paragraph in question, 'was to be a great scarlet bell, with ecruruchings on the petals, a solferino frill around the pistil, and a whole bottle of perfumery in each stamen.' He sold about fifty almost worthless bulbs at 4 dols. each."

The nurserymen present are no doubt better posted in the swindles practised in their particular department than I am; but operators engage in different lines in different parts of the country; for example, we have never yet seen in the Eastern States anyone trying to sell an Apple tree bearing blue Apples as big as Melons, as we were told at our meeting at Cleveland last year had been successfully done in Ohio and Illinois. Still we have men of fair ability in the nursery swindling line, one of whom last winter succeeded in disposing of hundreds of winter-bearing Grapes by carrying with him a few good bunches of the white Malaga of the shops.

One great detriment, not only to the florist, but to the purchaser, is begotten of these swindles in horticulture. The purchaser of flowers in our markets must have his plants in bloom because he has been at times so swindled that he must now see what he buys. In New York the amateur rarely buys from the grower, but from the agent or middleman who sells in the market stands or street corners. These, whether men or women, are generally entirely ignorant of the nature of the plants, and most of them have no responsibility, and they rarely fail to make their wares accord to the wants of the purchaser; nearly every plant is hardy, ever-blooming, and has all the qualities desired by the buyer.

Now and then these swindles become a serious matter to the victim. Some years ago, a typical Englishman, who had been a greengrocer in Covent Garden Market, found his way to New York. He at once discovered an almost entire absence of Cauliflowers in our markets, and what few there were were sold at prices four times those of London. He soon made up his mind to make his fortune, and at the same time show the Yankees something they did not know. He

duly selected and prepared the ground for an acre, and one day in May he sallied into the market to procure his Cauliflower plants. This he found no difficulty in doing, for at Dutch Peggy's—in those days the headquarters for all kinds of herbs, plants, and seeds—they were to be seen by the wagonload, 10,000 were procured, the quantity for his acre, and, duly planted, they began to grow apace. He had planted the 1st of May. If it had been in England, his Cauliflower heads would have been ready about the 1st of July; but something was evidently wrong in the Yankee climate. His Cauliflowers grew through June, through July into August, only to develop into fine specimens of Drumhead Cabbage, then of hardly the value he had paid for them as Cauliflower plants. He got out of the business thoroughly disgusted, and in telling his sorrowful tale to me a year afterwards he related that when he went to expostulate with old Peggy about having blasted his prospects, before he could get a word said she recognised him as a customer, and demanded to know if he did not again want some more early Cauliflower plants.

I have said old Peggy was also a vendor of seeds. It is now something over thirty years ago that a young florist presented himself before her and purchased an ounce of Mignonette. Ever alive to business, Peggy asked him if he had tried the new red Mignonette. He protested there was no such thing, but Peggy's candid manner persuaded him, and 50 cents were invested. The seed looked familiar, and when it sprouted it looked more familiar; when it bloomed it was far too familiar, for it was Red Clover. Peggy has long since been gathered to her fathers, and I have entirely forgiven her for selling me the red Mignonette.

Perhaps there is no swindling that is more extensively practised, and which so cruelly injures the operators of the soil, as that of adulteration in fertilisers. The great mass of our farmers and gardeners are poor men, who can ill afford even to pay for the pure fertilisers necessary to grow their crops, and to pay money and high freights on adulterations worse than useless is hard indeed. The ignorance of those dealing in such wares does much to spread the evil. A fellow came into my office last summer with samples of a fertiliser, nicely put up in cans, which he claimed could be sold in immense quantities by the seedsmen, as it had not only the wonderful properties of invigorating and stimulating all planted crops, but that it at the same time would kill all noxious weeds. I need not say that he had waked up the wrong passenger, and that he made a rapid movement towards the door. Yet, notwithstanding the absurdity of such a claim, the scamp was enabled to prowl around the vicinity of New York for weeks, and undoubtedly sold to hundreds. If he had said he had a cannon from which, when grape-shot was fired into a crowd, it killed only enemies—never friends—the one claim would have been as reasonable as the other.

The Atkins water softening process.—

The important question of the softening and purifying of hard water in bulk has received a satisfactory solution in the Atkins process, which promises to be of great public service in these respects. This process is a modification of, and an improvement upon, the old Clark system of softening water, which consisted in adding lime to the water to be softened, and allowing the mixture to stand for 24 hours in large reservoirs or precipitating tanks before it could be used. In the Atkins process, however, the precipitating tanks are dispensed with and the water can be used as it is softened, the process being continuous and no time being required for it to stand and settle. The process essentially consists in chemically purifying the water instead of mechanically, as in ordinary filtration. In practice a small jet of lime water is introduced into a portion of the water to be softened, and the two are blended in a mixer, whence they flow into a softening tank into which the bulk of the water is conducted. From this

tank the water with the lime in suspension flows into Atkins rotary disc filters, in which the solid particles are all arrested by an ingenious system of cloth-covered discs placed within a tank, and which present a very large area for filtration within a very small compass. The purified and softened water is conducted from the filters to storage reservoirs ready for use. The effect of the lime water is not only to purify and soften the water in bulk, but to cause any clayey matters that may be held in suspension to coagulate, thus facilitating their removal. The water passes from the outside to the inside of the filters through the cloth-covered discs, the surfaces of which become in time coated with a deposit, consisting of carbonate of lime and impurities. These surfaces are quickly cleaned by means of a series of brushes which are brought into contact with the discs. The brushes, which are fixed on a spindle, are rapidly revolved, as are also the discs, but in opposite directions, the result being that in a few minutes the filters are cleansed and ready for work again. The system has been successfully applied to private water supplies in several instances, notably at the residence of the Duke of Richmond at Goodwood, and at that of Mr. W. H. Smith, M.P., near Henley. The first application of the system to a public water supply is that of the Henley-on-Thames Water Works, which were recently opened. It was introduced there by the engineer to the water company, Mr. Church, in consequence of the extreme hardness of the water, which is obtained from the chalk, and is normally of about 19° of hardness. After treatment, however, by the Atkins process the hardness is reduced to nearly 4°, which means a beautifully soft water. The apparatus is calculated to soften and purify rather more than 100,000 gallons of water per working day of 10 hours.

SOCIETIES.

KINGSTON (JAMAICA) FLOWER SHOW.

THE second show of this kind was held at Kingston on the 7th and 8th of June. The exhibits either as regards quality or quantity were not to be compared with those of the Manchester or London shows, but for Jamaica they were most creditable, and as regards a horticultural show it was, for the second, a decided success. Notwithstanding a severe and protracted drought and exceeding heat, accompanied by blustering winds which then prevailed, it was surprising to see so many well cultivated plants from the small gardens in and around Kingston massed together. These consisted chiefly of Crotons, Caladiums, Begonias, Pelargoniums, Roses, Pinks, Palms, Ferns, &c. The fine foliaged plants especially were in strong muster, and many of them most creditably grown. Fruits (of a tropical character) and vegetables were also well represented, and the tent in which they were pitched was, owing to them, by no means the least attractive on the ground. Pines in several varieties, such as Ripley Queen, Sugarloaf, Black Jamaica, &c., made a fine display; the best variety for home consumption is the Ripley Queen, while the Jamaica, owing to its firm texture, travels better than any other, and is of the highest value in the markets of the United States. There were present also from the higher cultivated lands (5000 ft. or so above sea level) good samples of Irish Potatoes, and even Apples as sour as need be. European residents, and the wealthier creoles who have travelled, evince a strong hankering after European fruits and flowers. The majority of them know of no good reason why deciduous trees, such as Pears, Plums, and the like, also Violets, Daisies, Polyanthuses, &c., should not grow, bear fruit, and charm them here as at home. For years they have been importing these, trying and failing, and still they persist. Hundreds of pounds sterling are annually spent by our people in importing new Hybrid Perpetual Roses, eight-tenths of the varieties of which never give them a flower, at least in the warmer districts. Teas and Noisettes, on the contrary, do admirably, flower continually, but their flowers are not large enough—are not

what have made England Rose-famous. The first question asked by the great majority of visitors to the Botanical Gardens here is, "Have you any nice Rose plants?" Jamaica people are nearly all, like the Rev. Reynolds Hole, Rose-crazy. To the majority of them pretty and attractive flowers like Bougainvillea glabra, Plumbago capensis, and many of the finer flowered creepers are neither pretty nor attractive. If I dare venture to excuse them it would be by stating that their apparent disregard for such is probably due to the fact that these and similar plants grow freely in the open garden, and when once planted require no further attention; they are not sufficiently troublesome, not so delicate as to require special nursing; the brain is not taxed to keep them alive, and so they cannot be made pets of. But, on the contrary, they cannot bestow too much pains on an ungrateful Hybrid Perpetual Rose. A friend of mine living in Kingston has over 300 varieties of Roses in his small garden, nearly all of which are cultivated in bushel-sized red clay pots. It is a glorious display of potteryware! He divides something like £30 annually between Messrs. Wm. Paul & Son and Messrs. Cranston & Co., and one or two French nurserymen, and for this he is satisfied when from each plant he obtains a single blossom in the course of a year. This grower carries his hobby further, I think, than even the Rev. Reynolds Hole would do. There is in the city a firm of haberdashers who have a running order from him for all the moth-eaten sunshades (parasols) that they can produce at so much per head, and these, as he gets them, are erected over his sacred Rose plants, that the flowers may not be scorched in the bud, and that he may delight in their unfolding. Just think of a garden of parasols, thickly placed, of all the primary colours and their shades, designedly calculated to tickle the highly æsthetic tastes of the negro race. It is indeed a glorious sight. But my friend seeth it not—he only looks for his Rose blooms. With such a love for flowers, and it is by no means uncommon among our people, there is every prospect that the present standard of the Kingston (Jamaica) Floral and Horticultural Show will be annually kept up.

Castleton.

GEORGE SYME.

NATIONAL FLORAL SHOW AT ROTHESAY.

A GRAND exhibition of Roses, Pansies, Pinks, &c., was held in the new Public Hall, Rothesay (the Brighton of Scotland) on July 14 and 15. The various blooms staged were of excellent quality. Subjoined are the principal prizes.

Roses.—Best 24 blooms.—Gold medal awarded to Mr. H. Dickson, Belmont Nursery, Belfast, with very fine blooms of Duchess of Bedford, La France, Madame C. Wood, Jules Finger, Countess of Rosebery, Pride of Waltham, Madame Verdier, Duke of Edinburgh, Lady Sheffield, A. K. Williams, Alfred Colomb, Horace Vernet, Auguste Buchner, Marguerite de St. Amand, Rosieriste Jacobs, Brightness of Cheshunt, Baroness Rothschild, Mrs. Harry Turner, Captain Christy, Mons. E. Y. Teas, Mrs. Jewitt, Duke of Teck, Madame Marie Verdier, and Comtesse de Camonda. 2nd, Mr. Thos. Smith, Stranraer, whose blooms included La France, Captain Christy, Marquis of Salisbury, Marquise de Castellane, Harrison Weir, Alfred Colomb, Baroness Rothschild, C. Lefebvre, Duchess of Bedford, Madame Montet, Madame J. Perrière, and Camille Bernardin. Best 12 blooms.—Silver medal awarded to Mr. Wm. Parlange, Gardener Row, in whose stand were beautiful blooms of La France, Maréchal Niel, General Jacqueminot, Baroness Rothschild, Jean Liabaud, Sénateur Vaisse, Horace Vernet, and Mdle. E. Verdier. 2nd, Mr. McIntyre, Blairmore.

Pansies.—Best 24 show and fancy blooms.—Gold medal awarded to Mr. William Paul & Son, Crossflat Nurseries, Paisley, who staged magnificent flowers of show—Peter Lyle, A. Watt, J. P. Barbour, W. L. Thomson, dark selfs; Mrs. Galloway, white self; R. Pollock, Dr. Livingstone, Wm. Robin, Baillie Cochran, D. Dalglish, A. Cameron, R. Williamson, yellow grounds; Mrs.

Muir, Jeannie Grieve, Miss Meikle, Miss Baird, Jeannie Johnstone, white grounds; and seven unnamed seedlings. Fancies—Jas. Lillie, Mrs. Scott Plummer, Mrs. Birkmyre, W. McIntosh, J. A. Martin, Thalia, A. Stephen, Jessie Budd, Sir P. K. Murray, Adonis, Edward Caird, L. V. Heathcote, Catherine Agnes, Mrs. Russell, R. Cowan, Mrs. W. O. McCormick, Mrs. J. Watt, Mrs. Robinson, and six unnamed seedlings. 2nd, Mr. J. Sutherland, Victoria Nursery, Lenzie, whose collection included fine blooms of the following, show: Rev. J. Morrison, Mrs. Cadzow, M. Pollock, W. Robin, Mauve Queen, R. Burns, Mrs. Arthur, Jessie Foote, Golden Circle, and Mrs. Dobbie; fancies: Catherine Agnes, Mrs. Jamieson, Livadia, Mrs. J. Stewart, Countess of Home, R. Goodwin, Duchess of Edinburgh, W. Cuthbertson, Earl Beaconsfield, Mrs. Findlay, Mrs. Taylor, and L. V. Heathcote. 3rd, Mr. W. Dickson, Paisley. Best 12 show and 12 fancy blooms.—Silver medal awarded Mr. W. Storrie, Lenzie, with grand flowers of A. Watt, Marquis of Lorne, J. P. Barbour, Rev. J. Morrison, W. Robin, Lizzie Balloch, Dr. George Robertson, Mrs. Cadzow, Mrs. Dobbie, W. Crockett, Mrs. Arthur, and Mrs. Ritchie, show; Jas. Grieve, Mrs. Forrester, Mrs. Barrie, Angus McLeod, Luck's All, Mrs. E. H. Wood, Wm. Storrie, Bob Montgomery, Mrs. Ogilvie, Mrs. Main, Catherine Agnes, and William Dickson, fancies. 2nd, Robert Millar, Paisley; 3rd, A. Irvine.

Pinks.—Best 12 blooms, silver medal awarded Messrs. Paul & Son, Paisley, who staged large double flowers, perfect in lacing, of the following: Wm. Paul, Modesty, Egeria, Adela, W. Watson, Wm. Bruce, Vanessa, Omara, Dr. Masters, Mary Auberton, Lady Golightly, and Ada Louise; 2nd, W. Dickson, Paisley; 3rd, John Love, Rothesay. Mr. Dickson, Belfast, and Mr. Smith, Stranraer, exhibited several stands of lovely Roses; and Messrs. Dobbie & Co., Rothesay, had a good collection of cut Phloxes, Pansies, and others.

OBITUARY.

MR. MOGGRIDGE, who was well known to many of our readers, died last week at South Kensington on the eve of his 79th birthday. He was the father of the gentleman who wrote that interesting work, "The Flora of Nice."

DIED on the 18th inst., at his residence, 7, Dover Terrace, Old Trafford, Mr. Matthew Brown, aged 58, years, of the firm Dickson, Brown, & Tait, seed merchants, 43 and 45, Corporation Street, Manchester.

MRS. ROBERT PARKER.—On the 15th inst., Winifred Mary, the wife of Mr. Robert Parker, Exotic Nursery, Tooting, in her 59th year.

Names of plants. *Country Gentleman*.—*Bromus commutatus*; not recommended for permanent pasture.—*Muc.* The Campanula is apparently C. rhomboidea; the other is Asperula odorata (Woodruff).—*H. H.*—*Rhus Cotinus* (a Sumach).—*W. H. Jarrold*.—*Aerides crispum* var.—*Caudwell*.—*Wanstead*.—*Snaydragon*, Sweet Williams.—*M. H. W.*—If you will send us a flower or two we will name the plant for you.—*Mrs. N. (Balbrath)*.—1, Escallonia macrantha; 2, E. rubra; 2, species of Rudbeckia. *W. W.* Oxalis Valdiviana. *Anon.*—*Abutilon vexillarium*, *Oncidium pretextum*.—*T. W.*—1, *Oncidium onopites*; 2, *Maranta zebrina*; 3, *Alocasia zebrina*; 4, *Centaurea Cyanus*.—*Young Gardener*.—1, *Phlebodium aureum*; 2, *Asplenium bulbiferum*; 3, *Adiantum trapeziforme*; 4, *Asplenium premorsum*.

Books (J. F. L.).—Sowerby's "Ferns of Great Britain," Bohn, York Street, Covent Garden; Bentham's "Handbook of the British Flora," with illustrations, Lovell, Reeve, & Co.; or Hooker's "Student's Flora," which includes Grasses, Macmillan & Co.; Hobday's "Cottage Gardening," GARDEN Office.

COMMUNICATIONS RECEIVED.

H. T.—T. F.—J. G.—J. M.—G. S.—J. C. S.—J. C. & Co.—W. J. T.—A. F. B.—G. S. S.—J. E. W.—C. M.—J. C. C.—E. H.—J. R. P. & Co.—S. F.—W. J.—D. T.—R. P. B.—J. R.—H. M.—J. S.—G. J.—C. P.—J. R. H.—J. S. W.—H. H. C.—J. C. J.—M. D. R. & Co.—T. H. P.—K. & Co. B.—H. H.—W. W.—Mac.—G. B.—A. D.—J. F. L.—7 fruit reports.—J. F. McK.—L. K.—A. J. R.—J. O'B.—F. S.—M. F.—W. W.—J. R. C.—A. T.—G. S. S.—20 fruit reports.—12 fruit crops.—W. C. Co.—N. P. Co.—N. S.—J. S. & Sons.—Alpha.—M. H. W.—A. G.

"This is an Art

Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

TWO USEFUL FOREST TREES.

THE BLACK WALNUT.—I am informed by a London timber merchant that this tree has strong claims on the planter of forest trees, on account of its rapid growth and valuable timber, and he thinks it ought to be brought into prominent notice, so as to encourage its more extensive propagation and distribution. He says, "I am going to entreat you to grow largely a tree which I am certain you will find admirably adapted to the Longleat lower woods—I mean the American black Walnut. There is a magnificent tree of this species growing in the Duke of Northumberland's grounds at Syon House, opposite Kew. This tree has a trunk 25 ft. long by 24 in. quarter girth, is about fifty years old, and would realise, if put on the London market, 5s. per foot (£25), besides the limbs, which are proportionately valuable. Singularly enough, I bought one as an Elm out of a garden not 300 yds. from my sawmill, so I am fortunately able to send you a specimen of the English grown wood; it was about 15 ft. long by 20 in. quarter girth, and had forty annual rings. You will note that the wood has obtained from our English soil the very character American wood is so deficient in, viz., hardness and weight, approaching in this respect the character of Italian Walnut, or what is represented by the words good quality. I am now making from this tree a sideboard, which will, I think, be a beautiful specimen of work. If I can induce people to try the experiment of planting the black Walnut in considerable quantities, I feel sure it will repay them. There is no possible doubt that it has taken a place in the world of art furniture which is not likely to be altered by time or fashion, owing to its great advantages of size, colour, and easiness of working."

From my own somewhat limited knowledge and experience in the converting of the black Walnut, I was under the impression that it was not what may be called valuable or high-priced timber, as it has simply a plain straight grain, quite free from the mottled and figured grains found in the Black Sea and Italian Walnut wood; but of course the bulk of black Walnut timber converted in this country is of American growth, and the argument of the timber merchant in question is that it is inferior in quality to timber grown in English soil. If British grown black Walnut will fetch 5s. per foot in the London and provincial markets, I think the fact cannot be too widely made known amongst landowners and nurserymen. What a valuable tree in a commercial point of view in the future it may prove if planted in quantity in good soils and favourable situations. It is of undoubted hardiness, never suffering in the least from early or late frosts, and may be said to be quite free from the attacks of insect pests. As an ornamental object to adorn the landscape, it well deserves a place on account of its striking appearance when associated with other park trees; the light green foliage shows up conspicuously and pleasingly in contrast with the darker hues of the majority of summer leafing trees. When allowed plenty of room it has a wide spreading, massive head, but at the same time it is by no means a heavy dense clump-headed tree; its branches are so disposed as to admit of abundance of light and shade amongst

the leafy branchlets that hang in graceful tufts. The largest specimen of this tree at Longleat is growing in the orchard adjoining the kitchen garden; the circumference of its stem at 3 ft. up is about 7½ ft.; the stem is only 7 ft. long; it has evidently been neglected when young in the way of pruning, or the butt would have been much longer and finer; at 7 ft. up it divides into several large upright branches, which together form a lofty wide-spreading head of attractive appearance when viewed from a distance. If any of your readers have had experience in the conversion or sale of home-grown black Walnut it would be interesting to get their opinion on the subject.

LONDON PLANES.—The timber merchant just alluded to, in answer to some inquiries of mine relative to the London Plane, says—"At the present time it is without exception the most prominent and valuable tree we have in London, from the simple fact that there is hardly a spot where it will not grow, and even flourish. No matter how vitiated with smoke or worse gaseous products the atmosphere may be, the Plane tree puts forth the most vigorous foliage. The fact of the bark shedding annually doubtless has a great deal to do with the wonderful power of vitality which it possesses amidst poisonous air. The Plane tree you allude to, from Lambeth Palace grounds, was a magnificent tree—the finest I ever saw; I had it in my yard to convert. The wood is used almost exclusively by first-class coachbuilders and pianoforte makers. No wood takes the paint and stands so well for the sides of large wagonettes as this. In the case of pianofortes it is used exclusively for bridges, the toughness and hardness enabling the pins to be most securely held. Last year there was a large importation of American Plane tree, splendid timber to look at, but of very inferior quality compared with that of English growth; soft and tender, it absorbs the paint and varnish, and is rapidly affected by damp and will not stand nailing. There being a scarcity of English-grown wood, I thought to supply its place with American, but I have had to take it all back rather than lose my customers. The grain is almost similar to that of the English, but smaller in the seed-like appearance and less bright in colour. It is strange, but nevertheless a fact, that all kinds of American timber, while far before ours in magnificence of growth, is far inferior in quality, and this almost invariably arises from the slowness of the growth, not, as would be supposed, from its rapidity. In all kinds you will rarely find the annual rings of growth of greater thickness than an eighth of an inch; of course it makes up in height, so that bulk for bulk, or growth of so many years, America produces far the larger quantity. My experience has always been that the fastest grown timber (that is on the best soil), with annual rings from ⅜ in. to ¾ in., gives the very best quality wood, i.e., for toughness and weight, an argument this for planting on good land like the soil whereon your grand plantations of first class timber have been produced. I am myself thoroughly convinced that for the man who can wait, or at any rate plant for his heirs, a far larger return may be obtained from judicious arboriculture than from agriculture."

GEORGE BERRY.

Longleat.

Tree roots in drains.—Although an admirer of trees and shrubs in suitable places, I must confess that the note (p. 74), respecting the way in which roots fill up drains is quite correct. Last winter we had to take up all the drain pipes leading from the meadows to the lake, as the water, instead of flowing through them, forced its way up through the soil and flowed on the surface. When taken up the pipes were found to be filled with

a solid mass of fibry roots, that when forced out and dried resembled a sponge having the exact shape of the pipe. As we could not do without drains, and the trees amongst which they were made could not be cut down, the next best course was to use glazed socket pipes, the ends of which were filled up with cement. Keeping roots out of drains is merely a question of expense, and my impression is that the majority of people are too well convinced of the benefits arising from planting trees in towns and by the sides of highways to let such improvement drop rather than make the drains so as to exclude roots. J. GROOM.

American Walnut.—No American tree is more profitable than Walnut, and when worked up the value is very great. The Cincinnati *Commercial* tells the following story of a large Walnut tree: In 1865 an Indiana man, as the story runs, bought the tree for 4s., and he subsequently sold it for £13. The buyer sold it to a Cincinnati lumber dealer for £140. The Cincinnati dealer sold it to a New Yorker for £400, and he cut it up into veneering, which he sold for £5400.

Eucalypti.—I shall be much obliged if you would allow me to state that the Eucalyptus, seedlings, of which I offered through your columns, is not coccifera, but some species unknown to Messrs. Veitch. As the seeds came direct from the head of the Government Garden at Hobart Town, I thought they were certain to be correctly named. I am afraid some who have sent for the seedlings will be disappointed.—A. BARTHOLOMEW, *Park House, Reading.*

A WILDERNESS GARDEN.

HERODOTUS, who was not only the father of history, but also a wise moralist, has somewhere expressed this rather paradoxical sentiment. He says that if those who think that they are most unhappy in their circumstances, and have most need of the sympathy of others, could only look into their neighbour's private troubles, they would generally be too glad to go home again and keep their own lot, and that very few would wish to change places. I have often wondered whether this is true of gardening, in which all of us have troubles and difficulties to contend against; but if it is, I have much reason to be sorry for my neighbours. I have just returned home after five weeks' absence in North Wales; the hay has been about for nearly a month of unpropitious weather, and the gardener, being also head farm man, has wanted every available hand to save it. The storms of wind and rain have laid many things prostrate, or doubled over those that were tied up, so that their flowers are on the ground, to the delight of lazy slugs, which are saved the trouble of climbing 6 ft. to get at the petals. A new plague of short-tailed field mice, offended by the mowing of their native meadows, have again invaded the garden, and are eating down the alpine on the rockeries, especially the choicest Campanulas. Lilies, owing to the ungenial weather and cold spring, are suffering earlier than usual from spot, and many *L. canadense* and *L. Humboldtii* have rotted away in bud. The whole garden is an overgrown wilderness, and though it is a flowery wilderness, the colour of many of the flowers is poor and washy, so different from the colour of the same flowers which I have lately never been tired of looking at in the neat villa gardens at Colwyn Bay and Llanfairfechan, or round the cottages about Conway and Bangor, where the gardens are always made brighter and gayer than mine by the most commonplace materials. But then the sea air has such a wonderful effect on the colour and habit of flowers. How I wish I could have taken all my flowers to Llandudno for a month, as I did my grandchildren; perhaps it would have improved their colour as much; and how well they would have filled the empty garden of that empty house which the Dean of Christchurch built many years ago on the shore oppo-

site Conway, and which always looks as if it were in perpetual Chancery.

Choice of plants.—While my spirit was disturbed by the above mentioned causes I read the suggestive letter of "J. C. L.," which appears in last week's GARDEN, and began to consider how much of the untidiness of my garden is caused by herbaceous rubbish. I had already come to the determination to enlarge my flower-beds no more; and had already announced to my gardener that I intended to take a new departure and adopt a policy of extermination, and that in future every new-comer must be planted over the grave of some older inhabitant. The question for consideration is where to begin. I am neither a botanist nor a florist, but since I commenced hardy flower gardening in earnest—about four years ago—I have been collecting and raising from seed hardy plants of all kinds. I have wished to have a garden where anyone who came could see a great variety of hardy flowers growing, and learn what to select and what to avoid. Of many plants one year's acquaintance has proved sufficient; but there are many doubtful subjects which I have seen ornamental in other gardens, and of which I from time to time change the soil and aspect, hoping they may improve their ways. Others, which I have raised in large quantities from seed, or which spread fast like the white Japanese Anemone, are so beautiful that it requires to be very hard-hearted to treat them as weeds, and it is difficult to know how to limit them. Indeed, after the gathering together of every kind, which requires no discrimination, it is the sorting and arranging which is difficult. In the planless garden of this shapeless old house, where you cannot define what is meant for flower garden, what for kitchen garden, what for orchard or shrubbery, a large proportion of the ornamental plants are in square or oblong extemporised beds, put wherever there was room to spare. There they are huddled together, a *rudis indigestaque moles*, or chaos of roots and leaves and flowers without any attempt at arrangement or effect. Many visitors tell me that this suits the house and place—perhaps a somewhat doubtful compliment; but anyhow it saves a great deal of trouble and disappointment.

The old bedding-out and ribbon border system, which I never disparage, though I should not care to have it in my own garden, had this advantage, it ensured your having flowers of a certain colour in a certain place at a certain time, but you cannot do that with hardy herbaceous plants; many of them are capricious in their time and manner of flowering; a white flower comes in just as a blue or scarlet one, which it was intended to set off, goes out. Nothing looks more untidy than *Delphinium formosum* or the light blue hybrid Larkspurs or *Lupinus polyphyllus* when beginning to go out of flower. If there is labour enough at command to keep them properly trimmed it is better; but in judicious cutting down after flowering is ruinous to many herbaceous plants. I often read the plans for herbaceous borders recommended by writers in the gardening journals, but seldom find one upon which I could depend to produce the effect intended. The most effective herbaceous borders I have seen have been planted by no rule, whilst attempts at special arrangements of colour have generally been failures. After going round the garden to condemn rubbish, I really hardly know where to begin. Only yesterday I ordered the destruction of the double white Meadow Sweet. It is so coarse and so liable to mildew, and inferior to the double Dropwort, which it resembles, but I came upon one plant of it so handsome and effective that I had to save it. Then *Bocconia cordata* is too

coarse even for the back row of a flower border, though it has its admirers. *Campanula grandis* and *persicifolia*, which are beautiful in North Wales, are here weedy and untidy and poor in colour, but may be better if we ever have a dry summer. As for *C. latifolia* and *rapunculoides*, they are the oldest inhabitants of the garden here, and assert a tenant-right in every spare corner in such a way that I dare not get rid of them if I wished; but I do not wish, for there is a good deal of sentiment about gardening, and many weedy plants are cherished for the memories they recall. *Hieracium aurantiacum*, for instance, grew in a favourite corner of my grandfather's garden, and we used to see *Silene nutans* growing out of the old mortar in Nottingham Castle walls soon after the castle was burnt by the rioters in 1831. *Corydalis lutea*, too, and the quaint *Astrantia major*, and several others are protected plants here for some similar reason. After all, a great part of the untidiness of the garden is due to the fact that leaves must be allowed to wane and die after plants have flowered if we wish them to flower again in increased beauty. The long rows of coarse *Colchicum* leaves have at last disappeared, and when the beautiful flowers of the double autumn *Crocus* and of *C. speciosum* appear, they will more than compensate for past appearances. Again, I am not sure that "J. C. L." is quite right in what he says about flowers being superseded by larger and more showy successors in the same style. The Greek proverb, "Grace waits on the small," is often true of flowers. *Veronica longifolia subsessilis* is a grand plant both in colour and habit, and grows 4 ft. high, but, besides many good earlier flowering kinds, there are five or six gradations in size of the same class of *Veronica*, nearly equally good in colour, down to the native *spicata*, only 4 in. high. So with white Daisies. I have now in flower six gradations in size, from *Chrysanthemum atratum* (so called from the whiteness of its flowers on the *lucis a non lucendo* principle), with flowers 4 in. across, which is the *maximus*, down to *Pyrethrum Willemotti*, with flowers half that diameter, which is the *sextus* and the best of all. Amongst many worthless

Michaelmas Daisies there are a few really good, but no Michaelmas Daisy should be admitted in a limited collection unless it has been seen in flower. Even if you get a species true to name, it does not follow that it is a good variety; and such a variable species as *Aster Novi-Belgii*, for instance, includes some of the best as well as some of the worst Michaelmas Daisies in cultivation. I am never tired of asking my friends to send me their best Michaelmas Daisies, or of looking for them over the hedge of cottage gardens, and in this way am constantly improving my selection, having about a hundred varieties now under probation. Yellow composites form a large subject, too large to treat of fully at the end of this long dissertation; but I may say that the selection of them must depend, even more than that of other plants, upon conditions of soil and climate. The best of the lot in Cheshire, both for cutting and ornament, is the wild Corn Marigold, which I was glad to see lately exhibited amongst twenty-four hardy flowers as the representative of the class. In two or three collections besides my own at a local flower show. Its cultivation should be studied. It will flower in the open air in ten of the twelve months, and if judiciously cut down will spread at the root like a perennial. One plant now in my kitchen garden is producing so many flowers that I shall imitate the caution of a Greek historian, who, in speaking of the soldiers killed in a certain battle, said, "Though I know the number, I shall not tell it, because I am sure I should not be believed." Of Sun-

flowers 10 ft. high, *Helianthus giganteus* is good; *H. orgyalis* rubbish; from this height yellow composites range down to 6 in. Of *Leopard's-banes*, *Doronicum Clusi* is far the best, having the largest flowers and continuing to produce them from early spring to late autumn. Amongst comparatively new acquaintances in this class I may mention *Helenium grandiflorum*, 18 in. high, very good indeed if true, but *H. autumnale* is generally sent for it; *H. pumilum*, 12 in. high, a very dwarf form of *H. autumnale*, also good; *Bahia lanata*, 1 ft. high, hardness here only proved in one mild winter; *Grindelia hirsuta*, fine large regular flowers and about the same height. But it is not easy to beat *Coreopsis lanceolata*, which I have received under at least six different names in forms differing little, if at all. *Rudbeckia speciosa*, wrongly called *Newmani*, just now opening, is of course an indispensable plant known to every gardener.

In conclusion, I may advise those who are forming collections of hardy herbaceous plants to do their best to visit the nurseries at the time when what they intend to buy is in flower; and if they are offended with the appearance of any of the plants they have seen recommended not to buy those plants, but at the same time not to condemn the judgment of those who have recommended them unless they are sure that what has been praised is the same as what they see before them. C. WOLLEY DOD.

Edge Hall, Malpas.

ORCHIDS.

ORCHIDS AT BOCKING PLACE, BRAINTREE

THE small, but increasing collection here is well worthy of notice on account of the remarkably good health which the greater part of the plants exhibit and the cleanliness, neatness, and order which everywhere prevail. The houses, which are all new, were built according to Mr. Sydaey Courtauld's own plan, and they possess many unusually good features as regards Orchid growing. The ventilation is specially good; ample means are furnished for giving air near the ground, and below, or on a level with the hot-water pipes, and perfect top ventilation is secured by having narrow ventilators at intervals on both sides of the house. These narrow ventilators extend from the gutter to the ridge and are worked by levers. By this means, when a little air is put on stagnant air cannot exist in the house, as the openings extend the whole width, and a perfect circulation is the result. In the *Odontoglossum* house are representatives of most of the showy, cool Orchids, some of the plants of *Odontoglossum Pescatorei* and *O. Alexandra* being particularly sturdy and well bloomed. Here also are some fine plants of *Oncidium macranthum* with many fine flowers; also *O. citrosimum*, *O. hastilabium*, *Mesospindium vulcanicum*, and many *Masdevallias*. The *Cattleyas* show that they like the light airy houses and the treatment given. Mr. Courtauld is a great advocate for sunlight and air, and less shading is given at Bocking Place than in most gardens. The *Cattleyas*, *Laelias*, and Brazilian plants generally are therefore very sound and strong. With these plants heavy shading produces the most disastrous results, such as thin, weak growth, spot, and absence of flower. Very thin shading only should be used, and the cultivator should bear in mind that that is only to be employed to keep the plants from being scorched, and not to keep them dark. If the ventilation and damping down be well attended to, *Cattleyas*, *Laelias*, and most of the hard-skinned *Epidendrums* and *Oncidiums* will do better without any shading than with that usually employed. A very fine variety of the Amazon *Cattleya superba splendens*, some good *C. gigas*, *C. Mendelli*, *C. Mossiae*, &c., are nicely in bloom. In the intermediate house some interesting things are in bloom, such as

Palumbina candida, *Trichopilia hymenanthera*, *Colax viridis*, *Arundina bambusæfolia*, *Oncidium Lanceanum*, and many other showy plants, all of which seem thriving and satisfactory enough to induce their owner to still further increase his stock. The *Nepenthes* house contains the greatest number of varieties I ever saw brought together in a private place. *N. Rajah*, *N. Mastersi*, *N. sanguinea*, *N. inadagascariensis*, *N. Lawrenceana*, *N. Veitchi*, *N. albo-marginata*, as well as almost all the other varieties in cultivation being here in the shape of sturdy plants—altogether a most interesting collection. The whole garden indoors and out is a credit to Mr. Gunn. At the time of my visit the rosery and covered walk of Roses was in itself worth a visit, immense clusters of these lovely flowers scenting the air on every side. The Peach and Nectarine houses also were heavily laden with fruit.

JAMES O'BRIEN.

Harroon-on-the-Hill.

ORCHIDS IN SEASON.

IN Mr. B. S. Williams' nursery, Upper Holloway, the following are among the more noteworthy of the Orchids in flower, viz., *Trichopilia hymenanthera*, a species of dwarf growth, with long, fleshy, deeply-channelled leaves and racemes of flowers of delicate transparency, the large labellum being spotted copiously with carmine on a white ground; the sepals also are white. *Paphinia rugosa*, a very singular species, likewise with large transparent blossoms, curiously marked with chocolate-red spots and streaks; the flowers are produced from the base of the foliage. *Cœlogyne Massangeana*, an extremely handsome Orchid, with broad foliage, springing from large pseudo-bulbs, from the bases of which are developed long pendulous racemes of white blossoms, having the labellums marked with brownish chocolate and orange. A fine specimen in a suspended basket bears two long spikes, each of which bears over a score of flowers. *Burlingtonia candida* is a charming Orchid when grown and flowered so finely as it is here; a plant in a hanging basket bears two or three long pendulous racemes of delicate white blossoms blotched with yellow. *Vanda Batemani*, one of the noblest of the genus, is bearing a huge spike of blossoms, which are large, of a thick texture, and beautifully coloured with violet-purple and chocolate mottlings. In the *Cattleya* house there is still an attractive array of bloom, to which the beautiful *Lælia elegans* and its varieties contribute in no small degree. In the same house there is a fine display of *Thunia alba*, which is grown largely here in suspended baskets near the roof, and this treatment induces a prolific crop of bloom. It is a graceful and attractive Orchid when well grown, and very useful for cutting purposes. The *Masdevallia* house is particularly gay with flowers produced in abundance, and besides the varieties of *Harryana*, *Veitchi*, *igneæ*, *Lindeni*, and others, we noted the rare *M. Normani*, which, however, is more curious than attractive.

In Mr. Bull's collection at Chelsea there is still a bright display of bloom; we noted the following as being out of the ordinary run, viz.: *Phalænopsis tetraspis*, a dwarf species, with pretty white wax-like blossoms; *Grammatophyllum Ellisi*, a good specimen of a very handsome Orchid; *Masdevallia trochilus*, the Humming Bird Orchid, both curious and handsome; *M. Normani*, *Cypripedium Mastersianum*, the very handsome Lady's Slipper previously described; *Epidendrum raniferum*, the Frog Orchid, and a handsome and interesting species not often seen; *Cattleya gigas Normani*, a magnificent variety, one of the finest forms of the species; and *C. Leopoldi*, *Oncidium macranthum hastiferum*, a much finer Orchid than the type. These, together with some remarkably handsome varieties of *O. vexillarium*, make up an interesting list.

Besides the hybrid Lady's Slippers mentioned last week there are in Messrs. Veitch's collection several other Orchids of more than ordinary interest, viz., *Cattleya Chamberlaini*, a very fine hybrid between *C. Leopoldi* and *C. Dowiana*; the

true *Cypripedium Chantini*, one of the varieties about which so much has been written lately; *Aerides crassifolium*, one of the finest of all the *Aerides*; *Brassavola Digbyana*, *Cattleya Wagneriana*, a variety with pure white flowers, except a large blotch of yellow in the labellum; *Dendrobium bigibbum album*, a pretty albino of a well-known Australian species.

W. G.

Differences among *Cattleyas*.—I have been much interested in the illustrations that have appeared lately in *THE GARDEN* of several beautiful *Cattleyas*; yet, even with the aid of these it is difficult to distinguish readily allied kinds, more especially as there exists such a variety of colour in each of the different forms. Will any one tell me in a few words the marked distinctions, excepting that of colour, between such kinds as *C. labiata*, *Mossiae*, *Mendelli*, *gigas*, *Warneri*, and *Trianae*?—R. C.

PLANTS IN FLOWER.

ANTIRRHINUMS are best from cuttings. Select your sorts amongst the seedlings, then increase as just mentioned. Each kind planted in groups of from five to seven amongst other things produces a much better effect than mixed groups do. T. S., Newry.

LYSINACHIA BRACHYSTACHYS is a very pretty plant for a moist place. Its spikes of white flowers are curious, inasmuch as the flowering portion assumes from the first a horizontal position, which is gradually shifted up as the flowers open. T. S., Newry.

ACHILLEA PTARMICA FL.-PL.—We find this most useful for bouquets. *Oxalis floribunda rosea* has been very effective on the rockery for several weeks.—DICKSONS, *Waterloo Place, Edinburgh*. [The *Achillea* seems fresher and better in Scotland than here, though a good plant everywhere.]

THE FRENCH WILLOW.—This plant is very effective, now in Hyde Park and Kensington Gardens, its graceful spikes telling well in the distance. A dangerous weed, it must be planted with caution, and best in a clump without the garden proper, where it may ramble without doing harm.

THE YELLOW CAMOMILE.—*Anthemistinctoria*, though a hardy native plant, seems to be almost unknown, at least in its cultivated form, and as a showy summer and autumn flowering border or exhibition plant it would be difficult to find anything to surpass it. From Messrs. Dicksons, *Waterloo Place, Edinburgh*.

INDIGOFERA FLORIBUNDA.—Against one of the walls in the Royal Exotic Nursery with a western aspect this pretty shrub has for some time been very attractive, being covered with its racemes of bright, rosy purple blossoms, which, intermingled with the elegant pinnate foliage, produce a charming effect. It is one of the best shrubs to plant against a wall with a warm exposure, as it is a rapid grower, soon covering a bare space, and rarely fails to produce a good crop of bloom.

CLEMATIS PITCHERI.—This *Clematis*, about which a good deal was written at the time when *C. coccinea* became prominent, is now in flower in the Dell at Kew amongst many other kinds, and it may safely be said that it is the least handsome of the whole. The flowers are only about $\frac{1}{2}$ in. long, pendulous, and bell-shaped; in colour they are inside of a dull brownish purple, and outside covered with short hairs. It is certainly not sufficiently showy for general cultivation.—H.

CARNATION MISS JOLIFFE.—One of the most delicately coloured of all border Carnations; has

bold handsome flowers of a pale shade of salmon pink, a colour that associates charmingly with foliage in vases, for which purpose it should be grown in every garden. As a pot plant it is likewise beautiful, a fact of which we had evidence the other day in the Victoria Nursery, Upper Holloway, where it is largely grown in pots for decorative purposes and for cutting.

ACTÆA SPICATA IN BERRY, from Mr. Ware's nursery at Tottenham, is very ornamental, the berries, about the size of small Hazel nuts, being like bright red sealing-wax and even more glossy. In the border the plant is very effective associated with other things, and as it grows at Tottenham about 2 ft. high, it is seen to advantage. There is a white as well as red-berried variety, but the latter is the most ornamental. Both bear spikes of white flowers in spring. It is quite hardy, and thrives in any ordinary soil.

SOLLYA LINEARIS.—This Australian climbing plant is one of the prettiest for adorning a pillar or rafter in a greenhouse. The branches are of slender growth, and each tiny twig is furnished with a profusion of little bell-shaped blossoms about $\frac{1}{2}$ in. across of the most beautiful blue imaginable. As a pot plant, too, it is very pretty; it is well grown in this way in Mr. B. S. Williams' nursery, Upper Holloway, where examples of it may now be seen beautifully in flower. It is one of those plants that require again to be made popular, being valuable for cutting as well as for other purposes.

ASTER ALBESCENS.—Blue of any shade is not very common among flowering shrubs, although largely represented by plants of a herbaceous character; therefore this *Aster*, which is more ligneous than is usual in the genus, being in fact classed at Kew among shrubby members of the composite family, is well worthy of cultivation for the sake of variety. The individual blossoms are small, but arranged in dense heads of 4 in. or 5 in. in diameter, and being now in perfection are earlier in opening than those of most of their class. In colour they are of a pale bluish tint.—P.

LAGERSTROMIA INDICA.—Of this beautiful shrub there is now a fine large bush laden with blossoms in the Royal Botanic Gardens, Regent's Park, where it is grown in one of the hot, moist stoves in pots, treatment that seems to suit it admirably, for it rarely fails to produce a fine crop of bloom annually since this treatment has been adopted. There are few plants that combine so much elegance and beauty in their flowers as this; each branch is terminated by a huge panicle of blossoms of a lovely rose-pink colour, and exquisitely fringed and crimped at the margins. We also noticed some small plants of it, not more than 1 ft. high, in pots and well furnished with bloom.

OLEARIA HAASTI.—This New Zealand shrub having proved itself to be thoroughly hardy in many places during the recent severe winters, is, from its remarkable free flowering properties, a very desirable one. It assumes the shape of a dense dwarf bush, each shoot being terminated by a comparatively large head of small white star-like flowers borne in such profusion as to completely cover the plant. Its value is further enhanced by the great length of time during which the flowers remain in perfection after being cut and placed in water. It is now in flower at Kew.

LILIUM HARRISI.—A good deal has been said about this Lily, which is a variety of *L. longiflorum*. It is stated to be extremely floriferous, and to continually develop flower-stems. Some plants of it now in flower in Mr. B. S. Williams' nursery, Upper Holloway, certainly seem to favour the statement. The main stems bear a flower similar to that of the variety *eximium*,

and besides the main stem the bulb develops several others, varying from an inch or two in height to those nearly the height of the stem bearing the expanded bloom. Some of the secondary stems bear a flower-bud which will expand about the time the present flower is past, so that there will be a succession of flowers on each plant. Of course it is somewhat premature to speak of the merits of the variety, but no doubt we shall see it often in future.

DIPLADENIA BOLIVIENSIS is one of the most charming occupants of the stove just now, as it is bearing its delicate blossoms of snowy whiteness, with only a blotch of warm yellow to mar its purity. Surely this somewhat old introduction is not much grown, or it would be more often seen, for it is not only a graceful plant for adorning the roof of a stove, but it is admirably adapted for cutting, for which purpose there are few prettier flowers. In the Victoria Nursery, Upper Holloway, it is now gayly in flower, in the company of its gayer relatives, such as *D. profusa*, *amabilis*, *amoena*, which we noted some time ago. It apparently thrives well under the same conditions of treatment, which is a warm, moist stove. The Bolivian *Dipladenia* is grown well at Syon House, in one of the small stoves where it is found to be a most useful plant.

HARDY HEATHS.—A very interesting series of the different varieties of the common Ling or Heather (*Calluna vulgaris*) is now either in flower or approaching that stage in some small beds of *Ericaceae* near King William's Temple at Kew. There is amongst them great diversity in habit, in colour both of flowers and foliage, and in the time of flowering. The plants are mostly young and vigorous, from 1 ft. to 2 ft. in diameter; some are dense green cushions but a few inches high, while others are of an erect form of growth. *Alba minor* and *rigida* are two good white kinds, the former slight and upright in habit, the latter more spreading, but both very beautiful and distinct. A very slight, graceful, reddish flowered variety (*tenuis*) is in flower, being one of the earliest; and among others mention may be made of *pumila*, which is more like a dense Moss than a Heath. *Aurea* and *dumosa aurea*—both bear golden foliage and form bright yellow masses. In variegata the ordinary foliage is interspersed with leaves of a white hue. Pubescens is also very distinct, from the leaves being densely covered with hairs; other varieties are *Searli*, *Alporti*, *decumbens*, &c. With so much variety to choose from for carpeting, exposed parts of the American garden need not be bare, but, on the contrary, made most interesting spots.

THE SEASON IN IRELAND.—After a long cessation I again send you a few flowers. During the twenty-four days of July which have now passed we have only had two days without rain, viz., 2nd and 4th. The effect on some plants has been very remarkable. Herbaceous plants, as a rule, have grown very rank and given very little flower. Roses are a failure, and many annuals have rotted away. On the other hand, some plants seem to enjoy the excess of moisture, and are flowering better than they generally do. Amongst these the most conspicuous are the Lilies and *Alstroemerias*. *L. auratum*, *L. chalcidonicum*, *L. testaceum*, and *L. Martagon* are far beyond the average. *L. giganteum* also flowered well, but *L. puberulum* and *L. pardinum* are failures. The finest of them all is *L. Martagon* *Catanæ*. This plant is a very strong grower, and when well established carries a head of from twenty to forty flowers of a rich blackish purple, which is most effective. The head of flowers I send is comparatively small,

and you will notice how two or three flowers spring from the same spot. The *Alstroemerias* sent are *A. aurantiaca*, *A. bicolor* varieties, and *A. Pelegrina*. I also send *Betonica alopecuroides*. —F. MOORE, *Glasnevin*.

ARISTOLOCHIA ORNITHOCEPHALA.—The huge specimen of this singular plant that occupies a large space under the roof of the aquatic house in the Botanic Gardens, Regent's Park, is now producing a profusion of blossom; indeed, we have never before seen this plant flower so freely, a circumstance doubtless attributable to the intense heat and abundant atmospheric moisture which it derives from its position. The large, curiously coloured, and still more singularly formed flowers hang on every little branch, and the odour which they emit (not of a pleasant kind) is overpowering. The rare *A. Goldieana* is likewise thriving with unusual vigour in the same house, which evidently suits it.

DWARF PINKS.—We send you eight varieties of the little dwarf Pinks which require no staking, their height from the ground to the top of the flowers being only from 6 in. to 9 in. For several weeks they have been in full flower, and will continue for a long time yet, although we have cut them hard in for pipings. Pinks and border Carnations are so easily grown, that almost the only cause of failure is their being occasionally planted when in flower instead of in autumn or spring.—DICKSONS, *Waterloo Place, Edinburgh*. [We like these varieties without wishing the mistaken aim for dwarfing to have more sway than at present. Can anything be more unwise than dwarfing such a plant as the Snapdragon? Such efforts should be counteracted by raising tall and vigorous kinds, without which no good gardening is possible. In the case of the Pinks we gain something by the avoidance of staking, always a nuisance, and seldom rightly done.]

ROUPELLIA GRATA is a very handsome stove plant, related to the *Allamandas* and *Dipladenias*, and a native of Sierra Leone. It is a Laurel-like climbing shrub, with shining dark green foliage, the petiole of which is purple. The flowers are borne in terminal cymes or heads, clustered rather closely together, each flower measuring about 2½ in. across. The colour is creamy white, the corona, which stands well up above the petals, being rose coloured. These flowers last for some time after opening, becoming a deeper yellow with age. Their delicious fragrance is alone sufficient to entitle the plant to a place in stove collections, where for covering pillars, trellises, or training on the roof it is well adapted. It is seldom met with, though there are fine specimens of it at Kew, where in one of the stoves one is nicely in flower. This plant has been named Cream fruit by some botanists, by whom it was supposed to be the plant from which the sweetmeat of that name was procured in Sierra Leone. It is stated, however, that Dr. Thomson, who saw the fruit of this *RouPELLIA* in the Calcutta Botanical Garden, was of opinion that the Cream fruit must be the produce of some other plant.—B.

SEEDLING PENTSTEMONS.—I enclose sprays of a batch of seedlings, the produce from one collection of seeds sown in March last year in a cold frame, and planted out in a border as a background to mixed hardy flowers. For this purpose I find they are being largely used; even where the front lines are composed of bedding plants, the back part is filled up with *Fuchsias*, *Abutilons*, *Pentstemons*, *Antirrhinums*, *Lobelia cardinalis*, *Heliotropes*, and similar plants, being a kind of compromise between the old mixed border and the ribbon border of later days; and when well carried out there are some good points about the arrangement. As regards the

Pentstemons, they received no attention beyond keeping them free from weeds last summer, and the winter being favourable, they continued to grow away freely, and became covered with flower-spikes quite early in spring. We have cut great quantities for furnishing vases, &c., as they are well liked for that purpose, and, being in good rich soil, they look as if they would continue flowering for months. The *Pentstemon* is hardy enough to stand ordinary winters, but if any extra good sorts are grown it is safest to strike cuttings of them now, and keep them in cold frames during the winter. The seed should be sown in pans or boxes in February or March, and the seedlings should be planted out in April or May in nursery lines, 6 in. apart, when they will soon be fit for final planting. Any good sorts may be readily increased by means of cuttings put in under bell-glasses, in a shady position, using fine sandy soil, and keeping them moist until well rooted.—JAMES GROOM. [In every way excellent.]

KITCHEN GARDEN.

LARGE CAULIFLOWERS.

THESE are not things to be encouraged. The best Cauliflowers for table use are those which are solid, white, and clean, and about 6 in. across. Again, I fail to see why it should be thought desirable to grow Broccoli that turns in so late as the end of June and the beginning of July. Broccoli is so long on the ground at any time that the patience of growers is often unduly tried, and all late sorts come off so late that not only is the soil very much exhausted, but it becomes vacant long after it should have been producing a successional crop. Besides, late Broccoli is always somewhat strong-flavoured, and cannot for a moment compare with sweet, tender young Cauliflowers, and if these latter can be had in plenty in the months of June and July the growing of such exceptionally late Broccoli seems preposterous. I sow the Snowball under glass without heat in February, prick the young plants out into frames, and at the end of April plant out with balls of soil attached into the open ground. These furnish an ample supply of delicious solid white heads during June and the early part of July, and in their growth give only about five months of trouble. Broccoli, to turn in at the same time, must have been sown some nine months earlier. Three or four sowings of the Snowball at monthly intervals give an ample supply all through the summer till Autumn Giant is ready, and then Broccoli continues the supply till the following spring. If it is thought desirable to plant out autumn-sown Cauliflowers early in the winter, the best for that purpose is a good strain of the Early London, such as is grown by our leading market-gardeners. Messrs. Poupart, Pocock, and other famous growers in West Middlesex have a very fine strain, so firm, white, and solid, as to excel considerably any of the strains ordinarily met with in private gardens. Mr. William Poupart, of Twickenham, who grows Cauliflowers very largely, employs several hundred bell-glasses or cloches for the autumn planted stock, putting out five plants under each glass, and of these only the best four are left in the early spring. Got out at the end of October, these give fine heads from the end of May onwards, and plants from the same sowing wintered and well hardened in frames put out in the spring continue the cutting till the spring-sown plants are sufficiently forward to come in to carry the supply through the summer.

Mr. Poupart, in common with nearly all the large market growers, saves his own seed, a score or two of the plants producing the handsomest and most solid heads being set aside for that purpose. An ample supply of moisture from the adjoining sewage pumping station enables this grower to keep his summer plants in the most robust and healthy condition. Mr. Poupart

thinks "the cloche preferable to the old hand-light, and in the end cheaper. Of course if a cloche should unfortunately get broken there is an end of it, but handlights get broken also, and the cost of repairing and painting where hundreds are used forms a heavy item. The earlier forms of the cloche were of the true bell-shape, the base of the glass projecting outwards. This form was provocative of breakage, but now that vertical-sided glasses are made the breakage relatively is very much less. In using these over the Cauliflower plants through the winter it is not the rule to give air, for none seems to be needed. Because of this there is little need to be handling the cloches, and still less reason for them to be injured. In the spring these glasses are invaluable for protecting early put-out Cucumber and Marrow plants, and for many purposes they may be profitably employed. It seems strange that cloches are not more largely found in private gardens, for a score or two of them would prove of great service in many ways, and not least for the protection of Cauliflowers, Lettuces, &c., during the winter, and for raising seeds, propagating plants, and other uses during the summer. Cauliflowers merit as much as any member of the Brassica family careful culture, and far more liberal growth than is usually bestowed. What with such very precocious kinds as the Snowball, such substantial late kinds as the Autumn Giant, and with good strains of the Early London to stand through the winter, there is no reason why in any good garden Cauliflowers should not be had all through the summer half of the year, rendering as regards the vegetable supply the greatest service to the gardener. A. D.

Longsword French Bean.—This is one of the earliest and most prolific dwarf Beans in cultivation, equally suitable for forcing, or for out-of-doors. I grew it this season for forcing, sowing at the same time two more varieties of what I considered to be the earliest sorts. Under the same treatment the Longsword produced Beans fit for use twelve days before the other two sorts were fit to pick from. The plants of Longsword bore a heavy crop of fine Beans, averaging from 5 in. to 7 in. in length, thick and fleshy, and when cooked of first-rate quality. I have grown this variety side by side with Newington Wonder, Sir Joseph Paxton, Canadian Wonder, and Early Six Weeks, the seeds of all these kinds being sown on the same day upon a south border under the same treatment. Longsword was ready for use nine days before the others, producing Beans of first-rate quality and in abundance, each plant often bearing from thirty-five to forty pods. Plants of it grow stout and throw out numerous side branches, which keep flowering and producing quantities of Beans. It resembles Canadian Wonder in growth, but is dwarfer and more stocky. The other varieties came into bearing as follows: Early Six Week, Newington Wonder, Sir Joseph Paxton, and Canadian Wonder. The last is one of the very best of Beans, and one which produces pods of great length and perfect in form. It is, moreover, one of the best for a general crop either in garden or field.—WILLIAM CHRISTISON, *Bromley Common*.

SHORT NOTES.—KITCHEN GARDEN.

Seedling Potatoes.—I send you samples of seedling Potatoes, kidneys and rounds. What is your opinion of them? [The kidney Potatoes were very nice in flavour and good in form; the roundish Potato not so good.]

Six good Peas producing heavy crops of excellent quality are, William I., Telephone, Champion of England, Ne Plus Ultra, Veitch's Perfection and Omega. These come in in succession somewhat in the order named, from June to October inclusive. JOHN ROBERTS, *Tany-Bulch*.

The Mummy Pea.—I send you a sample of Peas named The Mummy, a few of which were given to my employer some years ago. It is a very prolific kind—indeed the best Pea we grow here, especially as regards flavour. It grows about 6 ft. in height in good soil, and is a very profitable Pea. It is quite a favourite here, although I grow a good many other varieties.—GEO. CARPENTER, *Rydens, Walton-on-Thames*.

SIZE V. FLAVOUR.

WE would urge all who have to do with gardens, gardeners, and seedsmen to fight against the distortion of some of our best things, and the mischievous changes effected in them, by the mania for size, which is acting injuriously on many of our vegetables. Although the flavour of vegetables may be far more subtle than that of fruit, it is none the less the most essential thing belonging to them. A change in size, by adding to the watery tissue and fibry framework of the plant, may entirely destroy the flavour for which we admire it. A certain degree of openness to sun and air may be the very essentials which govern the flavour; these may be replaced by doubling or trebling the size of the article itself, which has indeed been done in the case of the Brussels Sprout. This is, unfortunately, often no longer the true little rosette of green, but really a coarse and wholly distinct large Cabbage sprout. This, however, is a case of deliberate deviation from a favourite and established type. Less absurd, perhaps, but equally bad, is the raising of new varieties which may be lacking in flavour, and abolishing really good old kinds, from supposed deficiency in size. There has been, for example, for the last few years, a French Bean observable in our markets very large and symmetrical, but without any of the delicate flavour of the small French Bean. However, its huge mawkish pod, "bulking up" well for the market gardener, and cutting up tender, has become essential to him. Now here is a delicate vegetable, the merit of which depends entirely on its flavour; and whether we get quantity in the shape of six Beans or one Bean, it matters nothing to the consumer if the very object of growing the vegetable is lost sight of. So again in Peas. What is the good to the public of any new Pea if it has not a good flavour? The Pea is by no means a desirable vegetable if the flavour is not what we want. Mere size, or filling of a pod well, is a low quality in a Pea, from any point but that of the market grower, who wants his baskets to bulk up well. Whether from the excessive use of manure, or the selection of some coarse, vigorous, strongly-ribbed kinds, nothing is more difficult than getting in the London market a Cabbage with the natural or good flavour. Sometimes a flavour may be made too rich, which is also a mistake; and thus we find many cooks in London prefer the little long Turnip of the Paris market, which has a truer Turnip flavour than some of the others. We hope we have said enough to prove that people may lose much of what makes a garden worth having by not efficiently controlling the thoughtless and harmful mania for mere size unless accompanied by other more desirable qualities.—*Field*.

NOTES OF THE WEEK.

APPOINTMENTS.

- Aug.—Oxford Summer Show.
- Weston-super-Mare and East Somerset Annual Show.
- 3.—South Kensington, British Bee-keepers' Exhibition at Royal Horticultural Gardens opens.
- 5 and 7.—Southampton Summer Show.
- Liverpool Summer Show.

THE REPORTS ON THE FRUIT CROP gathered together from all parts of the country and published elsewhere in to-day's GARDEN will doubtless be read with interest. After so favourable a winter and spring it was hoped that in this season at least we should have plenty of Apples; such, however, is not the case. Mr. Coleman, writing from Ledbury, Herefordshire, says, "Orchards, of which we have thousands of acres in this county, are a complete failure," and the same account, with few exceptions, reaches us from all quarters. Pears, too, are nearly as bad. The cause is said to be the low temperature which occurred at setting time and the gale which swept over the country on the 29th April, and which nearly stripped the trees

of both flowers and leaves, the work of destruction being completed by swarms of insect pests which have been unusually troublesome this year. Amongst Apple trees which are bearing any crop at all are the different kinds of Codlins, Lord Suffield, Hawthornden, King of the Pippins, Cellini, Dutch Mignonne, Kerry Pippin, Blenheim Orange, Wellington, French Crab, Stone's Apple, Tower of Glamis, Red Quarrenden, Graham's Russet, and a few others which bear well in most seasons; but crops on these even vary according to the amount of shelter which they receive; shelter, indeed, seems to be more than ever important. It is not enough to put the hardier kinds outside, and those that are more tender in the middle. Belts of ordinary trees and shrubs must be planted to sift and break the force of cold winds on the most exposed quarters, and until that is done orchard crops will always be more or less in danger. With the exception of Apples, Pears, and perhaps Plums, which blooming later encountered a stormy time, other fruit crops have been fairly good. Bush fruits and Strawberries, indeed, have borne unusually heavy crops; even Peaches and Nectarines in most places have been good and especially Apricots, the weather having been favourable while they were setting. The Cleveland district of Yorkshire was at one time famous for its Apricots; they used to pay the rent of many cottages, but owing to the value of fruit having been lowered through importations from Ham-burgh and Rotterdam and elsewhere, the trees have been allowed to wear out. "On the walls of the workhouse at Stokesley," says a correspondent, "the Apricot crop used to realise from £10 to £15 a year; but now the trees are reduced to a few stumps." "This year," adds the same correspondent, "I have only seen one tree bearing anything like a crop, and that is on the wall of a house with an overhanging roof," clearly indicating what a little shelter in that way can do. Damsons are not a heavy crop generally; but in sheltered hollows in some parts of Kent there are good crops of that excellent sort the Farleigh or Crittenden Damson. Of Shepherd's Bullace many thousands of bushels are annually produced in Kent and manufactured into a cheap jam hardly distinguishable when well made from Green Gage. Amongst Cherries the best crop is to be found on Morellos which are also large and fine in quality; even on bushes they are good, a graceful way of growing this useful Cherry, and one which is worth adopting even in some districts where it is now wholly confined to walls. Nuts are a fair crop, but Walnuts are in most places scarce. Figs will be good this year, i.e., if we get a little warm sunshine to ripen them properly. We may add that almost everywhere the Potato disease has set in, and is spreading with unusual speed. Even so-called disease-resisting kinds are becoming badly diseased.

SPECIAL PRIZES.—On Thursday next, in the Royal Horticultural Gardens, South Kensington, the prizes offered by Messrs. Sutton, Reading, and Messrs. Carter, High Holborn, will be competed for. Messrs. Sutton's prizes (five if number, amounting to 11½ guineas) are for two kinds of Melons, two fruits of each, to include their new Hero of Lockinge, and two braces of two varieties of Cucumber, to include their Duke of Connaught variety. Messrs. Carter's prizes (four in number, amounting to 6½ guineas) are offered for six pots of Tomatoes, selected from the varieties Green Gage, Holborn Ruby, Golden Drop, Dedham Favourite, Grapeshot, Red Currant (all Messrs. Carter's varieties), and President Garfield and Vick's Criterion.

MILLIONAIRE HORTICULTURE.—Mr. Jay Gould's hobby is horticulture; and he has a

grand conservatory 400 ft. long, having many wings 80 ft. long, all divided into sixteen sections, the temperature in each being regulated independently. In the grounds, which are about 500 acres in extent, a section is devoted to 400 varieties of Roses and Palms; Pitcher plants and Crotons are also very numerous. The flower garden comprises three acres; the vegetable garden four. On two acres Vines are cultivated, and a large orchard has 400 Apple and 500 Pear trees. Mr. Gould threw open these grounds to the public on the Fourth of July at his country home, Irvington, on the Hudson.

THE COUNCIL OF THE SOCIETY OF ARTS have presented a memorial to the Secretary of State for India in Council, calling his attention to the great and growing demand in India and the colonies for the services of persons skilled in forest cultivation. The memorialists believe that no suitable provision exists at any of our great centres of instruction for the teaching of natural science in special reference to forestry, and they express an earnest hope that steps may be taken by the Indian Council to establish a department for such teaching in the Royal Engineering College at Cooper's Hill.

PEAS AND THEIR QUALITY.—Peas are wretched in Covent Garden this season, though the weather is not unfavourable; but the winds and the way they are allowed to grow spoil all. It is curious to note, too, that some who send us Peas to be tested for flavour send them as full and nearly as hard as marbles. We have good reason to believe that too little attention is paid to securing vegetables in the best state for eating.

ELECTRIC LIGHTING.—The premises of Messrs. Sutton, at Reading, have been lighted externally with two Brush arc lights, and an exhibition of Maxim incandescent lights supplied by the Electric Light and Power Generator Company, has been opened by Messrs. Heelas, of that town.

THE PHYLLOXERA.—Considerable consternation has been caused by the appearance of the Phylloxera at several points in the canton of Neuchâtel and Geneva.

DIFFICULTIES OF HARDY FRUIT CULTURE.

BEFORE embarking in any venture it is always well to gauge the chances and difficulties likely to beset it, and provide accordingly. Fruit growing, one might say, is a venture in this country, the results of which are by no means certain, for success or failure depends very much on situation and soil. It is perfectly futile to give directions of a general nature for application everywhere or anywhere in these islands. In the favoured districts in the south of England crops of Apples and Pears are secured with far less trouble than in the north; and there are favoured districts even in the north where crops are far more constant and better than in others. What strikes one, too, is that among fruit growers of the south fruit culture is by no means such an anxious business as in the north. Pruning, root-pruning, and training, &c., are not things which give southern growers much uneasiness. In the north it is otherwise. Numbers of varieties of fruits that do well in the south rarely ripen well in the north, except on walls; and numbers of Apples and Pears, given as hardy kinds suitable for northern or cold districts, are nothing of the kind. I do not think any authority on fruit culture could, at the present time, make out a trustworthy list of Apples and Pears that would do well generally, even from the Tweed to the Severn, confining themselves alone to popular varieties; the thing would be out of the question with all the varieties enumerated in catalogues. Yet the most confident selections are made by both writers and

nurserymen; and, as many planters rely entirely upon such selections, multitudes of trees have been planted that are hardly of any use whatever. The selection of sorts, however, is scarcely of so much importance as soil, climate, and culture. To begin with, soil; most people know that it differs everywhere in depth and quality, conditions that affect the production of fruit immensely. In some parts of Yorkshire, for example, where the soil is comparatively thin, but good, the trees make moderate growth, and produce good crops without much trouble, while in other parts where the soil is also good, but deep, healthy trees make shoots like withies, 5 ft. long in a season, which never thoroughly ripen, and which are consequently barren. The attempt to grow dwarf trees under such circumstances has proved a failure, unless much root-pruning is practised. It is on those deep, moist and strong soils, in a northern climate, or in cold upland situations, that the cultivator has the hardest task, which is mainly one of ripening the wood. Could he only make sure of that, crops of all kinds would be a comparative certainty.

Thorough maturity of growth is the thing above all others which the fruit grower has to aim at, and much can be done to secure that under the circumstances named, by more attention as regards soil and the preparation of borders. I do not advocate expensive borders, nor believe in them. Almost any ordinary good soil will produce fruit well; but if it happens to be either very rich or deep, it is sure to hinder the ripening of the annual shoots and the production of fruit buds. Borders are often 3 ft. and 4 ft. deep, and perhaps consist of strong loam. What, therefore, can anyone expect but that growth will be late in pushing in spring and late in ripening in autumn, if it ever ripens; and that the bloom on such trees will be scarce, as well as incapable of resisting frost so well as that on thoroughly ripened shoots? This is commonly admitted, but not acted upon. Borders are almost invariably made deep if they are "made" at all, and one avowed object of making them deep is to prevent the trees suffering from drought, which neither Apples nor stone fruits endure well; but drought can easily be prevented by mulching in dry seasons, and, at the worst, drought is better than too much moisture at the root. Another point is the temperature of the soil. In this country the temperature ranges from about 65°, or a little higher on the average, 1 ft. under the surface, to 60° 3 ft. and 4 ft. deep. Consequently, the roots of trees that lie 18 in. or 1 ft. from the surface experience the highest temperature by a considerable number of degrees, and as a few degrees of difference in the mean temperature make a great difference to vegetation, it may be guessed of how much importance the depth of the border is in fruit culture out-of-doors. Nobody disputes that the main cause of the superiority of the Pears and Apples from Jersey and other favourable parts is the climate or the higher temperature; and no one need doubt, either, that a proportionate difference can be made in this country by practical attention to the points under consideration. A fruit tree in a pot shows how much the character of the tree is effected by temperature. Growth does not push very much earlier than in trees planted out, nor is it desirable it should do so, for early growth increases the risk of a check by frost; but when growth does fairly begin it makes better progress, and is of a different stamp from that produced by trees which have their roots in a deep and cold soil. The wood is shorter-jointed, the leaves less luxuriant, the fruit ripens much earlier in autumn, and the leaves are shed sooner—all for the simple reason that Nature has fulfilled its functions, and within a shorter space of time. Root restriction has some share in accomplishing this, no doubt; but the higher temperature at the root is the main reason, because the small body of soil in the pot is benefited by the heat of the atmosphere almost as soon as the branches. It is quite practicable to make borders that will be as warm as the soil in a pot without any of the drawbacks attending

pot culture, viz., by giving the roots lateral space, and making the borders shallow. Sand, or light and naturally warm soils, might be 18 in. deep perhaps; but in heavy tenacious soils and in wet climates 1 ft. would be quite sufficient, and less probably would do for Peaches out-of-doors. The character of the growth of a Peach tree grown in a shallow and not too rich soil is so different from that produced on deep borders as to strike the most inexperienced. Peach trees will make wand-like shoots 4 ft. long in a season in deep borders, and these never ripen, but remain green to the end of the season, and are sure to perish by frost; and should they survive they will be barren. Trees in shallow gritty borders, on the other hand, make slender, short-jointed shoots, well furnished with fruit buds, and although they may not ripen quite to their points, no great length will need to be cut from them at pruning time on that account. Trees with their roots in deep borders continue to send up sap till late in the year, the soil being warmer about the roots than the air is about the branches, and when November is mild, it is quite a common thing to see Peach trees growing, and when they should be leafless as green as they were at midsummer. One great advantage of shallow borders is that they soon cool as winter sets in, and growth is arrested in good time. Climate we cannot alter, but we can adapt our practice to it, and, shortly, this consists in cold climates in exposing the branches of the trees to all the light possible, training thinly, and taking advantage of the sunshine in all ways, choosing the hardiest and earliest varieties, and planting in the warmest situations. Shallow borders are, of course, also of much advantage in a cold climate.

Planting.—The border must first be prepared, and here a difficulty presents itself in forming the borders shallow enough where the subsoil is soft and permeable. Concreting or flagging the bottom of the border is expensive, but much may be done by ramming the bottom or foundation with heavy wooden rammers until it is smooth and hard, and if plenty of lime scraps and stones are beaten into the surface at the same time, all the better. Roots do not readily penetrate a very hard soil if they can find suitable pasturage elsewhere. An excellent plan which I have seen adopted in a cold locality consisted in placing several good large rough flags under the trees at planting time. One large flag was placed under the bole of the tree, and others were arranged round it, being overlapped like the slates upon a roof, thus preventing the roots from penetrating between the joints and giving them a lateral direction, where they most likely would have penetrated straight down at once. In root-pruning a number of old trees that had been planted in this way, the advantage of the flags was apparent, for it was not found necessary to go nearer to the trunk than the outer ring of flags, no roots having gone down into the deep subsoil till they had grown over the edge of these. It is always a matter some importance to know where the roots are in such cases. The most tender fruits of course, like the Peach and Fig, are most benefited by being kept up near the surface at the root. If drought is anticipated, it is easily prevented by mulching the surface thickly with any loose vegetable matter at hand; but such mulching should be removed early in autumn, to allow the sun to reach the soil itself, and so assist in the ripening of the wood. Shallow borders on concrete or rammed bottoms should have a rather sharp slope to the side, where a good drain must be provided in order to carry the water quickly away from the roots. As to the treatment of the branches, it is important to nail the shoots of wall trees early to the wall without crowding, as those shoots which are soonest tied in ripen soonest. Pinching all gross shoots early, and keeping them pinched to the end of the season, helps also to check over-luxuriance. No good is done by permitting growth, and after July judicious pinching of all laterals and green points should be attended to. Standard trees are much more dependent on the weather and climate than wall trees, of course, but the same rules apply to them as to the others, and in an even greater degree.

Root pruning will be needed periodically in all strong soils, but shallow borders will obviate its necessity in a large measure; but the practice of planting the trees at the outset on a circle of rough flags, as before suggested, or any other impervious bottom that may be found convenient, will greatly facilitate root-pruning operations, with the best check to the trees, as the fringe of roots can at any time be curtailed as they extend beyond the stones.

J. S. W.

EDITOR'S TABLE.

ALSTROEMERIAS.—Very handsome, from Glasnevin, where they grow freely, as, indeed, they do in most light or warm soils. Perhaps the best and most useful of all is *A. aurea*, but *A. pulchella* is good, and *A. psittacina* is quaint.

THE BLACK MARTAGON.—Admirable, from Glasnevin. It is a picturesque addition to our hardy, useful Lilies. What Mr. Moore says of its growth this wet season may be seen in his note published elsewhere this week.

LILIUM LONGIFLORUM TAKESIMA.—A Lily not so much known or grown as it should be. The flowers are of fine substance. These had a heavy thunderstorm on them when in bloom, but it has made little difference to them. From the New Plant Company, at Colchester, and admirably grown, one plant being within 1 in. of 3 ft. high.

PODOPHYLLUM EMODI IN FRUIT.—Very handsome, with its deep coral fruit as large as an egg. The foliage is ample and fine in form. When the plant becomes more common and is well grown, as such a hardy plant may well be in rich, cool soil, the great hanging berries and fine foliage will be of use in bold decoration. From Mr. Ware.

FRAGRANCE.—Lavender, Rosemary, Balm of Gilead, Sweet Verbena, Mignonette, Sweet Brier, Jasmine, Honeysuckle, Musk Mallow—these from a friend's garden, some without flowers, are more fragrant and welcome than we can say. How poor a garden is without most of them! The Balm of Gilead is hardy on light soils we find, though it invariably perished on the clay with us.

GLADIOLUS COLVILLEI.—The white form of this does what we all ought to do—get purer and better as we get older. Spikes in a room are as they open at the top more beautiful than when they came, five days ago. Cut some and watch it. Sprays of the common white Jasmine go well with three spikes of the Gladiolus in a simple glass.

SAXIFRAGA DIVERSIFOLIA.—One of the handsomest and most distinct plants we have seen in its singularly rich family. The leaf is like a Parnassia; the flowers bold gold cups dotted minutely with orange. Grown in a healthy mass together it would be effective, and it is very pretty closely examined. Mr. T. Smith, writing from Newry, says, "It is now blooming for first time. It bears at first sight more resemblance to Gentianaceæ than Saxifragaceæ. Tried in various positions, it is found to succeed best in a damp, peaty soil in a shady place."

La Semaine Francaise, a Weekly Newspaper and Review in French for the United Kingdom. — Politics, Literature, Science, Art, Society, Varieties, Notes; for general and family reading. "Will be highly valued in households where French is cultivated."—*Queen*. Price 3d., at Newsagents and Bookstalls; copy by post 3½d., in stamps.—37, Southampton St., Covent Garden, London, W.C.

INDOOR GARDEN.

BEGONIAS AT FOREST HILL.

THE now prevalent custom among nurserymen of making special exhibitions of particular classes of plants is a commendable one, and we are glad to see it extending. Exhibitions of this character enable one to make a leisurely survey, which cannot be done at an ordinary flower show, and, moreover, as a rule, the collections are very full, so that one has the whole array of varieties at hand for comparison. As others have done in the case of Orchids, Rhododendrons, Roses, Amaryllis, Chrysanthemums, &c., so Messrs. Laing & Co. are doing in that of the tuberous Begonia, a flower peculiarly well adapted for exhibition, as its flowering season is long and continuous; fully two months have elapsed since the plants began to flower, and they will last in beauty for several weeks yet to come. At their Stanstead Park Nursery Messrs. Laing have unquestionably the finest display of tuberous Begonias that has yet been made, for, fine as their shows have hitherto been, they are surpassed by that this season chiefly on account of special provision having been made for such a display. In order to show the plants off to the best advantage a capacious span-roofed house, some 100 ft. long by 25 ft. wide, has been erected, and this is filled principally with specimen exhibition plants. This house has been constructed specially for the Begonias; a broad stage runs down the centre, so as to allow of plenty of head room, while around the sides is a similar stage; this space affords room for an enormous number of plants. Ample provision is made for heating, and particular attention has been paid to ventilating and shading, two conditions on which the good preservation of flowering Begonias depends. Ventilators are placed along the whole length of the roof on either side of the ridges and along the sides on a level with the plant, the sashes are arranged so as to admit of abundance of air. The contents of this house at the present time reveals the wealth of beauty existing among these Begonias; they not only possess the most brilliant of colours, but they combine with them an elegance of growth equalled by few other plants, a character strikingly illustrated by the plants in suspended baskets under the ridge of the house. The long drooping branches of these basket plants, profusely laden with brilliant blossoms, produce a fine effect, and it is a plan of growing the tuberous Begonia that well merits being oftener practised than it is. The specimen plants on the stages are marvels of skillful culture, the majority being in 9-in. and 12-in. pots, with the branches so dense as to form perfect bushes copiously furnished with bloom.

The collection embraces an immense number of varieties; even the named kinds amount to upwards of 200, while unnamed seedlings are proportionately numerous. Every year there is a steady increase in the number of named varieties, though the annual number is considerably less than formerly; improvement has been so rapid, that a seedling now must possess exceptional qualities before it receives a distinctive name. Hence, it may be inferred that new varieties now named are very fine ones, as the varieties have become so numerous it has been found necessary, at least in this nursery, to lay down a certain number of points so as to form a standard of excellence to which seedlings must conform before they are considered worthy of naming. The habit of growth must be robust and compact, and the plants must be free flowering. The flowers must be large, as near circular as possible, the petals rounded and of firm texture, and the flower-stalk not too long, and sufficiently

stout to show the flower to advantage. As to colour, an all important point, none are considered worth naming unless they are different in shade from older varieties, but any new departure is eagerly sought for, fixed, and worked upon. The most prevalent colours are scarlets, vermilions, crimsons, pinks, and roses. Excellent white and yellow kinds have also been obtained, and it may not be long before we hear of a purple, now the aim of hybridists.

SINGLE VARIETIES.—Various fine additions have been made to these, some of which represent quite a new break in the way of colour. In Mrs. Dr. Duke we have one of the finest single varieties we have ever seen, its habit of growth being exceptionally fine, while the flowers, which are large and good in form and substance, possess a brilliant purple-cerise tint quite distinct from that of any other kind. Another remarkable for colour is Arthur G. Soames; the flowers of this are large, and, like the last, produced in great abundance, and the colour is deep velvety crimson, the deepest yet obtained. Madame Stella is a very fine new variety remarkable for the profusion of its long, bright rose-pink blossoms which hang gracefully on half drooping shoots. J. T. Boscawen and Exoniensis are likewise two beautiful varieties, which, with Madame Stella, have worthily been awarded certificates this year. Exoniensis is particularly fine, inasmuch as the habit of growth is dwarf and it is very free flowering, while the large, finely-shaped blossoms are of a vivid orange-scarlet. A very pleasing and beautiful sort is named Mrs. Robert Whyte, the flowers of which are unusually large and of a lovely rose-pink. Other excellent novelties are Captain Lambert and Mrs. G. Freeman. From the general collection we should select the following as comprising every variation, viz., Hon. Mrs. Brassey, Annie Laing (very fine), Lelia, Lady Hume Campbell, J. H. Laing, Stanstead Rival, Trocadero, Paul Masurel, Massange de Louvrex, Maude Churchill, Countess of Kingston, General Roberts, J. W. Ferrand, and J. Aubrey Clarke. The finest white that exists at present is Mrs. Laing, an extremely beautiful kind, though probably it may soon have a rival, judging by what we hear. The other whites are beautiful, Alba floribunda, Reine Blanche, Queen of Whites, and all of which are shown to perfection here. To pure yellows there is a fine addition in a new one called Chromatella, which combined with a profusion of clear yellow flowers has a beautiful compact growth, and rich green velvety foliage. Empress of India, Saville's Yellow, and Sulphur Queen are also very fine. A novelty in the pretty Davisi type is one called Scarlet Gem, which has larger flowers than typical Davisi, and of an intensely deep scarlet. All the varieties of this race are extremely beautiful, and should be represented by one or two at least in every selection of tuberous Begonias.

DOUBLE VARIETIES.—Among these there is a marked improvement, and some of the new kinds are far ahead of the older ones. One of the most beautiful doubles we have yet seen is one appropriately named Queen of Doubles of which we give an illustration. The flower of this variety is simply perfection, being quite a rosette, and the half-expanded buds bear a stronger resemblance to Tea Rose buds than anything we have seen. The colour is a rich glowing crimson, so clear and brilliant as to be dazzling to look upon; the habit of growth is good, and it is a copious flowerer, in short it is a splendid variety, and one that must inevitably become popular. Other beautiful new kinds are Glory of Stanstead with large rosette-like flowers of a deep rose colour shaded with white in the centre, and of a graceful drooping habit of growth; Mad.

Comasse, with huge blossoms very double and of a bright rose; William B-alby, very large and of an orange-red colour; Dr. Duke is a fine bright salmon-red; and Campaniflora, with semi-double white flowers overlaid with a creamy shade. Mrs. Captain Thompson is said to be a fine one, but we did not find it in flower. One of the finest double whites yet raised is called *Blanche Jeanpierre*, the flowers of which are perfect rosettes and of a soft yellowish white. An exquisite variety is *Fulgurant*; it has a drooping growth, dark foliage, and perfectly double flowers of a rich deep crimson. This is, we think, among the most beautiful of all the doubles, and is particularly suitable for growing in suspended baskets. Among older varieties in flower were *Davis fl.-pl. superba*, the splendid variety which gained so much admiration last year; also the *lutea* form, which by the way is not yellow, but rather orange-red. A representative collection of other double kinds would include *Clovis*, *Dinah Felix*, *Marie Bouchet*, *President Burelle*, *Pæoniæflora*, *Mad. Keteleer*, *Gaston Malet*, *Esther*, *Comtesse H. de Choiseul*, *Balsaminæflora*, and *Marie Limbert*, the latter a beautiful drooping variety. The above are a few of the best of the named varieties, but many of the unnamed seedlings, of which there is an enormous quantity, are even finer.

A list of the kinds grown here in baskets may be useful to our readers. They include *Louis Bouchet*, *Mrs. Wills*, *Sedeni*, *Campaniflora*, *Magenta Queen*, *Royal Standard*, *Emperor*, *Vesuvius*, and *Duchesse de Cambaceres*—the last a double-flowered variety. All the preceding are well adapted for baskets or pedestals on account of their drooping habit of growth and profuseness of flowering, most of them being derived from the *boliviensis* type.

Outdoor culture is carried out extensively as a necessity, for the plants abound so numerous that no room can be found for them under glass, several houses as well as numerous capacious pits being crowded with plants counted only by the thousand. To give an idea of the enormous quantity planted in the open ground it need only be mentioned that on one breadth alone there are no fewer than 10,000 plants, chiefly seedlings, all of which have to be proven before being distributed, and exceptionally fine varieties continually crop up. The effect produced by such a vast assemblage of plants, for the most part of brilliant colour, is very fine and the brightness will be intensified later in the season when the plants gain vigour. The named varieties are planted out in breadths according to their colours; for instance, the whites, yellows, orange-yellows, red-scarlets, and so on are grouped by themselves which constitutes homogenous masses of colour. There is one spacious bed of specimen plants particularly interesting as the plants have remained out for two or three years, and this year they are stronger than ever, developing hugest stems and carrying a great crop of blossoms, which seem to gain brilliancy by the full exposure of the plants. The varieties in this bed comprise most of the finest, and they show their true character under the conditions. The excessive wet weather we have lately experienced seems to favour the tuberous *Begonia*, for the beauty of the plants is in no way impaired thereby, and on this account the *Begonia* has a great advantage over the *Pelargonium*, which suffers so much in wet seasons. There is, doubtless, a bright future for the *Begonia* in the open-air garden, and one of the special aims of Messrs. Laing has been to obtain a race of varieties well adapted for bedding out, and they have succeeded, but they intend to improve the race still further, which, no doubt, they will in due time manage eventually to do.

W. G.

Eichornea azurea.—Last year this plant proved a great success in the out-of-door tank at Oxford Botanic Garden, Mr. Baxter finding that the leaves were retained longer, and the whole plant looked much healthier when grown cool than it ever does in a warm tank. A plant is growing in the hardy aquatic tank at Kew, and although the weather has hitherto been all against anything of this kind, yet this plant has made several leaves, and looks like thriving. In the Victoria house, where the temperature of the water is from 80° to 85°, this *Eichornea* is not quite at home, although it grows very rapidly and flowers freely. Does anyone ever flower the old *Pontederia crassipes*? I have met with the plant in many gardens, but have never yet seen it in flower. It grows freely enough anywhere almost, and is a very quaint-looking plant.—B.

Rivina lævis.—“R. J. L.’s” remarks (p. 68) on this plant, though well directed, fail to do it full justice. It is undoubtedly the prettiest and most graceful and useful of all our berry-bearing plants. With us it is never out of flower or without berries, and the latter are produced in such beautiful little racemes, and so bright in colour, that they attract the attention of everybody. It succeeds well in an intermediate temperature, and grows freely in almost any kind of soil. Some berry-bearing plants are only interesting about Christmas time and in winter, but of this one never tires, and it should be grown as an all-the-year-round plant by everyone fond of beautiful objects in their glasshouses and rooms. It is easily raised from seeds, which often fall on the surface of the soil in the pot and germinate. We have also had many young plants spring up lately on the deal shelves where the plants were standing.—J. MUIR, *Morgan*.

FLOWER GARDEN.

MECONOPSIS, OR INDIAN POPPY.

Two varieties of this handsome and interesting plant are now in bloom in my garden, *M. Wallichii* and *M. simplicifolia*, but of the two plants now in flower of the first named, one has flowers of the pale *Nemophila* blue, as figured in THE GARDEN, while the other has larger flowers of a pale purple shade; and I hear that they sometimes come also of a pale rose colour. They are essentially fine weather plants, as their delicate and rather flimsy petals are soon knocked off by heavy rains, such as we have had in such abundance lately. *M. simplicifolia* is unlike any other variety of this family known to me, and is well figured in Cathcart & Hooker’s “Himalayan Plants.” I think it would be more correctly and appropriately described as *M. uniflora*, as instead of producing its flowers in small bunches from the axils of the leaves up a tall stem, it only produces a single large purple flower on the top of a comparatively tall stem, varying in height according to the strength and vigour of the plant. When well grown, it must be an exceedingly handsome plant. These plants only flower once and then die, so they must be continually reproduced from seed, which ripens freely in fine dry summers, and should be sown immediately on being saved, as it loses its vitality if kept even for a month, and then will not come up at all.

W. E. GUMBLETON.

Francoa ramosa.—I have sent “Delta” side sprays from two out-door plants to show that my description was correct, the flowers being pale pink, with deeper pink centres. I find the original plant came from Miss Owen, so I have good authority for its name. We have now in bloom another plant which exactly agrees with “Delta’s” description, the flowers being pure white. It came to us from an excellent florist, the late Henry Jackson, of Bowdon, under the name of *Francoa ramosa alba*. We have other plants from Mr. Wolley Dod, marked *Francoa rupestris*, with similar leaves, but these have not yet bloomed. Ware’s catalogue gives *F. ramosa* as pure white,

and so does Dickson’s catalogue, which also has *F. appendiculata* (purple), and *F. appendiculata rupestris* (white and rose), which agree exactly with the colours of my plants as above described, but I think the names we have them under are correct. BROCKHURST, *Didsbury*.

— Perhaps the flower to which “Delta” refers (p. 68) is the same which I now enclose. It was given to me by Mr. Harpur Crewe four years ago, and the original plant has been growing on my rockery ever since, and is now in full flower. Mr. H. Crewe called it *F. rupestris*; it may be a sub-species of *F. ramosa* or *F. appendiculata*. Two years ago I raised a large quantity of plants from seed ripened in my garden, most of which plants I distributed amongst my gardening friends, and the remainder I planted in all parts of my garden, where they are now flowering, not being particular about situation or weather, and being of course perfectly hardy. I wonder it is not more often grown as a border or rock plant. The flower-stalks are branched, and grow more than 2 ft. high, and continue in flower for some weeks.—C. WOLLEY DOD.

— “Delta” has at all events the books on his side, as *Francoa ramosa* is figured in Bot. Mag., vol. lxvii., tab. 3824, and also in second volume of Sweet’s “Flower Garden,” tab. 223, as having pure white flowers; while *F. sonchifolia* is figured in Bot. Mag., vol. lxi., tab. 3309, as having tinted pink flowers, with a darker spot on the centre of each petal. The name of *appendiculata* seems also to be a synonym common to both these varieties. I believe them both to be perfectly hardy border plants.—W. E. GUMBLETON.

Pansy Magpie.—When I began to read Mr. Christison’s note upon this Pansy, I was in hopes that he would tell us how to keep it in character all the summer, but I suppose its degeneration is not to be prevented after the close of the spring months. I wish there were means of keeping it true for it is one of the loveliest varieties we have, and transient though its season of beauty is, I would place it amongst the premier dozen of border kinds. There is a combination of colours in this Heartsease that one rarely finds in any hardy, or, for the matter of that, tender flower. Petals, rich velvety purple, each blotched at the outer edge with mauve, and to heighten the contrast there is a clear golden yellow eye. Such is Magpie in the first flush of its beauty.—J. CORNHILL.

Campanula Scheuzeri.—The little Bluebell with duplex corolla, which I enclose, was sent me by this name from an eminent Swiss firm. A good botanist at Kew tells me, as I thought, that it is nothing but a chance shoot of a typical *C. rotundifolia*. So casual is the doubling of the corolla, that you will observe that the looser flower-stalk, which is from the same plant, has grown out of it. I think the variety has been sold by English nurserymen as *Soldanellæflora*. The larger flowers of Bluebell are from my rockery, the root having been brought last year from North Wales. It flowers a month earlier than the other Bluebells of the *C. rotundifolia* class on the rockery; the early flowers were much larger. *Hypericum empetrifolium* is one of the best rockery species of this very rich genus if quite hardy.—C. W. DOD.

SHORT NOTES.—FLOWER.

Verbascum Battaria album.—My gardener tells me he has seen it stated in THE GARDEN that this fine *Verbascum* does not come true from seed, but our new crop of flowering plants are all true, the seed having been sown immediately when ripe from our own plants.—BROCKHURST.

Fairy Queen Stock.—Here this Stock is growing and flowering most profusely in two large beds. It is a real gem, and cannot fail to become a favourite. It may be termed a continuous summer bloomer, the incessant downpours of rain which we are having being unable to dim its beauty. Every plant of it, too, comes true.—J. CLARKE, *Brynkinalt*.

WILD GARDENING.

MANY persons devoted to gardening, and especially that branch of it that seeks to make waste, wild corners beautiful by the introduction of hardy plants which, when once planted, will take care of themselves, and yearly spring up with renewed vigour, are met at the outset with the difficulty of not knowing what to plant. They cannot resort to the parks and public gardens for examples as they do for their carpet beds, for they are more closely shaven and shorn than even private gardens, where, in many nooks and corners, we still find old favourites safely located free from fork or spade, hoe or rake. For example, we have a shelter belt of trees and shrubs, somewhat thinly planted, which acts as a screen for a kitchen garden. Between the shrubs the following plants have been planted from time to time, and they spring up, looking none the less beautiful from being carpeted with herbage. The only attention they get is digging up any coarse-growing Nettles, Docks, or Thistles; but when the surface is not disturbed it is surprising how few weeds come up compared with ground under cultivation, every digging bringing apparently fresh crops to the surface. I may mention that the trees, mostly Scotch Fir, have had Honeysuckles of various kinds planted at their base, and now they encircle their stems and throw out wreaths of fragrant flowers; quantities of old pillar Roses, Clematisses, Jasmynes, Aristolochias, and other climbers have also been planted and allowed to scramble over the adjoining bushes, and now they have a very pretty effect.

In selecting a suitable place for this branch of gardening, one is often greatly assisted by a connecting belt of trees and shrubs, more or less freely interspersed by hardy native plants—such as where the dressed grounds end, and the woodland or game covert begins, and through which grassy glades or shady paths form delightful summer resorts, and afford convenient access to the woods. In such positions the formation of a wild garden is an easy matter. Any trees, however old, must be carefully preserved, for even old dead stumps may be converted into beautiful objects by covering them with Honeysuckles, Clematisses, Vines, Ivy, Wistarias, Roses, &c. These only need training until the shoots get well entwined in the branches of the tree, after which they look

best left undisturbed. Shrubs, both evergreen and deciduous, flowering, and berry-bearing, may be freely introduced, and should be planted in groups, so as to make striking effects. Above all, avoid straight lines, or dotting things down at regular intervals; and, as the stately tree helps to show off to advantage the beauty of climbing or trailing plants, so may many shrubs be made to help the flowering plants—for instance, Lilliums of various

Fine foliaged plants belonging to the hardy section, as, for example, the hardy Palm, placed in sheltered nooks, look extremely well in the wild garden. We have one now bearing five great drooping tufts of yellow flowers. Then there are the Yuccas, from the stately *Y. gloriosa* and graceful *Y. recurva* to the hamble forms, such as *Y. filamentosa*. To these may be added the beautiful *Aralia Sieboldi*, the graceful Bamboos, and

the Acanthuses, with their finely arched foliage, that require to be in large groups to be seen to advantage. *A. spinosus*, *A. latifolius*, and *A. mollis* are all very hardy and well suited for the purpose. There are also the gigantic Cow Parsnip, a noble plant, *Ferula gigantea*, and *Cannas* of various sorts, all of which may be grown to perfection if a covering of fallen leaves be put over the roots on the approach of winter. Hosts of dwarf plants are available for carpeting, not the least valuable of which are the Vincas, or Periwinkles, the Ribbon Grasses, Ferns in great variety, variegated Mint, and Funkias, with their beautiful foliage. The last require to be left undisturbed for a few years before one sees their full beauty. The above is only a selection of sorts that I have grown myself for years in positions similar to those just named.

Hardy flowering plants, suitable for permanent planting, are innumerable, and by a little care in selection may be made to yield a continuous succession of flowers from early spring until winter's chilly blast brings outdoor flowers to an end. Beginning with Aconites and Snowdrops, we follow on with Violets, Daffodils, Jonquils, Tulips (single and double), Snowflake, Myosotis, Lily of the Valley, Honesty, *Dielytra spectabilis*, Solomon's Seal, Primroses (single and double), Poly-

anthuses, *Spiræa Filipendula* and *japonica*, herbaceous Phloxes, Orchises, Dog's-tooth Violets, herbaceous Pæonies with their gorgeous flowers, *Lilium candidum* and *L. tigrinum*, and others; Foxgloves, Canterbury Bells, Sweet Williams, Monkshood, Campanulas, St. John's Wort, Irises with gorgeous Orchid-like flowers and noble reed-like foliage, Pampas Grass, Arundos, hardy Fuchsias, *Tritoma Uvaria*, *Gladioli*, *Bocconia cordata*, and others; in fact, the varieties of hardy plants suited for this kind of gardening are only limited by the space at disposal. With materials such as these, and good strong plants to start with, fail-



Regina Queen of Doubles (Laing).

sorts look well sheltered by Rhododendrons, and Foxgloves, pushing up their spikes through the lower branches of such evergreens and other shrubs, form effective combinations. Shrubs most suitable for this purpose are *Ribes sanguineum*, Rhododendrons, deciduous Azaleas, *Weigela rosea*, Laburnums, Guelder Roses, Syringas, Lilacs, Jasmynes, Daphnes (both evergreen and deciduous), tree Pæonies (that require some shelter when just starting into growth), Hydrangeas, Berberis, and Aucubas, the latter in groups and mixed here and there with male plants, so as to enable them to fruit freely.

ure is impossible; but there will soon be a desire for more. A wild garden should not be a neglected garden; on the contrary, it is capable of yielding as much pleasure as the orthodox flower garden, if not more, and therefore deserves some attention.

J. G.

SOWING ANNUALS AND BIENNIALS.

IN reply to Colonel Stuart Wortley's enquiry as to the proper dates on which to sow annuals and biennials, allow to state that we should not aim at having a blaze of colour from a given number of plants all in full bloom at the same time, except for some special occasion. In the case of those who live at home the year round a succession of flowers is of far more importance; therefore, in selecting annuals and biennials worthy of culture, I must explain that what are usually true annuals, viz., plants that grow up, flower, ripen seed, and die within the year if sown in spring become biennials if sown late in autumn, and this is the case with the majority of plants raised from seed for ordinary spring bedding, of which *Silene pendula* or *Saponaria calabrica* are good examples; these flower profusely in April and May, and are cleared away in time for ordinary summer bedders, but let us not discard or overlook the beautiful plants that flower in June, July, and August; surely a place can be found for them, and for bedding plants, too. The following I can strongly recommend, having grown them in large quantities for ordinary spring bedding on a large scale, but with even better effect in mixed beds or borders, where each could finish its full period of blooming, as it is heartless work to lift plants in full beauty simply because others are ready to take their places:—

ALYSSUM MARITIMUM is a beautiful early flowering, sweet-scented plant if sown in August and transplanted as soon as the beds are ready for it; it is dwarf and good for edging purposes.

ALYSSUM SAXATILE may be readily increased from seed; sown in June, as soon as it is ripe, it makes nice plants by the autumn, and will last for several years; it is one of the most beautiful of yellow border flowers, but comes in rather late for ordinary spring gardening.

ANEMONES, or Windflowers, are lovely flowers, their colours being brilliant in the extreme. Sow as soon as the seed is ripe in April or May in light, sandy soil, and transplant to their final position in September. Before sowing mix some dry sand with the seeds to part them evenly, or they will hang together in bunches. Seeds of single varieties and also roots of double ones may now be bought very cheaply.

BARTONIA AUREA, a pretty Californian yellow flowered plant that grows about 1½ ft. high. It does best in light, sandy, or peaty soil; sow in August, or in pots in September in cold districts, and winter in a cold frame.

CALANDRINIA SPECIOSA and *C. umbellata*, the former rose coloured the latter crimson, are very useful plants. They should be sown in August, and then they will make a fine display early in spring or early summer.

CANDYTUFT, in various colours—white, lilac, crimson, &c.—is one of the best and easiest grown of all true annuals, and being very hardy may be relied on to stand the winter. Sow them on rather poor soil in August and transplant in September to nursery beds 6 in. apart, and plant out as soon as the beds or borders are clear for their reception.

CLAIRIA PULCHELLA AND **ALBA**.—Very beautiful, but not very hardy annuals. Sow in the end of August and protect with a few evergreen branches in case of severe frost.

COLLINSIA BICOLOR, purple and white, alba, pure white, and verna, blue and white, are really lovely annuals, growing about 1 ft. high, and making lovely beds or masses in borders, where their spikes of softly blended colours are particularly pleasing when seen in quantity. Sow in the

end of August or early in September either for transplanting, or in patches where they are to remain, or if in severe localities sow in 3-in. pots and winter in cold frame, planting out in February.

ERYSIMUM PEROFKIANUM, orange, and *E. arkansanum*, yellow, each about 2 ft. high, make showy groups for shrubbery borders, being very distinct in colour. Sow in the middle of August where they are to remain, or transplant them from the reserve garden.

LIMNANTHES DOUGLASI is a very pretty straw-coloured dwarf annual, like a *Nemophila*, but hardier. It should be sown the first week in September, and will flower in April and May.

MYOSOTIS (*Forget-me-not*) is too well known to need description. The lovely *M. dissitiflora* makes a fine spring garden plant. It should be sown as soon as the seed is ripe in order to get good plants fit to flower early. Seedlings are less liable to go off in severe winters than old plants, but in dry places this *Forget-me-not* will stand many years. The common *Myosotis sylvatica* is almost an aquatic, and never does so well as where there is abundant moisture.

ESCHSCHOLTZIA CALIFORNICA, yellow, *E. crocea*, orange, and *E. alba*, white, are showy flowers, usually called Californian Poppies. They grow from about 1 ft. to 1½ ft. high, and are readily reproduced from seed sown in July, and if the young plants are transplanted into nursery beds 6 in. apart, they will make fine material for planting out in October.

GILIA TRICOLOR, white, lilac, and purple, *G. alba*, white, and *G. rosea splendens*, rose, all beautiful annuals, well adapted for sowing in the middle of August. I find it to be a good plan to pinch out the growing points. When very dwarf they are better able to stand severe weather than when allowed to grow undisturbed.

GOETIAS of various sorts are beautiful at any season, but, treated as just directed, they make beautiful spring and summer blooming plants. *G. Lady Albemarle* and *G. The Bride* are comparatively recent and excellent additions to this popular plant.

NEMOPHILAS are very beautiful, dwarf, and floriferous, and the well-known *N. insignis* is still one of the best of them. Sow about the end of August or first week in September, according to locality, and transplant in October.

SWEET PEAS should be sown in the autumn as well as in spring in order to get a long flowering period. Sow in November and shelter when up with Fir branches.

SAPONARIA CALABRICA is one of the most beautiful of all the plants I have ever tried for early flowering; *S. rosea*, a lovely rosy pink, and *S. alba*, white, form dense carpets of tiny flowers. Sow in August, selecting a dry, well-drained position for them, and transplant in October.

SILENE PENDULA (pink), *S. ruberrima* (rose), *S. pendula alba* (white), and *S. a. compacta* (dwarf) are perhaps the best of all dwarf-growing plants for spring flower gardening. Being very hardy, they scarcely ever fail. The end of August is soon enough to sow them, for if overgrown before winter they are liable to suffer, while smaller plants escape.

VIRGINIA STOCKS, red and white, are especially well adapted for edgings to beds and borders, being of a continuous flowering habit. Sow in August where they are to remain if possible, or in small pots to transplant, as they do not like root disturbance.

STOCKS of the intermediate type in distinct colours are not only beautiful, but agreeably scented. Sown in July and August and pricked out into beds 6 in. apart, they make excellent bed or pot plants; if placed where they can have the shelter of a wall they will usually pass safely through the winter.

WALLFLOWERS are frequently sown in autumn as soon as the seed is ripe, but they do not get large enough to flower well the following season. The best way is to let them stand in the seed bed

until the following spring, and then plant them out in single lines, pinching the points out to induce a dwarf, bushy habit of growth. Thus treated, they will be full of flower buds when transplanted to the beds, and if the weather be mild will commence to flower very early. The sorts which I grow are Harbinger, dark red; and Belvoir Castle, a beautiful dwarf yellow.

WHITLAVIA GRANDIFLORA and *W. ALBA*, very pretty annuals, violet and white. They grow about 1 ft. high; when sown in August and transplanted in October they form with the preceding a nice variety.

The above list by no means exhausts the many beautiful plants that can be raised from seed, it merely furnishes a selection of reliable kinds that can be depended on for sowing at the coming seed time. It is a good plan to plant in the beds dwarf shrubs to obviate their bare aspect, and they also give a good deal of shelter to young seedlings.

JAMES GROOM.

Linton.

Wintering Antirrhinums.—A correspondent says (p. 50) that Antirrhinums are blooming unusually well this season, thanks to the previous mild winter. Here it is scarcely possible to preserve old plants through even mild winters, as they seem always to suffer more from wet than from frost, our soil being close and retentive. I have, however, just now a brilliant show of Antirrhinums in the shape of plants, the seed of which was sown under glass early in the winter. When large enough the seedlings were dibbled out into a frame, and were planted out into the open ground at the end of April. From this bed I shall get an abundant supply of bloom quite late into the autumn, for if the Antirrhinum be in good soil it blooms most profusely, and probably longer than any other biennial. In any case if a fresh sowing of seed be made in March, the successional plants will be sure to give a fine autumn display of flowers. Although there are in commerce named varieties, yet we have long out-grown them in the matter of seed strains; seedlings give not only size and fine form, but a marvellous variety of colours. The tall kinds, or rather those that are of robust habit, give more bloom and are much more enduring than are the pretty, but somewhat squat, Tom Thumb kind, and all who may desire a fine strain for the production of exhibition spikes must grow only a strong growing one. The striped and flaked forms seem to be the greatest favourites, and they are indeed both varied and beautiful. I could, I believe, gather fifty distinct and perhaps as many of self or dark coloured flowers, thus showing that a good strain of seed will give all that can be desired in the matter of variety. I should much like to see Antirrhinums encouraged at exhibitions as pot plants. To get a good simultaneous head of bloom it is only necessary to pinch out the centre spike, and all the side shoots will flower at once.—A. D.

SHORT NOTES.—FLOWER.

Malformed Fuchsia (*P. P.*).—Singular, but not uncommon Fuchsias, indeed, are more liable than most plants to assume peculiar forms.

Erigeron grandiflorum album.—A plant is in commerce under this name, and has just been in bloom here. It is precisely identical with *Aster alpinus albus*, which was out at the same time. I could detect no difference whatever.—H. HARPUR CREWE.

Camellia in fruit.—On one of my Camellias I have a fruit something like a Nectarine. Do you know anything about the fruit of the Camellia?—R. A. [The Camellia has a fleshy fruit about the size of a Walnut in the husk, and may be likened to a small Nectarine. It is sometimes produced and even ripened in this country.]

Small double white Pink.—Some four or five years ago I used to cultivate under the name of *Dianthus pungenis* f.-pl. a most beautiful, tiny, double white Pink. I believe I had it from the late Mr. Williams, of Ormskirk; it produced but little grass and was hard to strike, and I lost it. Can anyone tell me where I can procure this pretty little plant again?—H. HARPUR CREWE.

THE SOY BEAN.

(SOJA HISPIDA.)

A GOOD deal of attention has lately been directed to this plant in consequence of the enormous extent to which it is cultivated in China for the sake of the small seeds which it produces, and which are known as Soy Beans. These vary considerably in size, shape, and colour, according to the variety of the plant which produces them. They are for the most part about the size and shape of an ordinary field Pea, and, like the Pea,

The Soy Bean (*Soja hispida*).

are of a yellow colour; some, however, are of a greenish tint. These seeds contain a large quantity of oil, which is expressed from them in China and used for a variety of purposes. The residue is moulded with a considerable amount of pressure into large circular cakes, 2 ft. or more across, and 6 in. or 8 in. thick. This cake is used either for feeding cattle or for manuring the land; indeed, a very large trade is done in China with Bean cake (as it is always called) for these purposes. The well-known sauce called soy is also prepared from seeds of this Bean. The plant generally known as *Soja hispida* is by modern botanists referred to *Glycine Soja*. It is an erect, hairy, herbaceous plant. The leaves are three-parted and the papilionaceous flowers are borne in axillary racemes. It is too tender for outdoor cultivation in this country, but has been recommended for extended growth in our colonies as a commercial plant. The plants are readily raised from seed.

J. R. F.

ROYAL GARDENS, KEW.

THE energy with which steps have been and are being taken to make Kew as attractive from a horticultural point of view as from a botanical one deserves a word of commendation. To anyone acquainted with Kew some five years ago, the improvements made in many of the departments since that time must be evident. The enlargement of the museums and rearrangement of the specimens therein has resulted in placing the collection far above anything of the kind elsewhere; while the judicious thinning of the shrubs and re-

moval of beds which interfered with the views from different quarters, together with the rearrangement of the collections of trees and shrubs in such a manner as to make their study comparatively easy, are but a few of the alterations which have been made of late years in the right direction. For a long time much dissatisfaction was felt at the deplorable condition in which many of the herbaceous and alpine plants were to be seen owing to the absence of suitable positions for them; but the late Mr. Joad's plants having been left by him for the enrichment of the Kew collection, the authorities rightly felt that proper preparations must be made for their reception. Steps therefore were at once taken to provide for them what has been so long a desideratum at Kew, viz., a good rock garden, and this is now rapidly advancing towards completion.

So much for what has been accomplished, but there yet remains much to be done. Nowhere, perhaps, is there a larger or more complete collection of Ferns than at Kew, and nowhere is their condition less satisfactory. There are certainly some exceptions, some plants being in good health; but speaking generally the collection is by no means in as good a state as it is desirable it should be. True, at Kew the houses are very unsuitable for Ferns. They are lofty, have dry stages, dry stone paths, the pipes in the worst possible position, and the light transmitted through green glass—all conditions exactly what Ferns cannot endure. I would suggest that the stages be pulled down and rebuilt in such a way as to permit of more water being kept about the plants. Open tanks might be placed underneath or some other means of supplying the necessary atmospheric moisture employed. Many of the species, too, are in much too high a temperature. Take, for instance, the Filmy Ferns. I feel certain that a much lower temperature than that in which the Kew collection is placed would have a magical effect in removing the brown and sickly appearance presented by many of the species.

Turning to Orchids, we find a collection much below what one would expect in an establishment on which is spent some £23,000 annually. True, we find there a vast array of names, a large collection of plants, but how many of them are species of interest or beauty? comparatively few; while the poor and insignificant kinds occupy the greater portion of the space. Now, although I by no means depreciate species of merely botanical interest, yet where space is limited (as it certainly is, even at Kew), it should certainly be devoted to the more showy kinds, the less attractive sorts being relegated to the herbarium. I have been informed that steps are being taken to improve the collection in this respect, both by purchase and exchange; so there may soon be seen an alteration for the better in this department. In these pages attention has been already drawn to the unfitness for Orchid culture of the two houses in which Orchids are grown at Kew, and until better accommodation has been provided, success with these plants is impossible. Any one acquainted with Orchid culture will be surprised to hear that at Kew one high house is the only one available for Cattleyas, cool and warm *Odontoglossums*, *Coleogynes*, *Masdevallias*, many *Dendrobiums*, &c., each of which requires almost abuse for itself. Alterations such as these would cost but little, and if made, would, I feel sure, give general satisfaction.

P. K. E.

Geranium armenum is, I think, one of the most beautiful hardy plants which we possess. It is very vigorous, and bears large, deep purplish rose-coloured flowers. I have plants of it from 3 ft. to 4 ft. across which have been one mass of bloom for several weeks. The following sorts are also very beautiful, although not equal to *armenum*, viz., *Endressi*, *ibericum*, *pratense plenum*, *sanguineum*, *striatum*, *lancastriense*, and *subcaulescens*. *G. argenteum* and *cinereum* are also interesting alpine species, but scarcely adapted for the open border. They do best on the rockery.—J. WHITTAKER, *Crewé*.

ROSE GARDEN.

ROSES IN TOWN GARDENS.

WHEN I first came to this house, in 1874, I found that the garden had been left pretty much to itself, but among the plants in the borders I found the following Roses: A Maiden's Blush, an old Damask, a Rose de Meaux, and an Aimée Vibert. The Maiden's Blush was on a wall facing north-east, and though it bloomed profusely every year, it was much affected by aphides, and the blooms were often imperfect in consequence. I accordingly removed the old plant, and planted in its stead a sturdy young sucker from it. This has grown fairly well since, and this year showed bloom for the first time. The old Damask was in a border facing south-west, and has annually produced abundance of large and handsome blooms. The Rose de Meaux also flowers every year, but not so freely as the Damask. The most successful of the four, however, has been the Aimée Vibert. This is planted against a wall facing south-west, and, no matter what the season may be, it always sends up strong new wood, which about this time produces clusters of most charming white and fragrant Roses. My plant has never failed, and it is undoubtedly the Rose for London gardens, and the Damask is almost as good, while with good culture I believe the old Maiden's Blush and the Rose de Meaux will also do well. I have tried *Félicité Perpétuelle* and *Gloire de Dijon*, but they have not proved to be satisfactory. A Boursault has in some seasons done extremely well, but this year it was so blighted in the spring, that it failed to bloom.

W. J. T.

Brixton.

TOWN AND OTHER ROSES.

"J. D.'s" remarks (p. 43) and those on climbing Roses on the next page raise anew this subject. A few fortunate rosarians like "*Sylvestris*" may not be troubled with Roses that will not grow; and no doubt there are gardens here and there in which all Roses and other plants take to the soil and thrive in it by a sort of instinctive vital force. But this is very far from being the case everywhere, and I have yet to learn that the statement of difficulties and how to avoid them is likely to discourage or damp the zeal of true rosarians. On the pages above referred to we have a good start made of Roses that grow well in towns. The old alba most of us know well as a good grower, but the Damask is often stunted and poor alike in town and country. Climbing Roses, however, hold their own in most places, and the Garland, *Félicité Perpétuelle*, Madame d'Arblay, Dundee Rambler, Williams' Evergreen, Annie Vibert, Chénédole, and Blair No. 2 are a few of those that generally succeed well. The following pink Roses also succeed in most situations in town and country, viz.: Chénédole, Charles Lawson, Coupe de Hebe, Madame Bérard, and Jules Margottin. The old Baronne Prévost holds its ground in many positions where many others fail. Homère, again, among Teas, promises to run abreast, or even ahead, of Gloire de Dijon. The pink Gloire de Dijon or Glory of Bordeaux, again, if not so good as its golden-hued relative, is an equally strong grower and even a better flowerer if possible. But my object now is not to give an exhaustive list of Roses that will grow or live in town or country, but inquire of the readers of THE GARDEN how many useful Roses have lived in their gardens for, say, 10 or 12 years; also to be good enough to say whether they live in town or in the country. One reason why standard Roses die so soon or grow so slowly arises, I believe, from the bareness of the ground. The tops at first are too meagre to afford either shelter or shadow, and before the struggling tops have made sufficient progress to provide either the one or the other, the roots have succumbed to sunstroke or frost-bite. There is nothing in Nature analogous to our standard Roses mounted on stilted stems borrowed of the wild Brier, and set on a smooth, even surface exposed to all sorts of meteorological and other sudden and severe changes of tempera-

ture and physical conditions. No, it won't do; even the growth of weeds that cover the surface is not in vain. The safety and longevity of our Roses demand either that we grow them in bush form, or that we sub-crop the soil under our struggling standards to conserve its moisture, preserve its strength, and protect the roots from the evils of extremes of temperature and of aridity. Where these are impossible, a deep mulch of litter, manure, or loose soil is the next best means at our command for promoting the strength and prolonging the life of our Roses. The Roses of olden times in mixed shrubberies or crowded flower beds had at least one thing that their modern competitors lack—shade and shelter for their roots—and hence, partly at least, their greater longevity and better health. D. T. FISH.

POT ROSES FROM UNDER GLASS OR FROM THE OPEN?

"IXION" (p. 44) raises this important question. Much, almost all, depends on previous culture and treatment. Plants well managed under glass will yield the earlier and the larger amount of blooms. But if the plants have been drawn up weakly or allowed to become the victims of aphides or other insects, the results will prove disappointing. In such cases strong, clean material from the open will prove far more satisfactory than plants at double the price that may have been grown under glass for a year or more previously. The late Mr. Thomas Rivers, of Sawbridgeworth, who was one of the first and most successful cultivators of Roses in pots, grew most of his stock in the open air throughout the summer. The pots were plunged to the rims in Cocoa-nut fibre refuse or the earth, and the surface mulched over with rough manure or other slow conductors. I have seldom seen a finer stock of pot Tea and other Roses than those treated in this way. "Ixion" will thus learn that either mode may be best according to circumstances. The one thing of really vital moment is less how or where the plants had been grown, but their condition at the time of purchase. See that they are strong, clean, and healthy, and then purchase as best suits your purse and area. The results obtained will thus afford a fair measure of the skill brought to bear on the culture of the plant. To purchase small plants and grow them in the greenhouse yourself implies that amateurs are more skilful cultivators than growers for sale, an assumption by no means warranted by observation or experience.

D. T. FISH.

Coupe de Hebe on a north wall.—The reason "J. S. C.'s" Rose does not flower lies in a nutshell, viz., the north wall. Planted on an east, south, or west wall, or in the open, this beautiful Rose mostly blooms freely enough, but the north is too shady and cold for it. Nor must Coupe de Hebe be over-fed; it is on rich soils a gross grower, and may at times make more shoots than flowers; but on soils of moderate quality and in fairly open positions it flowers freely enough, though not with such profuse prodigality as, say, Charles Lawson.—D. T. FISH.

Roses in Scotland.—Perhaps Mr. Fish and other lovers of Roses may be interested in learning how Scotland has fared this year as regards the "queen of flowers"—very indifferently I am told by my friends. Here, we have been very prosperous, and, with the exception of a little mildew, and several trees being liable to yield flowers with green hearts, in short what are termed distorted, we have escaped troubles. We have had no green fly, no maggot, and a Rose beetle is here unknown. Moss, single and double-yellow, Scotch, and the good old hundred-leaved Roses have been abundant and beautiful. La France, Marie Baumann, Charles Lefebvre, Louis Van Houtte, Duke of Edinburgh, Baroness Rothschild, and many others have developed full and gradually expanded blooms, with abundance of foliage, so truly lovely, in fact, that they appear rather the productions of "The better land" than those of cold Scotland. The casualty of the season has

been the destruction of a white Moss, by a severe westerly gale.—A. G., *Mid-Scotland*.

GARDEN FLORA.

PLATE CCCXLVII.

FREESIAS.

I HAD the pleasure of seeing the blooms of *Freesia* (grown, I believe, by Mr. C. Smith, of Guernsey) represented in the accompanying plate, and I can fairly say that the figure is no exaggeration. It is not given to everyone to grow these flowers as Mr. Smith does; but even those who fall short of his success will, I fancy, be inclined to admit that of all the ordinary Cape bulbs the *Freesias* are, take them all in all, the best. They cannot vie in brilliancy of colour with some forms of *Sparaxis*, *Ixia*, &c.; but they possess a peculiar grace of form, and their fragrance is to my senses, at all events, the most delightful. Besides, they last, compared with many other Cape bulbs, a long time in bloom, and their endurance as cut flowers is really remarkable. Moreover, with care, by potting at the proper time, a succession of blooms may be obtained over a long period; at least I can say that I had blooms at Christmas, and have had the flowers on and off ever since. Both under the name of *Freesia refracta*, *odorata*, *xanthospila*, &c., and under the older titles of *Gladiolus refractus*, *G. Sparmanni* and *G. xanthopilus*, *Tritonia refracta* and *T. odorata*, and *Sparaxis Jouberti*, these plants have been known for a long time, but have more recently achieved a sudden popularity.

In his monograph on Irids, Mr. Baker makes two species, *F. refracta* and *F. Leichtlini*; but he has since withdrawn the latter, and now considers all the forms as mere varieties of one species. In the large collection of dried *Freesias* in the herbarium at Kew are a great number of specimens differing in the form, colour, and size of the flowers, in the height and breadth of the foliage, and in the general size of the plant; and these varieties run so completely into each other as to fully justify Mr. Baker's conclusion. Indeed, I am very much inclined to think that the same conclusion will hold good even when the living plants are studied, provided that a sufficient supply of material be taken in hand.

As far as I have gone at present, I have met as living plants with some four or five varieties. The most common, and, perhaps, the best, is that known as *F. refracta alba*, a large specimen of which is represented in the plate. This is characterised not only by its pure white colour, marked occasionally with a few violet lines (sometimes, as indicated in the figure, with a violet blush over the unopened bud), and with orange patches on the lower segments of the corolla (though these may be sometimes all but entirely absent), but especially by the long funnel of the perianth *gradually* narrowing down into the tube below. This feature is very well shown in the plate. At the same time the throat of the perianth funnel is somewhat narrow, the segments of the perianth spread horizontally and the fragrance is peculiar.

Another form is that which is generally called *F. Leichtlini*. In this the funnel narrows *suddenly* into the tube, the throat is more open, with the segments spreading less horizontally, and the colour is yellow, sometimes pale, so as to be almost of a cream colour, sometimes deeper; the orange blotch on the lower segments of the petals is also much more conspicuous. This orange blotch, by the way, seems a signal for insects, and corresponds to the similar marking in other Irids.

A third form is that which has been named *F. aurea*. I have not as yet been able to learn

the authority for the name. In this the flower is smaller than in either of the preceding, with the throat less open and the colour of a deeper yellow; the funnel of the perianth narrows suddenly, like *F. Leichtlini*. Curiously enough, *F. aurea* corresponds much more closely than does *F. Leichtlini* itself to the figure which Klatt gives in "Gartenflora" of *F. Leichtlini* which he there first described; but Mr. Max Leichtlin tells me that the form described by Klatt was really the form (coming originally, if I remember, from the Botanic Garden at Padua) which he distributed, and which is known here as *F. Leichtlini*.

A fourth form which I have flowered resembles *aurea* in form, but is extensively marked with purple or violet blotches and streaks; this variety answers very closely to the older figures of *Freesia refracta* in Sweet and elsewhere.

These four forms might, from the characters I have given, be regarded as four distinct varieties at least, deserving for gardening purposes at all events distinct names; and at first sight the characteristic form of *F. refracta alba* seems almost to deserve recognition as indicating a specific difference. But there are intermediate forms. The second flower figured on the plate is a flower which may be considered as a mixture of *F. refracta alba* and *F. Leichtlini*, being nearly half-way between the two. It appeared, I understand, in a batch of seedlings, and is supposed by Mr. Smith, who raised it, to be a hybrid between the two above-mentioned forms. It may be so, but I have met with an almost exactly similar plant, though not so fine, in a batch of bulbs which came, I believe, direct from the Cape. This does not, of course, preclude its being a hybrid; but, remembering the intermediate dried forms at Kew, I am inclined to think that an adequate supply of bulbs from the Cape would give a whole series of forms, running *F. refracta alba* completely into *F. Leichtlini*. Forms similarly intermediate between *F. Leichtlini* and the other two forms I have mentioned also I believe exist, and I have already seen some. The depth of the yellow tint, the openness of the throat, and the amount of purple vary a good deal; and I do not believe that any dependence for purposes of separation can be placed on the height or breadth of the foliage, on which Klatt insists a good deal. In short, I believe with Mr. Baker that all specific names, such as *Leichtlini*, *odorata*, *xanthospila*, &c., should be discarded, and that we should call them all *F. refracta* var. *alba*, *Leichtlini*, &c., though it may perhaps remain yet an open question whether *F. refracta alba* is not naturally specifically distinct from the rest.

With regard to culture, the great thing, as with other Cape bulbs, is to roast them well as soon as their leaves begin to die down, and to avoid keeping them out of the soil. They do well in pots, and this is perhaps the most convenient way of growing them. Pot them in loam, with nearly an equal part of peat or leaf-mould and a good supply of sand, and then plunge them in Cocoa-nut, sheltered from rain, till they start. While they are growing keep them in a cold frame or in a cool greenhouse, where they may be protected from frost, but not hurried by untimely heat, and do not let them lack water. For the due enjoyment of their fragrance, bring them, if they are flowering in winter, into a warm chamber when they are in bloom, and after flowering, as soon as the leaves begin to wither, stop all watering, put them on a shelf in the greenhouse exposed to as much sun as possible, and there let them dry up, keeping them in their pots till the time comes to pot again. If there are not too many in the pot they will flower all the better for being kept a second year in the same pot with



1. FREESIA REFRACTA ALBA. 2. F. LEICHTLINII MAJOR.

a little top dressing. If they are thus kept always in the soil, they will start readily; but if they are taken up and exposed to the air they become dormant, and may go to sleep a whole year or more, refusing to start. When inoculated they seed freely, the seed germinates readily, and the young plants grow quickly and flower early. I had flowers in early spring from seed sown last summer, and this year I have (now in July) plants 2 in. high from seed sown in May, and I have some hopes of seeing their flowers by Christmas, if not before. F.

FRUIT CROPS.

METROPOLITAN AND SOUTH-EASTERN DIVISION.

Syon House, Brentford.—In the gardens here and in the immediate neighbourhood bush fruits of all kinds are a very heavy crop. Apples on the earlier varieties are good, but on the later sorts poor. Pears much under average; Peaches, slightly sheltered during the spring months, set a good crop, but have since been much retarded by the fly, which has been unusually prevalent. Apricots are a fair crop, as are also Cherries. Plums, are almost a failure. The soil here is moderately light and the subsoil gravel.—JOHN WOODBRIDGE.

West Middlesex.—With the single exception of Morello Cherries, tree fruit crops throughout the whole of this district are exceedingly light—perhaps it would not be incorrect to say a comparative failure. Of Apples there are just sprinklings of Keswick and Manks Codlins, a very few King Pippins and Cox's Orange, and even fewer still of Wellingtons. I have seen literally thousands of trees recently, and not one is carrying a fair crop; by far the larger number have on them only few fruit, if any. The best crops are on trees that are well sheltered by others, and these are chiefly early Codlins. Of course nearly all the market orchards are planted with standard trees that get little shelter in such a flat district as this is; but the Codlins are of dwarfer habit of growth than most other kinds, and therefore get more protection. They always bud and bloom densely, and therefore the greater probability that out of so much bloom some may be productive. Pears seem to be in even a worse plight than Apples. In the orchards there are, indeed, but few fruit to be seen, except upon the hardy and prolific, but very indifferent, Hazels. I have just a sprinkling this year on Alexandrè Lambré and the Old Swan's Egg, both free bearing kinds, and I have seen mere sprinklings upon the largely grown Beurré Capiaumont, but there the matter ends. There are few, indeed, very few, Plums; the best crops are on Victorias and Green Gages, but they are thin ones. Nearly all have been badly infested with aphides; and, indeed, soon after the too well remembered April wind storm the trees were literally stripped in many places of every green leaf through the attacks of the insects. Recent heavy rains have not only washed these off, but have assisted the roots to promote a renewed growth, and although great improvement has been effected, yet it is doubtful whether wood so late developed will ripen sufficiently to become productive next year. Whilst Morello Cherries as standards have, as they always do, fruited well, sweet Cherries have not been an abundant crop; indeed we may say that they have been about one-half a fair crop. Here and there well situated trees have been laden, but that was the exception. This district, however, is not favourable to Cherries, as the trees dislike our deep cold clay sub-soil. Having regard to the fine bloom shown on all standard fruit trees in the spring, and also the comparative absence of keen frosts just then, it is difficult to account for the general failure of the crops. That the fierce winds of April 29 did great damage there could be little doubt, but many growers have declared that they find more fruit on the windward side of their trees than on the leeward side. Mr. Francis Dancer, whose opinion on these matters is worthy of the

highest respect, attributes the lack of fertility in the bloom to the long-continued low temperature at night when the flowers were expanded. And although, perhaps, the thermometer did not fall lower than 31°, yet that following night after night was sufficient to destroy fertility in the flowers. Of bush fruits, the produce has been marvellous. Gooseberries, and especially the most favoured market kind, Lancashire Lad, have been very productive, the branches being literally borne down with the weight of fruit. All Currants have carried heavy crops, and in most cases the berries were unusually fine. Raspberries are not only a large crop, but, owing to the moisture in the soil, a long holding one. Sunshine has been much needed to colour and sweeten the fruit. Strawberries have been very fine and abundant, but marketing has been much hindered by the frequent heavy rains. The most favoured market kinds are Sir J. Paxton and Sir C. Napier. Our stiff clay soil seems to suit all bush fruits and Strawberries remarkably well.—A. D.

The Rookery, Bromley.—Fruit trees hereabouts are mostly standards, planted at good distances apart, bush fruits being grown in the open spaces between the rows of trees, and often Strawberries. There has been a most abundant crop of bush fruits, especially of Red Currants; Black Currants have been about an average crop; Raspberries have fruited abundantly; Strawberries are over an average crop both in size and number; Apples in some of the market gardens are scarce Cherries an average crop; Damsons below the average. The Apple crop in the garden here is under the average, espaliers being better than pyramids. On the following there is a fair sprinkling, viz., Keswick Codlin, London Pippin, Ribston Pippin, Hawthornden, Norfolk Beefing, Cellini, Dutch Mignonne, Golden Knob, Warner's King, and Lemon Pippin. Apricots are abundant, Moorpark and Royal Orange producing the heaviest crops. The trees were protected when in flower with old herring nets. Cherries upon walls are an average crop; on espaliers and pyramids below the average. The most prolific sorts are Bigarreau, Adam's Crown, Elton, Bigarreau Napoleon, Black Eagle, May Duke, and Reine Hortense, the last one of the best of Cherries, and one which hangs long after it is ripe. Morellos are over the average, and the fruit is unusually large. Laing's Mammoth Red Currant produces larger bunches and berries than any other kind. On White Currants the fruit has been very much discoloured through blight. White Marseilles Figs upon walls are an average crop. Outdoor Grapes on south walls are below the average. Medlars and Mulberries are average crops; Nuts and Filberts abundant. Of Nectarines the heaviest crops outdoors consist of Elruge, Hardwicke, Rivers' Orange, and Violette Hâtive. The trees when in flower were protected with tiffany, stretched upon poles leaning against the wall. Peaches are an average crop. They were protected with nets when in flower, which I find better than any other protecting material which I use. The following varieties have produced the greatest number of fruit—viz., Walburton Admirable, Barrington, Bellegarde, Crawford's Late (one of the most abundant bearers), Noblesse, Royal George, Royal Kensington, and Stirling Castle. Pears upon walls are an average crop; Jargonelle, Marie Louise, Williams' Bon Chrétien, Duchesse d'Angoulême, Marie Louise, and Passe Colmar are all bearing heavy crops, while on espaliers and pyramids there are fair crops of Alexandrè Lambré, Baronne de Melo, Autumn Bergamot, Easter Bergamot, Esperen Bergamot, Beurré d'Aremberg, Beurré Bosc, Brown Beurré, Beurré Diel, Beurré Giffard, Beurré Rance, Doyenné d'Été, Duchesse d'Heri, Forelle, Louise Bonne of Jersey, Autumn Nelis, Saint Lezin, Seckle, and Vicar of Winkfield. Other sorts have only a few fruits on each tree. Of Plums there is a plentiful crop on most trees, but the foliage has suffered a good deal from blight. It is, however, recovering since we had the late heavy rains. The following sorts are bearing the heaviest crops—viz., Belgian Purple, a sure bearer even in the worst of seasons. Green Gages very

few, although blossoms were abundant in the spring and protected with nets. Coe's Golden Drop and late Gage average crops. These sorts are upon walls. On espaliers and pyramids most kinds are producing good crops, such as Jefferson's Red Magnum Bonum, Victoria, and Washington. Amongst Raspberries Dr. McLean and Carter's Prolific are the two heaviest cropping varieties. Strawberries have been a very heavy crop. The following ripened in the order in which their names occur—viz., Keen's Seedling, President, Sir Joseph Paxton, Sir Charles Napier, and Elton Pine. The soil here is a rich loam resting upon heavy clay.—W. CHRISTISON.

Claremont, Esher.—Taken as a whole, out-of-door fruits here may be described as an average crop. Of new varieties we have very few in any class; the majority of wall trees, especially Peaches, Nectarines, and Pears, must have filled their present quarters many years. Plums, dessert Cherries, and Raspberries are so poorly represented, that they must stand out of the list. Apples in orchard (on an eminence in the park) are very thin, as are also standard Pears. The trees suffered severely in the gale of April last, and will hardly recover during the present season. In an old kitchen garden (well sheltered on all sides) table Apples are a fair crop, and kitchen sorts a good crop. Bush fruits of all kinds and berries are a very heavy crop, individual bunches of Red and White Currants being exceptionally fine. Apricots (all young trees), a fair crop. Cherries (Morello) on W.N.W. wall a good crop. Medlars a good, and Mulberries a heavy crop. Peaches and Nectarines (aspect S.E. by E.) are a very good crop. The stems of many of these old trees are as gnarled and twisted as a stick long entwined in Honeysuckle. They are bearing good crops, and the young growth is short, firm, and sturdy. The only protection we were able to give in the spring was some ordinary 1-in. mesh garden netting, doubled. All these trees escaped unscathed the April gales. Our Pears, with the exception of a few standards in the orchard, are on walls, the majority west-north-west. In direct opposition to the Peaches, at the highest point of the garden level, the Pears must have a very moist sub-soil, being little higher than the level of a neighbouring pond. They are bearing fair crops and the trees are healthy, the growth being by no means so rank as their position and comparatively scanty crop might indicate. Strawberries, all in old garden, were very poor. The only exception is President from last year's plants on new soil, which is very good. A large number of well-rooted plants in 3-in. pots will be planted immediately in the new garden lately trenched, and I trust they will enable me to furnish a more satisfactory report concerning this delicious fruit another season.—E. BURRELL.

Deepondene, Dorking.—We have fair crops of all kinds of fruit except Apples, which are almost a failure. There are a few in sheltered situations which escaped the great storm in the end of April. Apricots are an abundant crop, and we are now beginning to gather them. Peaches and Nectarines are fair crops. Early Beatrice was ready on the 18th inst.; Early Rivers is swelling fast, a very fine Peach. Plums, all on walls, are very abundant. Cherries plentiful, Morellos being very fine. Strawberries, now about over, have been very good. All bush fruits, except Black Currants, have been plentiful. Raspberries have been unusually full of maggots. Pears both on walls and pyramids are a fine crop, and the fruit free from speck or blemish. Figs are a good crop. Outdoor Grapes are thin. Cobnuts and Filberts good; also Walnuts.

The Potato disease is very prevalent on the clay lands in the neighbourhood, but on the sand we have not yet found any.—J. BURNETT.

Highclere Castle.—Apples and Pears are very light crops hereabouts; blossom was plentiful, but the cold weather and severe storms at setting time injured the bloom. The Apples that are bearing best are Hawthornden, Blenheim Orange, King of the Pippins, Manks Codlin, and Golden Drop. Of Pears, Passe Colmar, Beurré

Diel, Hessele, and Williams' Bon Chrétien are the best here this season. Plums are plentiful, Denyer's Victoria and Early Prolific being good bearing sorts. Of Figs we have a good crop. Cherries, moderate; Peaches, very few. Most of the trees here were destroyed by frost in the winter of 1880-81. Of Apricots we have a fair crop; Henskirke and Large Early are the best. Strawberries have been a fine crop; President, Sir Joseph Paxton, and Vicomtesse Héricart de Thury are good reliable sorts. Red Currants are a moderate crop; Black Currants, Gooseberries, and Raspberries heavy crops.—S. ROSS.

Holly Lodge, Highgate.—Apples this season are very partial, some trees having a good many on them, while others are quite bare of fruit. No doubt the time of flowering had much to do with this, the weather being then very changeable. Most of the Highgate district being strong clay, and especially so here, trees in the open produce best in the shape of standards, and are liable to suffer from wet and wind when in bloom. The sorts most productive for kitchen use are Keswick Codlin, Hawthornden, Beauty of Kent, Wellington, Dutch Mignonne, and French Crab, the last for late use. Blenheim Orange for the last few years, for some reason, has not done well. Warner's King amongst the newer sorts succeeds with us. Dessert Apples—King of Pippins affords the best supply; Cox's Orange Pippin does well and some others. Taken as a whole, in the immediate neighbourhood there is nearly an average crop. Pears are almost a failure; those we have found to do best are Bon Chrétien (W.), Marie Louise, Louise Bonne of Jersey, Beurré Capiaumont, Beurré Diel, and Ne Plus Meuris, with a few others. Plums and Damsons may be said to be a failure here this season. Morello Cherries are a good crop. Peaches and Nectarines on outside walls an average crop, and I may say the same of bush fruit generally, especially Currants. Being on strong clay soil, much growth is made which requires a fine autumn to ripen, and Pears, taken on the whole, do not keep well, ripening long before their season.—J. WILLARD.

Langley, Maidstone.—Speaking broadly, it may be said that standard fruit is a comparative failure, and bush fruit a good crop. There was a good prospect of most kinds in the spring, with the exception of Apples, but the severe gale in April did an immense amount of damage. This was followed by an attack of aphides, necessitating in many cases washing. Where this was not done the leaves of Plums and Damsons curled up, leaving the trees very bare. Cherries would have been a fair crop, but the unsuitable weather has prevented them ripening properly; the Bigarreau has been the best, with the exception of the Morello, but this is only grown on walls in this neighbourhood. As regards Pears, the Williams will not grow here; the Hessele is the most prolific; but this is not a Pear district. Amongst Plums, the Victoria, as usual, is bearing well; this is the most prolific Plum we grow; The Czar, Rivers' best early Plum, is also doing well. The bush Plum, not much known out of Kent, is also bearing a fair crop, but taking the crop as a whole it will be very short. Damsons as a rule will be scarce, and have especially suffered from vermin. Apples will be very scarce, and in many orchards there will only be bushels grown where there were hundreds of bushels last year. The Codlins are bearing in some parts, as also Devonshire Quarrenden, Tower of Glamis, Stone's Apple, Summer Golden Pippin (Yellow Ingestrie), King of the Pippins, Duchess of Oldenburg, and Early Julien. The Worcester Pearmain is doing especially well, and from its clean habit of growth will, I think, become a favourite here. Both Black and Red Currants have borne fair crops, but do not command a ready sale, the excessive rainfall having made them very watery. Raspberries and Strawberries are not largely grown, but I believe have yielded well. Gooseberries are good in some districts, and Cobnuts, if the wet weather does not cause them to run, will be a large crop. To summarise briefly it may be said that this is not a good fruit year; those varieties that have yielded

a fair crop have not ripened properly, and at the present time the earlier varieties of Plums are commencing to crack.—LEWIS A. KILLICK.

Heckfield, Hants.—Apples excepted, the present year's fruit crop in this district is better than any there has been since 1878. Owing to the gale on April 29, when Apples were in full blossom, the Apple crop is all but a total failure. There is perhaps half a crop on dwarf bush trees in well sheltered positions. Pears being more advanced at that date suffered but little, and we have a very full crop of all kinds both on walls and in the open garden. Plums are also a good crop, but the trees have been very blighty, but are now outgrowing it. Morello Cherries are a full crop, others thin, being virulently attacked with blackfly when in flower. Peaches and Apricots are extra good—the best crop for years past—and the trees are making first-rate growth. Ours were well protected with scrim canvas fixed like ordinary window-blinds, and therefore can be let down or drawn up at pleasure. Strawberries have been a very heavy crop and extra fine, but the rain spoiled a large percentage of them before they could be gathered. Raspberries, Gooseberries, and Currants, all kinds, have been very heavy crops, and Nuts enormous. Early in the season out-door Grapes gave promise of once more ripening, but the cold nights—there being several sharp frosts in June—soon dispelled our hopes in this respect, and they are now not a bit more advanced in growth than they were at this date last year.—W. WILDSMITH.

Panshanger, Herts.—Fruit crops here and in the surrounding district are generally good, with the exception of Apples, which in most places are an entire failure through the ravages of caterpillars. I had seldom seen a better promise of a good Apple crop till the trees were just opening into flower when myriads of caterpillars soon destroyed the crop and greatly injured the trees. Although we have any amount of small birds when the fruit is ripening, they render us little assistance in destroying the caterpillars. Pears on walls are an average crop, on standards and pyramids thin; Apricots abundant and good; Peaches and Nectarines an average crop; Plums and Cherries heavy crops, trees much blighted. Strawberries have been most abundant, but the fruit has been spoiled by heavy rains. Gooseberries and other bush fruit abundant and good. The soil in this district is generally thin on a subsoil of the poorest gravel; we have not suffered from excess of rain, but greatly need an increase of temperature and more sunshine.—RICHARD RUFFETT.

Royal Gardens, Frogmore.—Apricots here are an abundant crop, and should we have fine weather the fruit will be large and good. Twelve dozen were gathered on the 17th inst. Of Apples we have very few. When in bloom they were much injured by the severe gale which occurred on Saturday, April 29. Pears also suffered so much on the same occasion that the young growth after the storm was perfectly black, but the trees have now recovered. Plums outside very thin, but indoors there are good crops on the following, viz., Green Gage, Kirke's Victoria, Goliath, and Reine Claude de Bavay. Strawberries have been fine and the fruit very large, but deficient in flavour in consequence of the long-continued rains. The plants promise well for next year. Cherries are plentiful and fine individually, but much injured by rains, especially late crops. Some trees are badly infested with aphids. Of Peaches and Nectarines we have very heavy crops, and the trees are clean and healthy. Early Beatrice Peaches were gathered from outside walls on the 10th inst., Early Rivers on the 14th, but the stones of the latter are all split. Of small fruits the crop is abundant, but inferior in quality, owing to the rain. Filberts are an average crop. Walnuts moderate; on some trees there are good crops, on others none. Fruit trees generally out of doors are much cleaned and freer from blight than usual on our cold, damp, clay soil, but that is no doubt owing to the heavy rains and thunder storms which we have had. From June 1 to July 18 in-

clusive (forty-eight days) rain or hail has fallen on no less than thirty-five days, making a total of 5·21 in., prevailing winds from south and south-west.

Potatoes are an excellent crop and good in quality, but in later crops the haulm is much diseased.—T. JONES.

Easthampstead Park, Wokingham.—The report from this district is more cheering than that of last year. Bush fruits are very abundant and good. Raspberries better than they have been for many years. Strawberries also are a great crop, but very much damaged by the incessant rains. Pears and Plums on walls are very good, but in exposed places thin. Peaches on walls much damaged by blighty winds and frost, but under glass excellent. Of Strawberries, Keen's Seedling, Dr. Hogg, Garibaldi, James Veitch, President, British Queen, and Sir Joseph Paxton are our favourite sorts, and they do well here. Apples are a very thin crop. The storms, when in blossom, destroyed all prospects of even an average crop, but where sheltered some trees are well loaded. The situation of our garden is bad, the subsoil a tenacious clay, working up to the surface when trenching is not constantly followed up, involving more labour than can be afforded. Apricots that were carefully protected with canvas are good. Cherries a very heavy crop, especially Morellos. Among Pears, Williams' Bon Chrétien, Duchesse d'Angoulême, Marie Louise, Louise Bonne of Jersey, Beurré Rance, and Catillac are the best sorts. Of Plums, Rivers' Early Prolific, Green Gage, Coe's Golden Drop, Jefferson, Prince of Wales, Magnum Bonum, and Victoria are our best sorts.

The Potato disease has shown itself in a serious way already. We find where the haulm has been cut off and light and air given to the ground that the progress of the disease has been checked.—NEIL SINCLAIR.

Ideworth, Horndean.—Apples are almost a total failure, and the trees have suffered much from blight. Pears, with one or two exceptions, are in the same predicament; Knight's Monarch, Duchesse d'Angoulême, Marie Louise, Louise Bonne of Jersey, and Williams' Bon Chrétien are among the best; on several other kinds there is a slight sprinkling. Morello Cherries are a good crop, other kinds thin; the trees have been very much infested with black fly. Plums are a very thin crop; the sorts doing best are Green Gage, Coe's Golden Drop, and Jefferson. Outdoor Figs promise very well at present, though I hear complaints of the fruit dropping. Gooseberries and Red, White, and Black Currants are heavy crops; likewise Raspberries, the fruit of which is very fine. Strawberries generally have been a good crop. With few exceptions Peaches and Nectarines, not much grown outside here, but we have a sprinkling of fruit. Apricots are not grown in this locality. Damsons are only a moderate crop. Walnuts thin. Filberts promise well at present. We give no protection whatever, but the garden is well sheltered by surrounding plantations. The great storm of April 29 was felt here in all its severity (being only 6 miles from the sea at an elevation of 300 ft.), and it was followed by hordes of caterpillars, &c.; still the trees, shrubs, &c., have wonderfully recovered from the effects of both, and, with a fine autumn, we must hope for a better return next season.—N. F. FULLER.

Leigh Park, Havant.—Fruit crops in this district are on the whole under the average, with the exception of small fruits, which in sheltered situations are fairly good. Apples on small trees lifted two years ago promise to produce a fair crop, but on large standard trees they are very thin. Peaches look as if they would be a good crop, notwithstanding the severe lashing they received from wind in the spring. Pears are under the average; Plums a fair crop; Apricots in some places good; and Morello Cherries are also very good.—C. PENFORD.

Eridge Castle, Tunbridge Wells.—Apricots have been scarce, Peaches plentiful, Figs abundant, Apples half a crop, and the same may be said of Pears. Cherries a full crop, Plums average,

Strawberries abundant and good, Currants and Gooseberries most excellent, and Raspberries are both plentiful and good. With the exception of Apples and Pears the fruit crop is an average one, and these two exceptions are chiefly the result of the storm of wind which passed over this part of the country early in May. Our garden is 400 ft. above the sea level, and consequently escapes spring frosts.—J. RUST.

Goodwood, Chichester.—Crops here this season are exceptionally good. Figs are very promising, and with sun and warm weather will be a very good crop. Apricots, Peaches, Nectarines, Plums, and Morello Cherries are excellent. We commenced to gather Peaches from open walls about the 12th inst., the sorts being Amsden Peach, Early Crawford, and Princess Louise. Amsden is a fine new American variety, large and well coloured, and excellent in flavour. It is the best early outdoor variety that has come under my notice, and cannot fail to become a general favourite when better known. Early Crawford is another useful variety. These will supersede Princess Louise, which is small and deficient in flavour. Lord Napier and Pine-apple Nectarines are excellent kinds both for outdoor and indoor purposes. Gooseberries are an excellent crop; also Currants, Black, White, and Red; and Raspberries are very good indeed. Strawberries have been an excellent crop and unusually large, some of James Veitch and Eliza Rivers weighing 2½ oz. each. Pears are a good crop. Nuts moderate. The Apple crop generally in Sussex, I believe, is a failure. With the exception of a few trees, I have very few; otherwise our fruit crop is very satisfactory. I attribute our success to our sheltering plantations, which protected us so much from the storm on the 29th April, that made sad havoc in so many gardens this season.

Potatoes, both early and late, are badly diseased.—F. RUTLAND.

Leonardslee, Horsham.—Apples are nearly a total failure all through this district. Pears are about a fourth of a crop. Of Plums we have a few in places throughout this district. Peaches and Nectarines on open walls are a failure, but indoors good. Cherries are about half a crop; Morellos very fine and a good crop. Figs on bushes out-of-doors half a crop. Gooseberries good. Red and White Currants good, also Black. Strawberries have been a fine crop, but they suffered from the late salt winds. Raspberries are very good, but wanting in flavour. Filberts and Cobnuts good, if they ripen. Walnuts a total failure, as are also Melons and Quinces.

The Potato blight showed itself in this district three weeks sooner than in previous years. I have just been round the cottage gardens on this estate, and have found it in all of them. The tubers go wrong even after they are taken up and stored; with me out of nearly a hundred kinds there is not one variety that has not its top injured. Hence I have cut the haulm all off, and shall take them up as soon as the weather gets drier. Up to this date (19th July) I have registered 2·75 in. of rainfall. We are badly in want of fine, dry weather here in the south.—S. FORD.

Preston Hall, Aylesford.—The market growers hereabout, I am afraid, will hardly cover the expenses incurred in cultivation this year; top fruits are nearly a failure, owing to the gale in April that destroyed the blossom and early formed fruit. The trees looked as if they were scorched for a long time, and are now far from healthy. There are but few Apples—about one-fifth of a crop; here and there, however, a tree may be found bearing a fair crop. The most plentiful sorts are Keswick Codlin, Lord Suffield, Oslin Pippin, Hawthornden (new and old), and Sturmer Pippin. Pears are a little better, especially with me, say about one-third of a crop. Duchesse d'Angoulême, Williams' Bon Chrétien, Marie Louise, Pittmaston Duchess, Broom Park, Louise Bonne of Jersey, Chaumontel, Beurré d'Amanlis, and Winter Nelis are noticeable as bearing better than others. Many of these are on walls. Plums are thin and poor on account of the fly that attacked them early in the season; they may be

about a third of a crop. Cherries are a fair crop in some orchards—the late varieties are better than the early ones. Of Gooseberries, Currants, Raspberries, and Nuts there are good crops, Gooseberries especially so, the trees being borne down with the weight of the fruit. In open orchards crops are not so plentiful. It is owing to the shelter and drainage that we are more favoured than others. We are on the Kentish rag and gravel, and the soil is a sandy loam; Peaches and Nectarines here are a full crop, due, I think, to my trees being on the east side of the walls where they escaped the cutting winds in April that came from the south-west.—A. WATERMAN.

Linton Park, Maidstone.—Fruit crops in this part of Kent are not good. First of all it should be remembered that last season was a most fruitful one, Apples in particular being over-cropped, and the hurricane which we had early in October not only did immense damage to the crop still hanging on many trees, but by tearing off the green, immature foliage indirectly injured this year's crop. Although Apple blossoms were sufficiently plentiful in most orchards this spring, those who took the trouble to examine them carefully were convinced that but few could produce fruits, even if our fickle climate proved propitious. Spring frosts were remarkably few and slight, but a continuous succession of wind prevailed for a very long period, not exceptionally cold, but dry and parching, culminating in the end of April in a gale that left its marks visible till after midsummer. Thanks, however, to the genial rains which we have had, the trees are fast making growth, and the foliage now looks healthy. On large orchard trees Apples are a very poor crop; in fact, only on Keswick Codlin, Stone's Apple, Graham's Russet, Red Quarrenden, Summer Golden Pippin, Irish Peach, and a few others are there any fruit. In gardens miniature trees or bushes, especially those on the Paradise stock, are much better cropped; these low bushes, planted about 10 ft. apart, escaped to a great extent the effects of the wind. Pears are the best crop of the year, common orchard kinds being generally well covered with fruit, that held on bravely through the storms, even where the foliage surrounding it was lacerated so much as to turn quite black on the windward side of the tree. Our best crops are on Sweetwater, a small early Pear; Green Chisel, Red Lammis, very pretty, but only keeps sound when ripe for a few days; Williams' Bon Chrétien, probably the best market Pear in cultivation; Windsor, a useful sort; Swan's Egg, Bergamot, Ashdown Park, and last, but not least, a new sort called Fertility (Rivers), an exceptionally prolific sort. On dwarf pyramids we have good crops of really good sorts of large Pears, and in sheltered spots I believe this mode of culture would pay well, especially in the case of keeping sorts. Nearly all our orchard kinds require to be eaten as soon as gathered, and, above all, the flavour of many kinds of Pear, of which I may mention the well-known Marie Louise, is richer from a standard or bush than from a wall; a good coating of russet is a good guide as to flavour. Cherries are a very variable crop. In some orchards they are very good and fine, but the continuous rains have caused the white varieties to split and rot very considerably; on cottage walls the Morello is again a very heavy crop, just now ripening, and the fruit is large and fine, the heavy rains supplying what wall trees most want, viz., plenty of moisture at the root. I may mention that in this locality Cherries do not succeed in low-lying, rich alluvial soils, but keep healthy and prolific for many years on the high ground where the soil is poor and strong. The best examples of Morellos I have ever seen are grown on cottage walls, built on what is called heath land that only a few years ago was quite barren. Plums, like Cherries, are very variable, but generally much below the average. The best this year, as in most other years, is Denyer's Victoria, or what is called, perhaps, more properly Royal Dauphin, a most useful variety for orchards or, indeed, for walls. The next best are Rivers' Early Purple, Early and Late Orleans, Diamond, De-la-Sue, Pond's Seedling, a very fine variety,

Cox's Emperor, and Autumn Compôte. Damsons and Bullaces are very thin as a rule, but in sheltered hollows there are heavy crops of that excellent sort, the Farleigh or Crittenden Damson, the branches of which are beset with masses of fruit. Bullaces are grown well here, especially Shepherd's, a variety which, under good culture, reaches a large size; they come in very late, and are useful for tarts or preserving. Many thousands of bushels are made into cheap Plum jam, and are hardly distinguishable from Green Gages. Gooseberries are thin where the foliage was destroyed last year by caterpillar, but good in gardens where vigorous measures for the destruction of that pest were adopted. Currants, Red and White, are abundant generally, but Black Currants, by far the most remunerative, are partial; the Black Naples is the favourite black variety, and Raby Castle and the Victoria are the kinds most generally grown among Red sorts. Raspberries and Strawberries are abundant, but the excessive rainfall has destroyed a good deal of the ripe fruit. Nuts promise to be a fair average crop, but drier and warmer weather is urgently required to fill up and ripen them. The Cobnut is superseding Filberts hereabouts. Our soil is stiff, adhesive loam, in low-lying portions resting on ragstone; hilltops light and stony fruit trees keep healthy for many years, probably owing to good drainage and the ragstone holding the superfluous moisture in readiness for periods of drought, therefore the trees never suffer from stagnant water or lack of moisture at the root. We are well sheltered from cold winds, north and east, by high ground, but this year the wind has been almost constantly blowing from south-west to north-west, and certainly, as regards fruit, we are not so well off this year as those who occupy the usually most ungenial positions; the northern and eastern slopes are the best cropped here this season. Wind is a greater enemy to fruit trees than frost.—JAMES GROOM.

SOUTH MIDLAND DIVISION.

Sawbridgeworth.—This is not a fruit growing district for market. Most of the orchards formerly attached to the farms are old and worn out, and have not been replanted. I have, therefore, no information to give as to the general crop of the parish. My own plantations of the Early Rivers Plum are producing very heavy crops, and the late rains have swelled the fruit so much, that I have been obliged during the last week to support nearly all the fruit-bearing branches. The Sultan Plum is also bearing abundantly, and young trees of The Czar are clustered so thickly with fruit that the leaves are hidden. I do not grow Apples for market, but I have a very large crop of Lord Suffield and Stirling Castle. The latter I consider invaluable; it does not make a strong standard, but the produce is enormous, and the first is in use for the kitchen between September and February. There is not an abundant crop of Pears, but I think the scarcity was caused by the destructive gale in the spring which literally here blew off both leaves and fruit.—T. FRANCIS RIVERS.

Ramsey Abbey.—The choicer kinds of wall fruit, such as Apricots, Peaches, and Nectarines, are this year abundant, but the Plums blooming later encountered a cold, stormy setting time, and many of them failed to set. We have a heavy crop on a north wall, but elsewhere the crop is light, though the blossom was abundant. We are pretty well sheltered from the east and north, but the west, from which our strongest gales came, is exposed. The soil hereabouts is well suited for fruit growing, being a mixed loam over the oolite clay, interspersed with beds of gravel. We have a fair crop of Apples, though generally the crop in this neighbourhood is light, and Pears are still in a worse plight. The Pears and Apples happened to open their blossoms during a nip of cold, frosty weather which we had about the end of April and beginning of May, and so they perished. The Codlins, as usual, have set the best, though Waltham Abbey Seedling never fails, and the Hawthornden and Kentish Fillbasket are con-

spicuous for their crops. The bright coloured Fearn's Pippin also shows up well. Cherries are very abundant; in fact, there are too many, for the flavour and size of the fruit are deteriorated in consequence. Bush fruits, such as Gooseberries, Currants, and Raspberries, are very heavy crops. I do not remember to have seen so many Gooseberries before; some bushes are bearing as many as two or three bushels each. The birds are having a fine time of it. Strawberries have been fine and plentiful, and Figs and Grapes are above the average this year. Nuts, especially Walnuts, are very thin. In some respects the season has disappointed us, for though the spring was unusually early, the summer is late; it is best for most things when they come in their proper season.

Potatoes are a fine crop, but there are complaints of the disease having made its appearance. —E. HOBDAV.

Cliveden, Maidenhead.—Of Apples we have none. Peaches and Pears out of doors are a very poor crop. All small fruit is excellent, but a good deal spoiled by the wet, particularly Strawberries.

Potato crops look well both in field and garden; early sorts are fine crops, and the tubers good in size. No disease has appeared as yet. —J. FLEMING.

Dropmore.—Fruit prospects in spring were good, but, owing to the cold, sunless weather, the blossom fell off, particularly in low, damp situations. The subsoil about here is red gravel, and the soil is light and gravelly, with the exception of a few places where there is good brick earth. Apples are a failure; Apricots good in places where covered in; Cherries not a heavy crop; Currants and Gooseberries abundant; Pears scarce; Plums tolerably good; Peaches rather scarce; Nectarines plentiful; Raspberries and Strawberries abundant; Nuts in most places abundant; Walnuts scarce. —PHILIP FROST.

WEST MIDLAND DIVISION.

Eastnor Castle, Ledbury.—An unusually mild winter and fine spring favoured our hopes of a good crop of fruit this season, and all went well up to the blooming period, when Plums, Cherries, Apples, and many kinds of Pears presented the most charming sight we have witnessed in this neighbourhood for some years. Cold winds and storms then became troublesome, one or two morning frosts touched early Plums and Cherries, myriads of insects sprang into life, and trees which a few weeks before looked so fresh and promising assumed a curled, fruitless, and in many places leafless form, when the loss of the crop became of secondary importance, as fears were entertained that so severe and persistent an attack would destroy many of the trees also. Fortunately, a dry winter had been favourable to the roots, and it is gratifying to be able to say that many of the trees are now making a clean, healthy growth of young wood which may yet aid in forming a fair set of fruit-buds if we are only favoured with a fine autumn. Pears on walls are a good half crop and some kinds require thinning. On pyramids, bushes, and standards the crop may be pronounced a failure. Apples, notably those which did not bear heavily last year, are in a few instances carrying moderate crops, but the fruit is late and small. Orchards, of which we have thousands of acres in this county, are a complete failure. Peaches and Nectarines are very heavy crops. The trees are clean and healthy, and all that is now wanted is plenty of fine, warm weather to ripen up the fruit and wood. A few fruits of Early Louise are just beginning to soften, but the best mid-season kinds cannot be in before September. Apricots are even more plentiful than Peaches, but the trees were rather badly infested with grub and the fruit is very much cracked and scored by the cold and wet. Plums in the open and against walls have suffered terribly, but they are now improving, and a few varieties will produce a little fruit if dropping, now rather prevalent, does not clear the trees. Of good kitchen Plums we have a

white kind called Gisborne's which never fails as a standard. Kirke's against walls is fruiting freely. Victoria, Golden Drop, Golden Gage, and the old Green Gage are making a great effort to carry on a light sprinkling of fruit, but the trees have been so completely paralysed, that we cannot expect them to go through the stoning process. Bush fruits, with the exception of Black Currants, are a good crop, and the fruit is fairly fine. Raspberries, too, are plentiful and fine, but deficient in flavour, and the weather, much as they enjoy moisture, has been too cold for the late flowers to set and swell away kindly. Strawberries, a heavy crop, are deficient in flavour, and soft kinds have been much injured by the incessant rain and want of sun. Late crops are just coming in and would be good if we could now have bright, dry weather. Nuts are plentiful. Walnuts are a failure. Figs which escaped the severe winter of 1880 are carrying nice crops of fruit. Spring shows will be late, if not useless. The following Apples are bearing good crops of fruit: Stirling Castle, Irish Peach, Keswick Codlin, Hawthornden, Golden Winter Pearmain, Claygate Pearmain, Lord Suffield, and Echlinville, a fine variety which never fails. Of Pears we have Josephine de Malines, Knight's Monarch, old Crassane, Beurré Rance, B. Clairgeau, B. d'Amanlis, B. d'Aremberg, Duchesse d'Angoulême. —W. COLEMAN.

Tortworth Court, Gloucestershire.—Speaking generally, fruit crops in this locality are very thin. Apples and Pears are a complete failure, dozens of trees being even without a fruit. They bore at one time strong, healthy blossoms, which did fair to produce a good crop; but owing to that tremendous gale in the end of April and myriads of caterpillars, the trees were for weeks quite leafless; consequently, we have now only a midsummer growth, which does not raise our hopes very high for the coming year's crop. Plums are very partial, thin, and inferior. Apricots, Peaches, and Nectarines abundant and promising; the trees had no protection. Cherries only half a crop. Strawberries and Raspberries abundant, but deficient in flavour, owing to too much rain and too little sunshine. Gooseberries and Currants likewise abundant. Nuts very thin.

In Potatoes the disease is spreading rapidly, and that before the tubers are half grown. We have practised for some time, and with great success, too, the drawing of the haulms on the first appearance of the disease, but the present season has so far baffled all our schemes and left us with a very large percentage of rotten tubers. Even Magnum Bonum is falling a prey to the disease this year. —THOMAS SHINGLES.

Attingham, Shrewsbury.—Apples here are very scarce and very thin generally, though occasionally a tree here and there may be seen bearing a full crop, and the same may be said of Pears. Apricots, Peaches, and Nectarines are a full average crop; Plums of all kinds very thin; Gooseberries, Currants, and Raspberries full crops; Cherries under average; Nuts average; Walnuts scarce—they were damaged by spring frosts. The soil in this garden is a good loam mixed with gravel, and we are sheltered on the east by a wood. —G. PEARSON.

Blithfield, Rugeley.—Fruit crops in this locality are very poor, owing to late frosts and hailstorms in spring. Apples and Pears are almost a failure. Apricots are a fair average crop.

Early Potatoes are very good, Royal Ashleaf and Myatt's being excellent. Late crops, too, look promising. —T. BANNERMAN.

Morningside, Kidderminster.—The crops hereabouts are almost a failure; amidst most profuse bloom, the greatest promise of a most productive harvest was foretold; but, alas, for the frosts and blight; nearly everything was taken, the smaller fruits, Gooseberries, Currants, Strawberries, being the only exception. Apples, Pears, Plums, Peaches, and Nectarines are almost nil. The best bearers here among Apples are Lord Napier, Echlinville Seedling, and Dumelow's Seedling, but these are only a small crop. Irish

Peach, Cox's Orange Pippin, Ashmead's Kernel, Melon Apple, Mannington's Pearmain, Kedleston Pippin, Ribston Pippin, Cox's Pomona, and Gravenstein are doing a mere nothing. By the by, there are a few Sturmer Pippin and Duchess of Oldenburg, each bearing a little. Of Pears, Bon Chrétien, Mdle. Treyve, Louise Bonne of Jersey, Beurré Bachelier, and Easter Beurré are bearing a little, but Jargonelle, Beurré Giffard, Beurré Superfin, Marie Louise, Conseiller de la Cour, Pitmaston Duchess, Doyenné du Comice (a Pear well worth waiting for), Beurré d'Aremberg, and Winter Nelis are absolutely doing a mere nothing. Plums are a dead failure. There are a few Plums on Victoria, Mitchelson, Coe's Golden Drop, Prince Englebert, Early Prolific, and Cluster Damson, but the general Plum crop is a failure, and many of the trees have been badly blighted and some quite dead. Peaches and Nectarines out of doors have a little fruit, especially Royal George, Grosse Mignonne, Noblesse, Lord Napier, Balgowan, and Downton, but the incessant wet weather is against their ripening. Under glass, on the other hand, these and other fruits, together with Grapes, are in perfection. All kinds of Strawberries have been plentiful and good. If I were to particularise any I should say that Countess, Alpha, Amy Robsart, Early Crimson Pine, Marshal McMahon, and Gipsy Queen were among the best. The soil hereabouts is light on a gravelly subsoil, and takes a quantity of rain off. The wet weather has suited the Strawberries well. —W. RODEN.

Witley Court, Stourport.—In this locality fruit crops are very variable, but generally unsatisfactory. Apples, Cherries, Pears, and Plums are for the most part a failure; only in exceptionally favoured situations is anything approaching a crop to be seen. Up to May there was great promise of these fruits being abundant. The great profusion of blossom and general appearance of the trees betokened an abundant supply, with the exception of Pears, which flowered irregularly and thinly. Such as bore heavy crops last season, even upon walls, such as Marie Louise, having scarcely a bloom on them, thus clearly showing that over-cropping is an evil. Plums in particular have suffered severely from prolonged easterly winds and cold, frosty nights, which checked growth and encouraged blight and fly; even branches in some cases are dead and leaves crumpled up. Apples are upon the whole very thin. The sorts here that are bearing crops are King of the Pippins, Worcester Pearmain, Kerry Pippin, Ribston, Tower of Glamis, Echlinville, always a sure cropper; Yorkshire Greening, Keswick Codlin, and a seedling Codlin of first cooking quality and good appearance, a hardy kind and excellent bearer. Cherries are a very thin crop and partial; the Kentish is bearing an average crop. Pears are a very poor crop. Of Apricots we have plenty, and the same may be said of Peaches and Nectarines. Many of our old Peach trees show signs of being permanently injured by the severe seasons which we have had, but young trees are luxuriant and clean. Strawberries are an average crop; those that are bearing best are Keen's Seedling, John Powell, Lucas, President, the most reliable of all; Sir J. Paxton, Sir C. Napier, Dr. Hogg, and British Queen. Gooseberries are a very heavy crop, and so are Currants, but Black Currants have suffered from blight. Raspberries are abundant. Filberts an average crop.

The Potato disease is spreading in this neighbourhood; I see traces of it on the early sorts; the wet weather we are having is conducive to its spread. —GEO. WESTLAND.

NORTH MIDLAND DIVISION.

Welbeck.—Apricots here are a very fine crop, and some are now ripe; all are protected with glass. Apples are about an average crop. Peaches and Nectarines nearly an average crop, and the trees are and have been healthy and free from insects. They were protected with netting. Pears are almost a failure. Of Plums we have scarcely any. The trees, both on walls and as pyramids, have been badly attacked with aphides. Cherries are much under an average crop. Goose-

berries and Currants are bearing good crops, but both trees and fruit are much injured by aphides. Of Raspberries we have a good crop, and the canes are healthy. Filberts very scanty, and the trees are much infested with a yellow aphid. Strawberries have been an average crop.—**RICHARD CARR.**

Thoresby Park, Ollerton.—Early in spring we thought we would have an abundant fruit crop, as every tree and bush was literally covered with bloom, but May brought cold, wet, sunless days with a very low night temperature, and the result was blight and swarms of insects on most things, especially Currants, Cherries, and Plums. Apricots are a good crop. They are under a 2-ft. wide glass coping, with thin scrim cloth hung from it to the ground. This was kept on until all danger from frost was over. Apples are a fair average crop. **Keswick Codlin**, Aitken's No. 2, **Stirling Castle**, **Nelson's Glory**, **Blenheim**, **Duchesse d'Oldenburg** are bearing the best crops. Pears and Plums are all but a failure both on walls and standards. Cherries are an average crop, and what we have are good. Gooseberries, Strawberries, and Currants are abundant and fine. In the fruit districts around here there are plenty of small fruits, but there are loud complaints concerning Plums, which are said to be all but a failure. Pears are much the same; while Apples are in some places a fair average, but not generally a good crop.—**A. HENDERSON.**

Kingston Hall, South Notts.—Small fruits are abundant with us, particularly Strawberries. Lucas has proved to be our best kind this season. The other varieties are **Black Prince**, **Vicomtesse Héricart de Thury**, **Sir C. Napier**, and **Elton Pine**. **Black** and **Red Currants** are heavy crops; they were rather troubled with blight in the first part of the season, but the heavy rains of June and July have completely cleaned the fruit. Raspberries are a fair crop. Our soil being rather heavy, the hot July of last year rather hindered the growth of the young wood; otherwise we should have had a good crop. Gooseberries are excellent, and the bushes clean and free from caterpillar. Apples are a fair average crop, **Keswick Codlin**, **Lord Suffield**, and **Northern Greening** being heavily laden. Pears are not a heavy crop; **Winter Nelis**, **Louise Bonne of Jersey**, and **Glou Morceau** are our surest croppers. Of Plums we have a fair sprinkling; Peaches on walls are an average crop, and the same may be said of Apricots. Both are very much crippled through the severity of the last few winters. Figs are only just recovering from their effects, and from them we will not have any fruit.—**J. W. BAYNE.**

Belvoir Castle, Grantham.—An illustration has again been afforded by the present season's blighted fruit crop of the consequences that too often follow a mild winter and a forward spring. Vegetation was active at an early period of the year and fruit trees blossomed freely and well, but the third day came with nipping frosts and chilling winds, and all progress in the majority of cases was crushed; and the blighting influence of insects followed, as it always does when trees are weakened, and the hopes of the fruit grower were dashed to the ground. A cruel frost on the night of April 15 destroyed the early Plum and Pear blossoms and the forward Apricots. The set of fruit was so abundant on Apricots, that enough for a crop escaped sheltered by overhanging boughs and evergreen branches; but Pears suffered so severely that the crop may be pronounced a complete failure—the worst I ever knew. Plums are thin, but **Jefferson** and **Victoria** will afford a small supply. The Peach, which is generally delicate and difficult of management on our deep clay soil, has continued healthy, and the crop is very satisfactory. The Apple crop varies with position, a very fair produce being found on trees in a sheltered orchard.—**Blenheim Orange** and **Normanton Wonder** bearing abundantly, while the promise from orchards less favourably situated is very meagre. Cherries are miserably blighted and the crop mostly lost. The black-fly assailed the trees in such a way that cleansing was almost impossible. Green-fly attacked the young growing shoots of

Gooseberries and Currants, and an abundant crop is somewhat damaged and reduced and the trees disfigured by the attack of this pest. The crop of Raspberries was moderately good, and that of Strawberries sufficiently abundant, but the quality proved inferior, owing to the frequent rains and sunless days.—**W. INGRAM.**

Cole Orton, Ashby-de-la-Zouch.—Fruit crops here are deficient, owing chiefly to the sharp frost which we had during the blooming season. Apples are thin and the leaves very much eaten by grub. Pears are a total failure, and Plums, with the exception of **Victorias**, are also a failure. Peaches are a very good crop, and the trees are clean and healthy; when in bloom they were protected with Yew boughs. Apricots are a light crop. Cherries blossomed well, but the crop, with the exception of **Morellos** on a south wall, is but a light one; all of them have been greatly infested with aphides. Currants are a heavy crop; also Gooseberries, and the latter are very free from caterpillar this year. Raspberries are but a thin crop. Strawberries, especially **Sir Joseph Paxton**, have been very good.—**G. C. MAYNARD.**

SOUTH-WESTERN DIVISION.

Wilton House, Salisbury.—Apples bad, especially on standard trees. The crop on dwarf bush trees, although poor, does not appear to have suffered so severely from those causes which have destroyed the crop on the standards. Apricots are a fair crop where protected by glass coping and netting; where not so protected there are none. Cherries are a fair crop on south walls, but poor on east and west walls, although protected. Currants good, especially **Black** kinds, trees sickly and yellow, caused by cold winds and rain. Figs and Gooseberries fair crops. Peaches and Nectarines good crops, but the trees are suffering severely from the present unseasonable weather. Nuts and Filberts are good. Pears a light crop, fruit much blighted and deformed. Plums bad, except where protected on walls. Walnuts very bad. Raspberries abundant.—**THOMAS CHALLIS.**

Merriott, Crewkerne.—Our Apple orchards, the finest perhaps, in England, are, I may say, a complete failure. Only a few sorts have been able to withstand the gale in April; of these the best is **Tom Put**, at least amongst my trees. This fine Apple, which is a great and constant bearer, yields also handsome, well-coloured, long-keeping fruits, good both for cooking and dessert. There are three sorts of this fine Apple, viz., **Old Tom Put**, **Spicy Tom Put**, and **Colbrook Tom Put**. But the **Old Tom Put** outdoes the others in bearing. **Spicy Tom Put** is very handsome. **Keswick Codlin** has in a great measure resisted the gale, and these are all the Apples I think we can boast of. Nearly all sorts of trees hereabouts have been sadly defoliated, and without leaves it is useless to expect fruit. A few Pears on Quince stocks are bearing thin crops. **Knight's Monarch** is the only sort that has a good crop of it. This is the case with every tree of this sort. On **Hazel Pears** there is a middling crop. **Broom Park** is producing a fair crop, and there are about forty sorts that have very thin sprinklings upon them. Plums in many cases set well, but from want of foliage nearly all have dropped. Gooseberries, Currants, Strawberries, and Raspberries are simply wonderful crops, especially the first; the bushes are bent to the ground with their loads of fine fruit.

Potatoes all round this part have nearly all gone black, and many of the small tubers are diseased. Peas are an extraordinary crop, **British Queen** being 9 ft. high, strong, and well furnished with pods. We are situated in the midst of a lovely valley; our soil is a light friable loam, with light sandy sub-soil to a depth of at least 70 ft., the greatest depth I have dug for water. Our supply percolates from a range of chalk hills that lie between us and the sea.—**JOHN SCOTT.**

Cothelstone, Taunton.—Apricots are abundant and the trees healthy. The **Moorpark** and **Hemskirke** are the kinds principally grown. Peaches and Nectarines are good in many gardens; there is hardly so much blister on the

leaves as in some years. Pears are a poor crop and I think there are more late ones than early kinds. Our most fruitful trees are **Winter Nelis**, **Beurré Diel**, and **Beurré Rance**. There are but few Apples in orchards, but a fair crop in some gardens on pruned trees, especially of such sorts as **Celini**, **Hawthornden**, **Keswick Codlin**, **Lord Suffield**, **Blenheim Orange**, and **Cox's Orange Pippin**. Plums are partial. There are good crops in some gardens of **Victorias**, **Kirke's**, purple and white **Magnum Bonums**, **Coe's Golden Drop**, and a fair sprinkling of **Green Gages**. Damsons are scarce. Strawberries have generally been a good crop, but much damaged by rain. Raspberries have been an average crop. In most cases Gooseberry and Currant trees are breaking down with their load of fruit, which is large and free from blight. Figs are plentiful; in fact it may be rightly called a Fig year. Nuts of all kinds are scarce.—**J. C. CLARKE.**

Sherborne Castle, Dorset.—The Apple crop in this neighbourhood is almost a failure. The following sorts will give us a small supply—viz., **Lord Suffield**, **Keswick Codlin**, **Dutch Magnonne**, **Blenheim Pippin**, **Kerry Pippin**, **Yellow Ingestrie**, and **Golden Winter Pearmain**. Pears are very thin, and what few there are will be very inferior fruit. Our Apricots are the heaviest crop we have had for many years past. Cherries do not do well in this locality, with the exception of **Morellos**, and of these we have had a good sprinkling. Plums are very thin, except in sheltered spots, where the **Victoria** may be found heavily laden. Peaches and Nectarines are good crops; Figs a very fair one; and Gooseberries, Currants, and Raspberries we have in abundance. Strawberries have been very plentiful, grand in size, but poor in flavour. President stands first favourite about here for outdoor crops, and **Vicomtesse Héricart de Thury** for forcing. Filberts are plentiful; Walnuts somewhat scarce.

Potatoes are badly diseased, in many instances the haulm having quite disappeared. **Scotch Champion** and **Magnum Bonum**—two varieties considered proof against disease—have fallen victims to it this year.—**W. G. PRAGNELL.**

Powderham Castle, Exeter.—Our fruit prospects were at one time very promising, but the cold uncongenial weather which prevailed late in spring and early in summer proved destructive to the Apple crop, which is a complete failure. Pears on walls are good, especially **Williams' Bon Chrétien**, **Louise Bonne of Jersey**, **Marie Louise**, and **Moorfowl's Egg**; on bush and standard trees they are very scanty. Of Peaches and Nectarines we have a medium crop; the trees where exposed to the cold easterly winds during the early part of the season were sadly bereft of their foliage, thereby damaging the crop seriously. Apricots are considerably above the average; every bloom seems to have become a fruit. We gathered a few fruits of **Moorpark** on the 13th instant. Plums are a medium crop on walls, but there are very few on pyramids and standards. As regards Cherries, early varieties, such as **May Duke** and **White Heart**, are excellent, as are also **Black Eagle** and **Bigarreau**; **Morellos** are a splendid crop, and fine individually. Figs are very promising, and will be a treat after having lost the crop of the last two years, owing to the severity of the winters. **Black**, **Red**, and **White Currants** are very good. Gooseberries, too, are abundant, and very fine, but the late rains are causing them to split very much. Though Raspberries made good canes, and ripened their fruit well, nearly half of them refused to break, and consequently there is only about half a crop of fruit. I believe that many gardens in Devonshire are much the same this season. I fail to discover the cause, and should be glad if someone could enlighten me in respect to it. Medlars are a fair crop, and Mulberries are plentiful. Strawberries have been fine crops; **Sir Joseph Paxton** is the principal one we grow. **Elton Pine**, a fine late variety, is just coming in. A good batch of Pines is grown on a north border, which prolongs our Strawberry season for several weeks. Early Strawberries were cut up very much by the cold weather late in spring.

Potatoes are smitten with the disease to an alarming extent, the continuous rains being favourable to its development. With us the stems of Myatt's and Veitch's Ashleaf, Beauty of Hebron, Schoolmaster, International, Trophy, Prince Arthur, and Covent Garden Perfection are almost destroyed, but up to the present the tubers are not affected. In the immediate neighbourhood, however, the tubers of the Early Rose and other varieties are very much affected indeed, and great fear is entertained for the late kinds, such as Red-skinned Flourball, Champion (Scotch), White Rock, and Patterson's Victoria, all of which so readily become diseased. Suttons' Magnum Bonum seems the only one fit to brave its attacks. I have never seen it in this variety, although I have grown it for the last seven years. It is this year grown very largely, especially by the farmers, not only because it resists the ravages of the disease, but also for its good quality.—D. C. POWELL.

Longford Castle, Salisbury.—The wind wave which swept over the country on the 29th of April last marred the most promising prospect of an all-round fruit crop that we have had for many a year. However, in this district, excepting Apples, which are almost a failure, and Pears and Plums, which are below the average, the fruit crop may be pronounced a good one. In our 4-acre orchard, situated nearly a mile from the kitchen gardens, we shall not, I think, be able to gather a sack of Apples this year, as against 150 last year. The soil is a light loam upon a gravelly subsoil, and the aspect, which is partly exposed on every side except the south, is a pretty favourable one. In our kitchen gardens the following varieties (standards and horizontally trained trees) are carrying good crops—viz., Keswick Codlin, Lord Suffield, Quarrenden, and Christie's Pippin. Morello Cherries are a very heavy crop, and Peaches, Nectarines, and Apricots good crops. These are protected from spring frosts by cloths fastened to strips of wood screwed on to upright poles fastened to holdfasts driven into the walls, and lowered and raised evening and morning by means of a series of ropes and pulleys. The following varieties of Pear are bearing fairly good and some heavy crops—viz., Josephine de Malines, Easter Beurré, Chaumontel, Glou Morceau, Ne Plus Meuris, Louise Bonne de Jersey, Beurré de Capiaumont, Duchesse d'Angoulême, Winter Crassane, Marie Louise, Passe Colmar, Catillac, Jargonelle, Knight's Monarch, Beurré Rance, and Dunmore; of Plums—Orleans, Jefferson's, Reine Claude Violette, Kirke's, Pond's Seedling, Dennison's Superb, Green Gage (under average), Mitchelson's, Fonthill, Mirabelle Jaune (a small white variety had from Germany some time since, and which on both an east and south-western aspect is heavily cropped), Coe's Golden Drop, Drap d'Or, Red Magnum Bonum, Prince Englebert, and Denyer's Victoria. The crops of small fruits—Gooseberries, Currants, Raspberries, and Strawberries—are very heavy, but, owing to so much rain, and, consequently, the absence, or nearly so, of sunshine, they are wanting in flavour. Cobnuts, too, are very plentiful.—H. W. WARD.

Clevedons, Lyme Regis.—The fruit crops in this neighbourhood are decidedly below the average. Plums and other fruits flowered most profusely, but the severe gale and cold winds of April damaged the blossoms and trees so much that we have really no Apples or Pears. Plums and Cherries are also scarce. Bush fruits, such as Currants, Gooseberries, and Raspberries, are an average crop. Strawberries, too, have been plentiful, but from want of sun the flavour has been deficient. The month of June was wet and rainy, the fall here being 4.36, about 2 in. more than the average of the last twelve years. In July also up to 18th inst. we registered 3.02 in., the average of this month for the last twelve years being 2.47 in. It is this amount that has been especially injurious to the

Potato crop, which gave promise of extraordinary productiveness; but the dreaded *Pero-nospora* made its appearance some eight or ten days ago, and most of the crops are now badly

diseased. Early and late varieties seem to have suffered alike.—H. MUNRO.

Mount Edgecumbe, Devonport.—In this neighbourhood Peaches, Nectarines, and Plums are an average crop; Strawberries, Raspberries, and Currants a medium crop; Gooseberries abundant; Apples, Pears, and Cherries almost a failure. The severe storm we had on the 29th April, where exposed, not only destroyed the blossom, but in many instances so punished the trees that they cannot possibly recover this season. Our fruit gardens have a north-westerly aspect, and are very much exposed to storms from that quarter.—GEO. BRIGHTON.

Prideaux Place, Padstow.—Our fruit prospects this year were quite upset by the gale on April 29. At that time vegetation was in a very forward state, and all kinds of fruit trees looked remarkably well, but in a very few hours all this became changed; the foliage had the appearance of having been scorched, and many trees had not a green leaf left on them. The gardens here slope to the south, and cannot be said to be well sheltered. The soil is a light loam of good depth, the subsoil being composed principally of a soft, slaty stone, which drains the soil quickly. Bush fruits and Strawberries are the most profitable crops grown in this neighbourhood, as they do not suffer so badly as trees from high winds. Raspberries are suffering badly from the heavy rains. We have not had two consecutive days without rain since Whit week. Of Raspberries and Strawberries we have an average crop; Peaches and Nectarines are good where sheltered on south walls, all other aspects bad. Currants are not quite an average crop. Gooseberries (with the exception of Astons or Warringtons), Pears, Apples, Cherries, and Medlars are all under the average.—JOHN C. TALLACK.

Enys, Penryn.—The Apple crop hereabouts may be said to be a failure, yet on dwarf, well-pruned trees are seen here and there good crops. Both the trees, however, of this character and the crop are exceptions. Pears as a rule are better, but not a full crop, nor even an average one in most places. Plums are an average crop in some places, but mostly under the average. Concerning Cherries the same remark may be made. Of all kinds of small fruits the crops are good. In some places, however, Gooseberries suffered from frost, but this was not general. Owing to the mild winter there are good crops of Figs out-of-doors. Peaches and Nectarines good, but unless the present weather alters, these fruits, like all others already ripe, will be flavourless. We have rain continually. Potatoes (early ones) have gone bad, and late ones are blackened with the disease.—HENRY MILLS.

NORTH-WESTERN DIVISION.

Crewe Hall.—Fruit crops in this neighbourhood generally are not good, but there are exceptions in some situations and in the case of particular varieties. Our soil is a good, friable loam and we are rather too much shaded by forest trees. This season promised well as regards good fruit crops, but the frosts, cold winds, and low temperature generally of April, May, and part of June destroyed a large proportion, and in some cases nearly all the flowers and young fruit just formed. Up to this time there has been a great deal of rain and an absence of sunshine, so that fruit trees and, indeed, vegetation generally are not promising. Apricots on walls, protected when in bloom at night by means of canvas coverings, are a moderate crop, but on Peaches and Nectarines under the same treatment there are very few fruits. In an orchard house or cool Peach case we have very good crops of Peaches and Nectarines planted out and Plums and Cherries in pots. Of Apples and Pears, both on walls, pyramids, and standards, there are none on many trees, a few on some, and good crops on a small number. The sorts of Apples which are bearing best are Irish Peach, Worcester Pearmain, Pott's Seedling, Cathead, Nelson's Glory, Keswick, and Minchal Crab; and of Pears, Citron des Carmes, Marie Louise, White Doyenné, Beurré d'Amanlis, Winter Nelis,

and Easter Beurré. Of these there is a moderate crop. Of Plums there are moderate crops on Victoria, Kirke's, and a locally raised, large kitchen Plum called Thornhill's Crewe Seedling. Of Damsons, which are largely grown in this neighbourhood, there are very few. Cherries are a moderate crop, the best being May Duke, Empress Eugénie, and Morello. Gooseberries, Red Currants, Strawberries, and Raspberries are under the average, and Black Currants a very small crop. On the whole the fruit crops in this district are much under the average.—WM. WHITAKER.

Oulton Park, Tarporley.—This is anything but a good fruit season, owing to the continuous downpour of rain and absence of sunshine. In this locality Apples and Pears never do well, the soil being of too sandy a character. Plums (Damsons especially) are a speciality in the neighbourhood. This season they are a total failure. There was a splendid show of bloom which was ruined by spring frosts. Of Apricots we have a fair sprinkling, something extraordinary for these gardens, in which there is scarcely ever an Apricot. Cherries are a very fair crop, especially Morellos. Of Apples and Pears nothing need be said; we have shared the general fate. Of Nuts we have a few. Strawberries have been a splendid crop, but unfortunately a quantity has rotted, the result of the wet. The firmer varieties, such as Sir Joseph Paxton and Sir Charles Napier, withstand the wet better than the softer varieties, such as James Veitch and Vicomtesse Héricart de Thury (Garibaldi). All sorts of Currants and also Gooseberries are good crops. Peaches will scarcely drag on an existence out-of-doors. Blight, for which Tobacco water is a sure remedy, has been sadly destructive to fruits of all kinds. We are very free from the Gooseberry caterpillar.—H. WARD.

Waterdale, St. Helens.—Sharp frosts, combined with cold damp weather during the blooming season, have completely destroyed all our stone fruits, except a few Morellos in favoured situations. Pears suffered the same fate; there is just a sprinkling here and there on the walls not worth mentioning. Lord Suffield and Keswick Apples are the best of a poor lot; Hawthorndens and Nelson's Glory come next. Bush fruits are plentiful, but small and poor. Strawberry crops are good generally; Empress Eugénie is carrying the heaviest crops, but it withstands damp badly; Vicomtesse Héricart de Thury and President are small through want of warmth; Sir Joseph should be awarded a certificate of merit for its general good character in enduring damp weather.—JAMES SMITH.

Haigh Hall, Wigan.—This is probably one of the worst climates in England for the cultivation of outdoor fruits; consequently, the area devoted to hardy fruits is not extensive, and I do not think it is likely to be increased. The crops this year are worse than they have been for the past ten years. The blossom on Pear trees was scanty, and there is absolutely no fruit. Apples are very scarce, and the trees present a blighted and miserable appearance. On Lord Suffield, Cellini, Small's Admirable, Keswick, and other Codlins there are a few. Plums, except Victorias, are a failure; Cherries very few and small; Strawberries a fair crop, but they have suffered from the continuous and heavy rainfall of the past two weeks. Black Prince, Duc de Malakoff, Vicomtesse Héricart de Thury (Garibaldi), and Newtown Seedling succeed best in this locality. Gooseberries are an average crop and free from caterpillar; Black and Red Currants, where sheltered, are good; Raspberries plentiful. The Fig, Peach, Nectarine, and Apricot do not succeed on open walls in this locality.—ANDREW JAMIESON.

YORKSHIRE.

Wortley Hall, Sheffield.—The promise held out in spring has not been fulfilled. Of Pears there are none, and Apples are not plentiful. The same remark also applies to Cherries and Plums; Raspberries were badly injured by late frosts; Strawberries abundant, but the fruit is much damaged by wet; Gooseberries very good; also

Currants, Peaches, and Nectarines (under glass screens) plentiful and good. The weather during June and July so far has been cold and wet.—J. SIMPSON.

Stourton Castle, Knaresborough.—Fruit crops here and in this neighbourhood are in general very light. Pears are a complete failure, standard, pyramid, and wall trees being all alike in this respect. Plums are very light. There are some Victorias, Mitchelson's, and a few of the common sorts in some places. Apples are in general light, particularly late kinds. There is a moderate crop in some places of Keswick Codlins, also of Manks Codlin, Cockpit, and other kinds; Cherries are only a moderate crop; Peaches on the best trees here are a fair crop; Apricots are only a moderate crop. The trees suffered much from the unfavourable seasons which we have had of late years. Bush fruits are moderate crops. Gooseberries are plentiful, but Currants and Raspberries are small. Strawberries in general have been a fair crop in this neighbourhood, Keen's Seedling being plentiful; President and Elton Pine showed abundance of bloom which was starved through wet and cold. Heat and sunshine are much wanted to ripen not only fruit, but the wood and buds for another season.—M. SAUL.

Ribston Hall, Wetherby.—Fruit crops in the gardens here and neighbourhood are as follows: Apples, Plums, Pears, Cherries, Nectarines, and Peaches very light crop; Gooseberries, Strawberries, and the three sorts of Currants very good. Our fruit garden lies well to the south, and is protected on all sides. The soil is light and well drained, and in ordinary seasons very productive. I attribute our light crops of Apples, Pears, Plums, and Peaches to the very bad ripening weather which we had last autumn. We had a good show of bloom this spring, but it was poor and weak. The sorts of Apples that are showing a little fruit are Bridgewater Pippin, Ribston Pippin, Keswick Codlin, Manks Codlin, King of the Pippins, and Kerry and Sturmer Pippins. Pears are all alike, a fruit here and there; Plums the same; the Victoria is the best. Of Cherries we have a fine lot of Morellos, but all other sorts are scarce.—THOMAS JONES.

Brantingham Thorpe, Brough.—This place is situated on the chalk of the Yorkshire Wolds, 200 ft. above the sea; consequently in spring we suffer from cold, easterly winds and sea fog. Apples, Pears, and Plums are very light crops. Apples that succeed best are Keswick Codlin, Lord Suffield, Dutch Mignonne, Cellini, Golden Noble, Bedfordshire Foundling, and Dumelow's Seedling. Of Pears, Hessele is the principal kind grown in orchards; on walls, Williams' Bon Chrétien, Louise Bonne of Jersey, Marie Louise, Brown Beurré, Winter Nelis, Bergamotte d'Esperen, and Josephine de Malines I find succeed the best. Cherries and Plums are fearfully pestered with aphides, and they are bearing very little fruit. Peaches, Nectarines, and Apricots are scarce. Strawberries, Raspberries, Gooseberries, and Currants abundant and fine in size, but deficient in flavour, owing to the dull, damp weather we are having and want of sunshine. Filberts are a fair crop.—ROBERT C. KINGSTON.

Thorpe Perrow, Bedale.—The Apple crop in this neighbourhood is very deficient, about the worst I have ever known. Pears, too, are no better; in fact, the trees were so much injured by the storm of hail and wind which occurred early in May, that it will take a long time before they recover. Bush fruit of all kinds is very abundant and good, except in some places where it is half spoiled through the greenfly. Strawberries have been very plentiful, but much damaged by the constant rains which we have had. Raspberries, too, have suffered; out of the first twenty-one days in this month, seventeen have been wet more or less. I spoke well of Baumforth's new Raspberry last year, and I can again confirm all that was then said of it.—WILLIAM CULVERWELL.

Baldersby Park, Thirsk.—All bush fruits, such as Gooseberries, Currants, and Raspberries, are abundant and very fine. Strawberries are

the largest crop we have had for years. Cherries a fair crop. Plums, Apples, and Pears are a long way under the average; all the trees were abundantly furnished with blossom, but the late frosts sadly marred our prospects. Apricots are a good crop on walls. Peaches do not succeed in the open air here except in a few favoured localities, but under glass they are very good.—THOMAS ROWLANDS.

NORTHERN DIVISION.

Eden Hall, Penrith.—Of Pears hereabouts we have very few indeed, and Apples are much below the average. Plums, Cherries, and Filberts are a moderate crop. Apricots and all kinds of bush fruits are average crops. Strawberries and Raspberries are very good. Late spring frosts greatly changed fruit prospects in this neighbourhood.—J. BUSBY.

Seaham Hall, Sunderland.—Soil, various on limestone. Apples, inferior crops; the only sorts that are bearing any are Lord Suffield, Hawthornden, and a sort not known that blossomed very late; this is bearing a good crop. As to Pears, only here and there can a fruit be seen. We are too near the sea for Pears. Of Apricots, Peaches, and Plums we have none. Strawberries plentiful. Gooseberries and Currants abundant. Cherries very scarce.

Potatoes look well and show no disease at present.—R. DRAPER.

Baby Castle, Darlington.—Apples here are scarce; Pears almost a failure, except Louise Bonne of Jersey, of which we have plenty both on walls, espaliers, and standards. Peaches and Nectarines are not grown on open walls here. Apricots are a light crop; Plums, like Pears, are almost a failure with only a single exception, viz., Victoria, which is, however, only moderately good on walls; Damsons are also quite a failure. Of Cherries, both sweet and Morello, we have very few, and the trees are much blighted and the fruit deformed. Figs are not grown here on open walls; Gooseberries are plentiful; Currants of all kinds light, and the bushes very much blighted and in some cases almost leafless. Of Raspberries we have plenty, but the fruit is small. Young canes for next year a good deal stunted through aphides. Strawberries are plentiful and very fine. At the setting period we had sharp, dry east winds by day, and at night frosts varying from 2° to 3°; to these and bright sunshine in the mornings we owe our present deficiency of fruit. One remarkable instance worthy of notice is a row of Apple trees running from east to west; the two most easterly trees, sheltered by a wall and high Beech trees, are literally weighed to the ground with fruit, while on all the rest there are only a solitary few, thus showing that if the early sun were kept off the frozen blossoms there would be a crop.—RICHARD WESTCOTT.

Castle Gardens, Alnwick.—Wall fruits generally are scarce hereabouts, with the exception of Apricots, which are bearing good crops—doubtless through their making growth early and maturing the wood before the rain set in last autumn. Peaches and Nectarines on open walls scarce, but the trees are now growing well after a severe contest with insects during the spring. Of Pears we have scarcely any. Plums and Cherries bloomed freely but weakly, and the result is light crops. Apples are scarce. Lord Suffield, Gloria Mundi, Pott's Seedling, Keswick, and Manks Codlin are a few of the best kinds for this district. Of bush fruits we have average crops, but Gooseberries and Red Currants are much infested with fly. We have cut the tops off the former and burnt them. Raspberry canes received a severe check from cold winds the third week in June, which quite shrivelled the leaves on the tops of the canes. They are, however, bearing an average crop. Strawberries are a heavy crop. In this district runners are allowed to cover all the soil; by this method a heavy crop is obtained, but the fruit is smaller than that produced by the single plant system. President McMahon and Sir Joseph Paxton are our best varieties.—GEORGE HARRIS.

EASTERN DIVISION.

Woolverstone Park, Ipswich.—It is very remarkable that the more tender fruits are the most plentiful this year, a circumstance attributable to the fine weather which we had in March, when Peaches and Apricots were in flower, and having set well they were able to bear the cold that came afterwards, and which was fatal to much of the bloom of Plums, Pears, and Apples. These are in consequence thin, poor crops throughout this district, except in isolated cases, where the trees are much favoured as regards shelter. Even the Plums are crippled by the attacks of aphides, which have curled the leaves to such an extent, as to quite stop the growth of the shoots. Strawberries have been very abundant and fine, and Gooseberry and Currant bushes are laden with fruit, but Raspberries suffered a good deal from the severe gale that passed over the country in the end of April. The only full crop of Apples we have is on the old Keswick Codlin, always a very free-bearing sort. Apricots that do best with us are the Peach and Hemskirke, which this year are studded all over with fruit. Cherries have been large and fine, but the dessert kinds are splitting and spoiling from the wet, which has caused great numbers to rot. The soaking, however, is suiting Morellos, which are swelling fast and promise to attain a large size. The soil in this part of East Anglia is light, resting on sandy gravel, and is therefore not adapted to grow good Apples and Pears.—J. SHEPPARD.

Henham Hall, Wangford.—We had a nice set of Plums, but many have since been crippled with blight, which has spoilt the crop; some Victorias that escaped are carrying good crops. Apples will average about half a crop, many trees carrying just a sprinkling; Keswick Codlins and Wellingtons are laden. Of Pears we have but few. Apricots, though early in bloom, and experienced heavy storms of sleet and hail, are carrying good crops, a remark which also applies to Peaches and Nectarines on open walls. These and Apricots we protect with blinds in spring. Cherries are only a thin crop. Strawberries were abundant and fine, but deficient in flavour, owing no doubt to so much rain. Of Gooseberries and Currants of various kinds and Raspberries we have had an abundance. Figs on walls are carrying good crops, and the fruit promises to be fine. Walnuts and Filberts are a fair crop.

The Potato disease is playing sad havoc in cottage gardens in this neighbourhood.—G. W. EDEN.

Hardwicke House, Bury St. Edmunds.—Apples hereabouts are very scarce, and the trees are much punished by maggots. Pears also are thin, a few here and there only. Plums are almost a failure, Gages especially being scarce. Of Peaches and Nectarines we have fair crops. Apricots are an average crop. Cherries a fair crop. All sorts of bush fruits and Raspberries a full crop, Gooseberries being so numerous as in many cases to break down the bushes. Among Currants, Black is more heavily laden than Red or White. The crop of Strawberries is somewhat irregular, but generally good. The dripping weather has extended the season considerably, causing the fruit also to swell well. Slugs are especially troublesome and numerous this year.—D. T. FISH.

WALES.

Castle Gardens, Cardiff.—Fruit trees in this locality never looked better than they did this spring. Apples, Pears, and Plums, both standard, pyramid, and trained trees in open quarters and on walls, were covered with bloom, and promised well for an abundant crop. The fruit had set on many of the Pear trees and was swelling freely, when the destructive storm of April 29th came, and blasted everything before it. Apples and Pears are a failure in this district. Peaches, Nectarines, and Apricots plentiful. Plums none; trees much infested with aphides and black smut. Strawberries, Raspberries, Red, White, and Black Currants plentiful, but greatly

injured through the prevailing wet weather.—A. PETTIGREW.

Castle Malgwyn, Pembrokeshire.—Fruit crops this year are under the average. Apples are very thin; Pears a failure; Peaches good; Plums, Figs, and Nuts average crops. Apricots do not succeed here. Strawberries are good, but the weather is not bright enough to ripen them. Gooseberries are a heavy crop, Currants an average one, and Raspberries good. Plums generally succeed well here, the best being Orleans, Goliath, Coe's Golden Drop, Jefferson, Magnum Bonum, Green Gage, and Reine Claude. Of Apples our best sorts are Lord Suffield, Keswick Codlin, Hawthornden, Blenheim Orange, Lemon Pippin, King of the Pippins, and a few others. Of Pears, Jargonelle, Williams' Bon Chrétien, and Beurré Bosc do best. Our soil is heavy, with clay subsoil; consequently, a wet season like the present does not suit it.

Potatoes are likely to be a poor crop; the disease set in about three weeks ago.—HENRY HOWARD.

Margam Park, Glamorganshire.—The less said about our fruit crops this year the better. I never saw our principal crops in worse condition. Of Apples and Pears on standard trees, from which we have had in other years our main supplies, there are none. On open walls we have a few Peaches, a very heavy crop of Plums and Morello Cherries, but few Pears. Small fruits, such as Strawberries, Currants, Raspberries, and Gooseberries, are good, and the greater part of the three former have been secured in good condition, but nothing of course will compensate for the want of Apples and Pears. The scarcity applies to all central Glamorgan. At no time were the prospects bright; blossom was never more scant, many trees were flowerless, and the few that occurred on some must have failed to set. At this time last year the trees appeared promising enough, but the fearful storm of wind which we had on October 14 took the leaves off prematurely, and damaged both wood and buds. This, in my opinion, is the main cause of the failure of the Apple and Pear crop of 1882.—J. MUIR.

Dynevor Castle, Llandilo.—The state of the fruit crop in this district is about as follows: Peaches a light crop; Plums very few; Pears half a crop; Apples on standards almost a failure, on dwarfs a few. Trees very healthy. Currants and Gooseberries about an average; Raspberries, the best crop we have had for years; Strawberries an average crop, but late. The kinds of fruits that do best in this district are, of Peaches, the Red Magdalene; of Plums, Coe's Golden Drop, Jefferson, and Orleans. Apples—Ribston Pippin, King of the Pippins, Cox's Orange Pippin, Blenheim Orange, Keswick Codlin, and Herefordshire Pearmain. Pears, Beurré Clairgeau, old Colmar, Winter Nellis, Bon Chrétien, Marie Louise, and Van Mons. Leon le Clerc. Strawberries all kinds. The soil is a strong loam on a clay bottom.

Potatoes are looking well, but the disease has made its appearance.—J. TICEHURST.

Sidenham House, Chesham.—In this neighbourhood Apples are rather scarce, but what trees are bearing are laden, such as Hawthornden, Cellini, Shropshire Pippin, Golden Pippin, Broad-eyed Pippin, Underleaf, Keswick Codlin, Court of Wick, Cornish Gilliflower, Ribston Pippin, and Russet; Pears are scarce; Apricots plentiful; Peaches very good, Royal George and Noblesse being the best; Nectarines here are failing, large branches dying one after another; Plums are very scarce; Figs plentiful and fine; Cherries very good; Currants, Red, White, and Black, very fine. Of Gooseberries I have never seen such a crop, and the fruit is very fine; Raspberries are about the general average; Strawberries much better than last year, and the plants look very healthy; some of the fruit is, however, rotting on the ground, on account of the heavy rainfall; Nuts are very plentiful; the soil here is loam on the limestone, and we are sheltered from the north and north-east winds.

Potatoes are very much diseased.—JOHN PADDOCK.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J., SURREY.

WHITE Lilies cannot be surpassed in decorative value; three or four fine heads cut from 2 ft. to 2½ ft. long stand in a tall glass with dark foliage of Bay, and single Lily flowers are grouped in a wide brass dish with small bright fronds of Polypody and Hart's-tongue Ferns. It is much to be regretted that they are too strongly scented to be bearable in living rooms, but this objection does not prevent their use in halls, corridors, and passage rooms. A good table bouquet consists of white Everlasting Pea, a flower of fine size and substance, with shoots of its own foliage. Coreopsis lanceolata is now most valuable; large bunches, without the addition of any foliage, are in pale blue-tinted goblets of Venetian glass. The plant is a persistent flowerer, and the flowers last long in water. It is one of those that best repay, by long flowering, any care given in cutting off dead blooms. White and pink Musk Mallows also make a pretty table bouquet. Various Begonias continue to be the most useful pot plants.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Allamandas.—Plants of these that have been flowering for some time in pots will be strengthened if an inch or two of rotten manure is put on the surface of the soil; as much may be laid on as will fill the pots to the rim, as the manure being porous will not interfere with the watering, and very shortly it will be full of roots that will be of the greatest assistance to the plants in enabling them to continue blooming. This surface-dressing will be found much better than depending alone on the use of manure water.

Ixoras.—Where large specimens of these or other subjects of a similar bushy habit have finished their first blooming they may be cut back freely, reducing them to one-third or so of their size. If plants of this description are allowed to keep on making an unlimited number of growths they will be proportionately weak, and will only bear small flowers, while if well headed in now and the whole of the weak shoots cut away, they will break strongly and push growth that will make a fine display of bloom next spring. By occasionally cutting them in hard in this way the plants may be kept in a satisfactory condition for a length of time, producing flowers more abundantly and quite as large as younger plants. When they have broken well a portion of the old soil, say one-third, may be shaken away and replaced with new material.

Achimenes and Gloxinias.—The latest batch of Achimenes started to come into bloom when the earliest are over ought not to be where they will have more warmth than is just sufficient to keep them growing, but they should not be pushed on into flower faster than can be helped; give them sufficient support in the shape of sticks and ties to prevent the shoots hanging about in a loose, untidy manner. Seedling Gloxinias, as well as the last potted bulbs, should likewise be kept as cool as they will bear. If the earliest flowered plants have been kept free from insects and managed so as to promote healthy growth, they will bloom a second time, and will be much assisted by having liquid manure given every other time they want watering. Gloxinias are not now propagated much by means of cuttings, fine kinds being readily obtained from seed, but where good named sorts are grown, or any extraordinarily good formed or well marked seedlings have appeared, it is well to guard against losing them in the winter by raising some young bulbs. The leaves will now be in the right condition for propagating, being well matured. Put three or four together into 6-in. or 7-in. pots filled with leaf-mould and fine peat, two parts of the latter to one of the former, with a fourth part of sand, inserting the leaves round the edges of the pots. By

this means much better bulbs will be secured than by cutting the mid-rib of the leaf and placing it on the surface of the pot. These leaf-cuttings must not be confined over much, or they will be liable to rot. It may be well to remark that the more perfect and well matured the leaves are the better, as the longer they remain green and fresh the better bulbs they will make.

Streptocarpus biflorus and S. Saundersi.—These are most useful, long-blooming plants, and should be given every encouragement, letting them, if possible, have a position on a front stage close to the glass, or on a shelf overhead if there is one. If located in a situation of this kind they should be taken down and syringed frequently, for if this is not done they are liable to be attacked by thrips. Their flowers, differing as they do in form as well as in colour from those of the generality of other plants, are extremely serviceable in a cut state.

Euphorbia jacquiniæflora.—Attend to stopping the shoots of this as needed. The amount of stopping advisable will be regulated by the greater or less strength of the plants to be operated on; if late and weak, removing too much of the shoots will only weaken them still further, but where strong, they should be fairly pinched back or bent down. Where this Euphorbia is planted out and employed to cover a back wall, it will, if strong, be an advantage to stop all the shoots, as by so doing there will be a much greater quantity available for cutting.

PROPAGATING.

Now is a suitable time for grafting choice Conifers, that is, where stocks are established in pots, and where this mode of propagation is preferred to cuttings. In grafting, smaller pieces can be employed than in the case of cuttings, an advantage where the variety used is scarce; some kinds, too, root with difficulty, while if grafted low when planted out, the union can be covered with soil and the plant is then equal to being on its own roots. The best stocks are young seedlings, as nearly related to the scion as possible, and they should be potted and plunged out of doors till required. When the stems are about the size of a straw is a very suitable stage at which to perform the operation. For the different kinds of Biota the Chinese Arbor-vitæ (*B. orientalis*) is used, and the American Thuja occidentalis for the different Thujas, while with either of them the Retinosporas will unite, but the Chinese is the best stock for the majority of them. Cupressus Lawsoniana is used for all its allies, and the common Yew for the Taxaceæ. The different kinds of Abies must be grafted on stocks belonging to the same section, thus those generally employed are, Abies canadensis for the Tsuga group, A. Douglasi for that class, and the Norway Spruce (*A. excelsa*) for the others. The common Silver Fir is used for the Piceas, and in grafting the various Pinuses both stock and scion must belong to the same section, i.e., both should have the same number of leaves in a sheath. Where conifers strike readily from cuttings grafting is not recommended. Moreover, amongst the larger kinds, as a rule, neither grafted nor cutting plants make such fine trees as seedlings, but in the case of those of a bushy habit, when grown up the difference between the two is not noticed.

The stocks should be cleaned, straggling shoots shortened back, and placed in a cold frame till wanted, in order to get the sap in brisk circulation. Side or veneer grafting is that generally preferred, and is performed as follows: Make a slight incision in the stock at a sufficient height from the ground to accommodate the tying material, the incision to penetrate a little deeper than the bark; after that commence about an inch above and make a sloping cut down to the first, the head of the plant not being touched. The scion must be cut in a corresponding slanting manner, so as to fit exactly the place of the piece removed from the stock, and great care should be taken to unite properly the barks of both stock and scion. The

scion must be tied in its place carefully, but firmly, for which purpose nothing is better than what is known as grafting cotton, thick, soft, but strong material, as if the bark be injured in the least decay takes place. When finished, place the grafted plants in a close frame, one that is thoroughly air-tight being necessary, and shade heavily during sunshine. If kept quite close and the tying has been done securely, no wax or other composition will be required, and the progress of the union may at any time be ascertained. Of course they must be watered when necessary, but it must be done so as to wet only the roots, as if it touches the wounded part the chances of success will be lessened. When a union takes place, air must be given slightly at first, and the head of the stock must be shortened back by degrees till it can be removed entirely, leaving the scion to take its place.

If, as sometimes happens, signs of damping are perceived a short time after grafting, give air for a little time, but only just long enough to dry up some of the moisture. In grafting, the sharpest knife should be used only for removing the strip from the stock and in preparing the scion, as if employed for cutting the cotton in tying it will soon become blunt. T.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Peaches.—Should we have a change to dry weather one of the most important matters in the management of late Peaches under glass will be the liberal application of water to the roots and foliage. With every leaf and branch spread out and trained within 2 ft. of the glass a mere surface watering is of very little use to inside borders at any time, and when the heavy strain of a full crop of fruit is in force a watering that does not reach the drainage is misleading and frequently induces the premature ripening of the fruit before it has completed the last swelling. To avoid this, let all inside borders be heavily mulched and watered until the latter finds its way into the drains. Syringe copiously every fine morning and again about 4 o'clock in the afternoon, when the house may be closed for two hours to swell the fruit. Elevate all the Peaches that can be got up by placing short pieces of lath under them and across the wires of the trellis. Give night air much or little according to the intended period of ripening; and if portable, draw the lights quite off for a few hours on fine settled days to infuse colour and to give the fine flavour which Peaches grown in cold or warm baths never attain. When elevating the fruit make a point of shortening back every shoot that will be taken out after the crop is gathered, for the two-fold purpose of increasing the size and letting in light and air.

Succession houses.—As these are cleared of fruit the first effort will be copious washing to cleanse the foliage, and watering to set the roots and laterals in action. Then will follow the annual cutting away of all the shoots which can be dispensed with to insure the proper ripening of the trees. If they are aged and show signs of weakness, fresh mulching and stimulating liquid may be advantageously applied, but vigorous young trees will do well with plenty of pure water. The weather up to the present time has not been sufficiently warm and settled to admit of stripping the early house; but in the event of a change the lights may be taken off and properly repaired and painted under cover, when the material used will last much longer than it would do if applied when the houses are at work, and the wood is more or less charged with moisture.

Melons.—Where efficiently heated pits or houses are used for winter Cucumbers, the last batch of Melon plants should be put out before the end of this month. If some free, quick turning-in kind, like Eastnor Castle or Improved Victory of Bath, is used, the crop will be ripe by the middle of October, which is quite late enough to expect really good flavoured fruit and a very good time for putting out strong plants of Tele-

graph Cucumber. Unless the weather continues very bad no fire-heat will be needed before the female blossoms begin to open, but it will be necessary to plunge the pots in a brisk heat of 80° to 90° from fermenting leaves or tan, and to place them within the influence of the bottom-heat pipes, as they will be indispensable when the fruit is setting and ripening. If very late fruit is wanted, a few more seeds may be sown in small pots and shifted into the fruiting size as soon as they come into rough leaf. They will then grow away freely without a check and will set plenty of fruit on the first laterals. If 12-in. pots are used, allow each plant to carry a pair of evenly set fruit. Top-dress when they begin to swell and feed at every watering. Discontinue feeding in houses in which the fruit is ready to change for ripening, and reduce atmospheric moisture, but guard against producing a check by allowing the foliage to flag through the want of pure water. Keep the plants thoroughly under command in pits and frames. Train the leading shoots towards the extremities, pinch out the points when 1 ft. from the sides, thin out the laterals, and fertilise every flower as it opens. Do not be in a hurry to stop the laterals, as a sudden check may throw the fruit; but when quite safe remove every bit of useless spray. Feed well and water overhead with water at a temperature of 85° to 90° about 3 p.m. and shut up for the day. Cover up at night and give a little air to let out steam, as linings must not be neglected.

Strawberries.—Young plants that have been recently shifted from small 3-in. into fruiting pots may be removed from partial shade to a light, open spot, free from worms and within easy reach of water, of which they will take liberal supplies until the time arrives for storing them away for the winter. In placing the early kinds, which generally occupy very small pots, the latter may be made to shade each other from the direct rays of the sun until the foliage requires more room, when every alternate plant may be taken out, or, better still, the whole block may be turned over, and rearranged to prevent them from rooting into the bed. Up to the present time the weather has been more favourable to the rapid production of runners than the formation of good ripe crowns; so much so, that a thousand 7-in. pots filled and placed on a nursery bed in this garden are now half-filled with roots, and occupying their summer quarters, never having been watered with the hand; but we are now hoping for a decided change, otherwise early forcing will be far from satisfactory. Should the weather continue wet, cold, and unfavourable, all the plants should have full exposure to light and air by being placed in rows on planks, platforms, or dwarf walls, as it is in every way better to have a few well-ripened plants than to swell expenses by wintering a greater number than can be properly grown and tended through the summer. When the potting of the forcing plants is brought to a close, provision must be made for another year by planting out the surplus runners before they begin to suffer from confinement in the small pots in which they have been layered. In the selection of a site the first consideration should be light and air, as plants which are shaded and drawn cannot be expected to produce good runners. Next comes the soil, which should be well prepared by the use of manure and deep trenching, and if a little new heavy calcareous soil can be placed round the ball of each plant, the labour will not be thrown away. If, in addition to the foregoing conditions, a situation near water can be selected, its importance should not be overlooked; but it will be better to incur expense in carrying water than to choose an unsuitable site, as a robust stock cannot be raised from weakly parents. Growers who have not been in the habit of exchanging runners with distant friends and neighbours will do well to try the experiment.

Cucumbers.—Where the Cucumber house proper is devoted to the growth of Melons in summer, the raising of young plants must be regulated by the time at which it is likely to be ready for their reception. A manure frame or pit with ferment-

ing material for giving bottom heat is the most suitable structure for raising and growing the plants in, as they can be kept near the glass until they are large enough for shifting into the fruiting pots. Immediately after the Melons are removed, clear away all old soil and plunging material, thoroughly cleanse the walls, wash the glass, and paint the woodwork if necessary; then fill the pit to the usual level with fresh fermenting leaves, plunge the fruiting pots and introduce the compost, but defer planting until the heat of the bed has subsided to 90° and the soil is thoroughly warmed through. If due attention is given to early closing with solar heat and moisture, and a sweet bottom heat is kept up, the firing of houses now in full bearing may be discontinued. Dress the plants three times a week, and avoid over-crowding by stopping at the first joint beyond the fruit and by the removal of a few of the old leaves and vines as they can be taken away without producing a check. Add fresh turf to the hills, little and often, feed copiously with warm diluted liquid, draw the lights off occasionally when warm rain is falling, syringe well, and shut up not later than three o'clock on fine afternoons.

Frames.—Renovate the linings back and front alternately, and cover well with dry mats. Keep the vines and foliage regularly thinned, stop close, and guard against over-cropping. Follow up the system of cutting away all the fruit, old leaves, and vines, as the plants which have been longest in bearing show signs of failing in the production of fine, straight fruit. Peg the young growths down into the hills, pack with pieces of fresh turf, and keep close and moist until fresh roots are formed.

KITCHEN GARDEN.

R. GILBERT, BURGHLEY.

THE so-called varieties of Cabbage are legion; amongst the best, Carter's Heartwell takes a prominent place, being large in size and good in quality. Enfield Market and Barr's No. 1 are also remarkably good. The first sowing should be made on or about the 28th July in shallow drills, covering the seeds with burnt refuse; should the land be dry, water the drills without a rose on your watering-pot. Lettuces and Endive may be sown at the same time. I always sow small seeds at this season in land which has been broken with the cultivator rather than having it dug up. The land for Tripoli Onions can hardly be too rich; about the first week in next month is the right time to sow them. Many growers sow in drills, and transplant either in autumn or early in spring, but the best bulbs I ever grew were sown in 4-ft. beds and duly thinned, leaving only the best plants. The land should be heavily manured and deeply dug, breaking the soil as the work proceeds; afterwards tread it firmly, rake it, and then proceed to lay out your beds. Wherever there is room plant with the crowbar any kind of good Broccoli; everything in this way is always useful when frost visits us. On the 22nd June I took up 34 cwt. of Ashtop Potatoes for seed; they are keeping well, though I find here and there a diseased one; but of 30 stone lifted yesterday 10 stone only were useable. I never knew the disease spread so quickly. I am busy stirring the ground among all growing crops with the cultivator, letting in the air and killing the weeds at the same time. I find Coleworts especial favourites with our chef, but he likes them white. I therefore plant them a little earlier than I otherwise would do at 12 in. apart. The site is that just cleared of Myatt's Potatoes, and well broken up with our cultivators, then drills are drawn and well watered, the only preparation the land requires; no digging or manuring is done; in fact if kitchen gardening is to be made easy, you must step out of the beaten track and find others more in accordance with the times in which we live.

"The Garden" general index to the first twenty volumes.—Those having sets of THE GARDEN would perhaps do well now to look them up and complete them, because the general index is being printed, and will, we hope, soon be ready. It need scarcely be said that it will make the whole series more useful to the possessor.

SOCIETIES.

ROYAL HORTICULTURAL SOCIETY.

JULY 25.

THE meeting of the committee combined with the exhibition of the Carnation and Picotee Society made this gathering at South Kensington an important one. The exhibits of new plants were somewhat numerous, including several of more than ordinary interest.

First-class certificates were awarded to—

BEGONIA GOGOENSIS.—A new species from Sumatra, remarkable for its handsome foliage. The leaves are shield-like, almost circular, the largest being about 9 in. across. The colour is a deep metallic green on the upper surface, traversed with veins of bright emerald green, and shining with a satiny lustre. The under surface of the leaf is red, the veins being of a deeper hue. The flowers are not attractive, being very small compared with the other parts. Shown by Messrs. Veitch.

COMPARETTIA MACROPLECTRON.—A lovely Brazilian Orchid, combining beauty of colour and elegance of growth in a striking degree. It is almost stemless, the small pseudo-bulbs being very short, and bearing thick, leathery leaves about 6 in. long. The flower-stems are about 1 ft. long, very slender, and bear from three to six blossoms. These have heart-shaped lips about $1\frac{1}{2}$ in. wide, of a delicate rose-pink, pencilled and spotted with a deeper hue. The projecting spur is unusually long, being fully 2 in. in length. This valuable Orchid was shown in a suspended basket by Mr. Heims, gardener to Mr. F. A. Philbrick, Q.C., Oldfield, Bickley.

CATTLEYA WHITEI, a provisional name given by Messrs. Low, the exhibitors, to a remarkably handsome new Cattleya, quite distinct from any other species in cultivation. The pseudo-bulbs are stout and dwarf, bearing a single and in some cases a pair of thick, broadly lance-shaped leaves. The plant shown bore two flowers from one sheath. These most resemble *C. Regnelli* in the labellum, which is large and of a rich deep amethyst, beautifully fringed and marked with a deep blotch of yellow. The sepals are tinged with livid vinous purple. This beautiful Orchid has been imported from Brazil.

ONCIDIUM STELLIGERUM.—This was quite different from the plant generally grown as *O. stelligerum*, though it somewhat resembled it. The large flattish bulbs bore a spike about 5 ft. long, furnished on its upper half with about three dozen blossoms in clusters of two and three. The flowers are about $1\frac{1}{2}$ in. across the sepals, pale green barred, and spotted with deep brown. The large pandurate labellum is pure white on its upper part and claret below. This graceful and attractive plant was shown in fine condition by Mr. Spyers, gardener to Sir Trevor Lawrence, Bart., Burford Lodge, Dorking.

LILIU AURATUM VIRGINALE.—A beautiful variety of the golden-banded Lily, remarkable in not having the usual characteristic spotting, as in the typical kind. The flowers are large, pure white, with a broad yellow band running down the middle of each petal. The plant shown by Messrs. Veitch on this occasion was a fine one. It is, we believe, synonymous with the variety Wittei.

COMPARETTIA FALCATA.—This plant, which was shown by Sir Trevor Lawrence, is said to be the true form of *C. falcata*. It is certainly a lovely Orchid, having long slender flower-spikes, carrying a loose cluster of blossoms having lips an inch across of a bright orange colour. The spur is above $1\frac{1}{2}$ in. long, and forms a marked characteristic of this species.

PHACELIA CAMPANULARIA.—A new Californian plant of annual duration and possessing great beauty. The leaves are heart-shaped, coarsely toothed, and of a greyish green hue. The flowers, which are produced in loose cymes, are bell-shaped, about 1 in. across, and of the loveliest ultramarine blue imaginable, rivalling even that of *Salvia*

patens and the Bavarian Gentian in clearness and brilliancy. It is unquestionably a very fine acquisition, and is a good addition to the long list that Mr. Thompson, of Ipswich, who exhibited it, has made to open-air flowers.

RENANTHERA MATUTINA.—A very remarkable Orchid, the growth of which somewhat resembles that of a Vanda, while the flower-spikes are long and slender, produced from about half way up the stem, and furnished with scores of bright cinnabar red blossoms very singular in structure. From Sir Trevor Lawrence's garden.

TROPEOLIU EMPRESS OF INDIA.—An extremely fine dwarf variety, a decided improvement upon King of Tom Thumbs as regards colour. The plant is not more than 6 in. high, very compact and bushy, and covered with flowers of a brilliant fiery vermilion, dazzling to look upon. If it continues to maintain its true character it will indeed be an acquisition. A basket of King of Tom Thumbs was shown, and the superiority of the new variety over that kind was very striking. Shown by Messrs. Carter & Co., High Holborn.

GRAMMATOPHYLLUM MULTIFLORUM.—A remarkable Orchid with growth resembling that of the better known *G. Ellisi*, but with long arching spikes of flowers comparable with those of *Ansellia africana*. It is not what one would term a showy Orchid, but its elegant and at the same time noble port renders it remarkable. From Sir Trevor Lawrence.

DAHLIA GEM.—A variety of the bouquet section. It has flowers about $2\frac{1}{2}$ in. across, of globular form, and composed of exquisitely quilled florets of a bright scarlet-red hue. It is very prolific, and is said to be fine in every respect. From Mr. Turner, Royal Nursery, Slough.

Other plants shown included a group of new and rare plants from Messrs. Veitch, consisting of various Lilies, *L. gloriosoides*, *L. Leichtlinmajus*, and *L. auratum* platyphyllum being noteworthy, *Cattleya Chamberlaini*, a new hybrid variety, *Dendrobium bigibbum album*, and *Lastrea prolifer*. A plant of *Cattleya Sanderiana*, a form of *C. gigas*, was shown in flower by Mr. Buchan, Wilton House, Southampton, and some fine Orchids besides those certificated came from Sir Trevor Lawrence's collection. Among these were *Mormodes laxatum eburneum*, a beautiful ivory-white variety of a rare and curious species; also *Peristeria graveolens*, a curious Orchid with a cluster of not over nice smelling flowers.

A cultural commendation was deservedly accorded to Mr. Heims for a fine plant of *Aerides affine superbum*, bearing nine long and elegant spikes. The plant in a suspending basket was remarkable for its healthy and clean appearance, and was a fine example of good culture. A fine specimen, bearing a dozen flowers, of *Cattleya Eldorado virginialis* was shown by Mr. Williams, Sugnell Hall, Eccleshall. The flowers are large, pure white, except a large golden yellow blotch in the interior of the labellum. A pale, almost white-flowered, variety of *Odontoglossum vexillarium* named *Bathianum* was exhibited by Mr. Parsons, gardener at Manor House, North Cray. It is as beautiful as any light variety we have seen, and showed what a wide range of colour there exists in this Orchid. Some excellent flowers of various colours of *Iris Kämpferi* were shown by Mr. G. F. Wilson, to whom a vote of thanks was accorded. A beautifully flowered plant of *Clianthus Dampieri* was shown by Mr. Bennett, Shepperton. The plant, which was very bushy, and bore several clusters of flowers, was said to have been raised from seed a year ago. It is evident that Mr. Bennett understands the culture of this reputedly difficult plant.

Fruit and vegetables.—The most important exhibit among these was an exceptionally fine collection of Pine-apples shown by Mr. D. Wilson, gardener to the Earl of Fortescue, Castle Hill, Devon. There were fourteen fruits of the aggregate weight of $104\frac{1}{2}$ lbs., ranging from between 9 lbs., the largest, to $6\frac{1}{2}$ lbs., the smallest, but the majority were over $7\frac{1}{2}$ lbs. They were all of

the Smooth Cayenne variety, and showed admirably what a noble fruit it is when grown to such perfection as these. Such a display of Pines from one exhibitor has seldom been seen, and Mr. Wilson well merited the silver medal awarded by the society. Another fine exhibit consisted of half-a-dozen bushes of Red Currants from Mr. Turner, Royal Nurseries, Slough. The bushes were of uniform size, about a yard high, and bore in one huge cluster several pounds of large and highly-coloured fruit. The variety was not named, but it appeared to be similar to Raby Castle.

An excellent new variety of Tomato was shown by Mr. Phillips, Meopham, named Perfection. It is said to be a cross between Trophy and Acme. It is certainly a handsome fruit, quite smooth, and is said not to become ribbed, and the flesh is firm. Judging by the examples shown, it is also very prolific. The committee considered it a promising sort, and recommended it to be tried at Chiswick. Messrs. Carter showed their new Tomato Dedham Favourite, which is likewise first-rate, and received a certificate last year.

Mr. Stephen Castle, King's Lynn, sent a few bunches of Gros Maroc Grapes, which, however, were unripe, and were referred by the committee to Chiswick.

A new seedling Cucumber, a cross between Blue Gown and Telegraph, was shown by Mr. Clarke, Brynkinalt, Chirk, who also sent a new seedling kidney Potato and a new round variety, both of which were referred to Chiswick. A Melon, called Green Gage, was sent by Mr. R. Laing, East Grinstead, an oval, green-fleshed variety of delicious flavour. Another Melon, a cross between Victory of Bath and William Tillery, came from Mr. Pearce, Grey's Court, Henley-on-Thames, but was only of average quality.

Two new varieties of Peas, called Home-ruler, Duke of Albany, from Mr. Eckford, Sandywell Park, Cheltenham, were recommended to be tried at Chiswick. Mr. Laxton, Bedford, sent a new globular Vegetable Marrow called Early Orange Bush, also Early Prolific Longpod Bean, and a new main crop Pea. Some fine fruits of Best of All Cucumber were sent by Mr. Weldon, Ealing, a variety that will no doubt be heard more of in future.

Late in the afternoon, after the meeting had dispersed, a very interesting consignment was received from M. Girardin-Collas, Horticulteur, Argenteuil, comprising two baskets of very fine fruits of the Figeas Blanches d'Argenteuil, which seems to be the same as what is known in this country as White Marseilles, also bearing shoots of the same variety; and Violette Dauphin, clustered with large and fine fruits. A basket of Apricots Pleint-Vent d'Argenteuil, very large and fine, with a deep rosy red hue, almost unknown in this country, remarkably beautiful. A basket of roots of the Cerfeuil Bulbeux (Tuberous Chervil), about the size of Early Horn Carrots, finer than we ever remember to have seen it; and several examples of the one-year-old Asparagus plants, particularly strong Asparagus culture, being a great speciality of M. Girardin-Collas.

Scientific committee.—Sir J. D. Hooker in the chair.—*Rastelia lacerata*.—Dr. M. T. Masters showed specimens of the common Hawthorn badly attacked by this fungus. Hybrid *Tacsonia*.—He also showed a blossom of a plant the result of crossing *T. exoniensis*, itself a hybrid, with *T. Van Volxemi*. He will report upon it. *Rhododendron camelliaeflorum*.—Mr. Mangles exhibited a spray of this late flowering species bearing but one blossom, though, as described and figured in Hort. Rhod. Him., it has two flowers. Mr. Mangles suggested it might be identical with *R. sparsiflorum*, both from Bhotan. The foliage agrees with *R. Maddeni*. Diseased *Rhododendron* leaf.—He also showed a leaf spotted with black, as if by a fungus; it was referred to Mr. Smith for examination and report. Hollyhock disease.—Mr. W. G. Smith gave an account of his planting healthy seeds of Hollyhock and others affected by Puccinia. He planted twenty tainted seeds; one survived of two only which germinated. This one appears to be unaffected. Of fifty healthy seeds all germinated.

After the third week, affected leaves of *Malva sylvestris* were scattered amongst them. In less than a week forty-six of the seedlings died of the same disease. M. du Port, of Mattishall, Dereham, writes to say he has also found the leaves of seedlings of Hollyhocks to be covered with the disease. *Sarracenia* pitchers.—Mr. Veitch sent a number of pitchers to show their injury by an accumulation of dead insects, the eggs of some of which had developed into grubs. *Rhododendron* hybrids.—He also exhibited an interesting series of blossoms illustrating the effects of hybridising. A flower of a hybrid of unknown parentage, showing a slight tendency to be double, was artificially "self-fertilised." Of this twenty seedlings were raised; five have bloomed, a deep rose (balsamiflorum), a double white, a semi-double yellow, a salmon, and a semi-double rose. A remarkable feature was a tendency to produce a calyx, which is habitually wanting in the *jasminiflorum* section. Mr. Henslow remarked on the general tendency to suppress a calyx in flowers which are small and massed together, as in *Rubiaceæ*, *Caprifoliaceæ*, *Umbelliferae*, &c., and suggested that its return was due to the seedlings acquiring a larger size of flower, and their being less massed in the truss than in *R. jasminiflorum*.

NATIONAL CARNATION AND PICOTEE.

JULY 25.

THE annual show of the southern section of this society, which took place in the conservatory at South Kensington on Tuesday last, was in every respect as successful as its predecessors. Though the date was somewhat late for most of the southern exhibitors, there was a uniformly high quality throughout the show, and in the majority of the classes the judges must have experienced no little difficulty in adjudicating upon the merits of the exhibits, so near were they to each other in point of excellence. This and kindred societies which have for their aim the improvement of particular classes of plants doubtless effect much good in encouraging high class cultivation, but a glance at the prize list will reveal the fact that the bulk of the prizes are distributed among some half dozen exhibitors. Nevertheless, the executive are to be congratulated on the excellence of their show and the manner in which it was arranged—a great improvement on the last and on previous ones. The spacious conservatory afforded plenty of space, so the Carnations were ranged on one side, while on the other were the Picotees, both classes being well balanced as regards numbers. The improved arrangement was particularly noticeable in the case of the single specimens.

The conventional style of encircling the blooms in paper collars was universal, not one exhibitor having the courage to deviate from it, not even those who exhibited non-competing collections. The system in question is bad in any case, but worst in that of pot plants. The white collar ruins the purity of the Picotees; if it must be used to keep them together, surely some other colour would answer the purpose better.

In the following notes we enumerate the varieties in the first collections as a guide to those who desire to make a selection of the best kinds. It is interesting to observe the superiority of particular varieties in the various types. In some instances one variety took all the prizes amongst many others—a proof of its excellence. New varieties were shown numerous, and a goodly number of them were either awarded prizes or certificates.

Carnations.—The best collection of twenty-four blooms was that from Mr. C. Turner, Slough, who had very fine specimens, the varieties being Fred, John Keat, John Ball, J. Taylor, Sporting Lass, Florence Nightingale, William Laing, Admiral Curzon, Matador, Jessica, Squire Dodwell, J. McIntosh, Rifleman, Lord Lewisham, T. Moore, J. Hines, Mrs. Matthews, and Rev. F. Tymons. The second collection, from Mr. Douglas, was scarcely inferior, the varieties not included in the last being Robert Lord, William Skirving, Rob Roy, Arthur Medhurst, J. D. Hextall, Apollo, H. Cannell, J. Simonite, Sarah Payne, Sportsman, and

Mephistopheles. The three other collections were from Oxford, Bath, and Ipswich, and all of them were very creditable, and included many really fine blooms. There were seven collections of twelve blooms, Mr. Douglas showing the finest. His dozen included William Skirving, Dreadnought, Sarah Payne, John Keat, Florence Nightingale, Sportsman, J. D. Hextall, Earl Stamford, Admiral Curzon, and Annihilator. Throughout the collections of twelve there was uniform high quality, and we were pleased to see that a few new exhibitors among amateurs entered the field. There were but three collections of six blooms, each of which came from a new exhibitor.

Single specimen Carnations.—These as usual were very numerous; among scarlet bizzarres the fine Admiral Curzon won the first two and fourth prizes, Edward Adams being third, and Robert Lord fifth; about thirty other blooms were shown. Among a score of crimson bizzarres, Rifleman won the first three prizes, while H. K. Mayor was awarded the other two, a sufficient proof of their excellence. There were about a dozen pink bizzarres; the variety Sarah Payne took all the five prizes. Of purple flakes, which numbered about a score, the best was Earl Stamford, which also took the third place, while the sorts James Douglas and Florence Nightingale took the others. Scarlet flakes were very numerous, there being about three dozen blooms shown; Sportsman was first, third, and fifth, Matador second, and John Keat fourth. Some thirty rose flakes were shown, and of these the varieties Jessica, Tim Bobbins, Rob Roy, won the prizes, the last named taking the three last.

Picotees.—There were five collections of two dozen blooms, the best, from Mr. Turner, being a very fine one. The varieties shown included Mrs. Chancellor, Baroness Coutts, Constance Heron, Her Majesty, Mrs. Bower, Portia, Clara Penson, Queen of Summer, Evelyn, Princess Dagmar, Louisa, J. B. Bryant, Madame Corbin, J. Smith, Mrs. Payne, Muriel, Mrs. Gibbons, Royal Visit, and Imogene. Messrs. Dodwell and Douglas showed the next best collections. Among the seven collections of twelve sorts the best was from Mr. Dodwell, who had fine blooms of Linnie, Clara Penson, Ethel, Dr. Epps, Mrs. Payne, Zerlina, Mary, Esther Minnie, Mrs. Chancellor, Edith Dombain, Medina, Master Norman. The three collections of six were from the same exhibitors, who showed the half dozens of Carnations.

Single specimen Picotees.—Among the dozen heavy red-edged varieties the best was Henry, followed by Princess of Wales, Brunette which was also fourth, while Princess of Wales was fifth. Light red-edged blooms numbered fourteen, the best being T. Williams, Mrs. Gorton, Violet Douglas, which were the first three, while H. T. Williams was fourth and fifth. Among two dozen heavy purple-edged sorts the finest was Muriel, Mrs. Chancellor, which was also third, Alliana, and Zerlina. A score of light purple-edged kinds were shown, Mary, Clara Penson, Mrs. Fulton took the first three, and May the other two. Heavy rose and scarlet-edged blooms numbered nearly fifty, all the prizes being taken by the fine sort Mrs. Payne. Among a dozen light rose-edged blooms he best were Evelyn, which was first and second, Miss Lee, Mrs. Allcroft, and Lady Carington. There were but half-a-dozen yellow ground varieties, and of these Ne Plus Ultra took the first four and Sir F. Roberts the fifth prize.

Miscellaneous class.—This class included self, fancy, and yellow ground varieties, though neither were numerous represented. There were three collections of twelve yellow ground Picotees, the best from Mr. Douglas, including Mrs. Colman, Alice, Prince of Orange, Ne Plus Ultra, Eleanor, Lightning, Princess Beatrice, all first-rate sorts. Among the other collections the most noteworthy blooms were Faust, Golden Queen, Countess of Pembroke, Sir F. Roberts, Sir G. Wolesey, Glowworm, and Crown Prince.

The selfs formed a very beautiful and attractive class. Of the three collections of twenty-

four blooms the best was from Mr. Turner, who had a very fine collection, the sorts being Jessica, W. P. Milner, Robert Scott, Etna, Fred, Lady Stamford, Unexpected, Lady Rosebery, Albert, Rosa Bonheur, Elegante, Sybil, Géant des Batailles, Duchess of Connaught, Rose Perfection, Harry Bertram, Constance, Lord Lewisham, and Matador. Of the four collections of twelve blooms, the best, from Mr. Dodwell, was a fine one, including flowers of Sarah Payne, Dr. Hogg, Harry Matthews, Shirley Hibberd, Robert Logan, King of Yellows, James Merryweather, Diana, Mercury, Mrs. Jones, and John Soper.

Certificates.—The following new seedling Carnations received first class certificates: William Skirving, a splendid pink and purple bizzarre, large, with fine petals, and bright in colour. Shown by Mr. Douglas and Mr. Gordon. Alfred Hadson, a scarlet bizzarre of high quality, being large and full and bright. Shown by Mr. Dodwell. Henry Cannell, a very fine scarlet flake, a large globular flower, very full, and with beautiful petals. Shown by Mr. Dodwell. Mrs. Page, a beautiful self variety with large blossoms, having fringed edged petals of a delicate pale pink colour. Shown by Mr. Duffield, Winchmore Hill. Florence, exhibited as a bedding variety, the flowers being large and of a nankeen yellow colour, a peculiar tint even among Carnations. Shown by Mr. Wallington, Trowbridge. Tim Bobbins, a rose flake remarkable for the preponderance of rose in the petal, which gives the flower a bright appearance. Shown by Mr. Gorton. W. M. Hewitt, a crimson bizzarre, a sport from James Merryweather. From Mr. Douglas.

Of the seedling Picotees the under-mentioned were certificated: Mrs. Gorton, a fine light red edged variety with very broad finely formed petals, raised by Mr. Simonite, shown by Mr. Douglas. Esther Minnie, a heavy rose-edged variety, very beautiful and distinct.

Among the miscellaneous exhibits which combined to render the conservatory attractive was an extensive collection of Carnations and Picotees, numbering about eighteen dozen blooms, was exhibited by Messrs. Veitch & Son, from plants grown in their nursery at Chelsea, thus admirably showing that these beautiful flowers may be grown to perfection in towns. A small collection of new seedling varieties came from Messrs. Wood & Ingram, Huntingdon, several of which were very pretty, and possessed merit. A new Carnation called The Governor was shown by Messrs. Cross, Salisbury, and it really is a fine blush white variety, of large size and full. Another pretty self Carnation, named Mary Morris, of a rose-cerise colour, came from Mr. Smythe, Drury Lane. Extensive groups of plants were shown from Chiswick, including some finely grown Achimenes, Ivy-leaved Pelargoniums, Begonias, &c., all arranged in an effective and tasteful manner. These were supplemented by other displays, notably a fine collection of cut Roses from Messrs. Paul and Son, Waltham Cross, who also showed a collection of nearly a hundred varieties of Gooseberries, for which the exhibitors were awarded a medal. A bright display was made by Messrs. Cannell, of Swanley, principally of Verbenas, which were simply perfection in every respect. Mr. T. S. Ware had a showy group of Pentstemons and single-flowered Dahlias, the latter illustrating several new varieties of great merit. [A full list of awards is given in our advertising columns.]

EXHIBITION OF ROSES.

In the Royal Botanic Society's Garden, Regent's Park, a fine display of cut Roses was made by Messrs. Cranston & Co., Hereford, during the week ending last Wednesday. They occupied one side of the corridor, the flowers, which numbered some thousands, being arranged in flat boxes, with Tea Roses in pots as a background. Considering the season, the blooms were of good quality, and the varieties included, not only the finest of the older kinds, but several new ones, some of which had not been shown so well this year as on this occasion. Passing by varieties that everyone would expect to find in such an exhibition, we will

mention a few of the most striking amongst the new kinds. The newest of all was perhaps one called *Mdme. Isaac Perrière*, a kind which, as shown by Messrs. Cranston, is really a grand Rose; the flowers are large and full, and somewhat conical in form; the petals are broad, reflexing, and of remarkable substance. The colour is a rich, deep rose, much intensified towards the centre. It is a distinct Rose, inasmuch as we had no difficulty in singling it out from amongst all others. It is a Rose that no doubt will figure prominently at next season's exhibitions. It is, we believe, of French origin. Another new variety was *Crimson Bedder*, a sort stated to surpass every other in brilliancy and continuous blooming. Its habit of growth is said to be moderate, the shoots being short-jointed and producing a mass of flowers during the whole season, and the glossy foliage is reported not to be liable to become mildewed. It is, moreover, stated to be an excellent variety for forcing. For ourselves we can only speak of it as we saw it here, there being some scores of flowers of it in all stages of opening. As to colour, we have not seen a Rose so brilliant, and the flowers, three parts open, are simply perfection as regards form, but when fully expanded they are not so beautiful. If it really fulfils all that is claimed for it, it is assuredly a valuable garden Rose, and particularly desirable for supplying buds, for which purpose, we are told, it is largely used on the other side of the Atlantic. A fine dark Rose not previously met with this season is *Dingee-Conard*, raised by M. E. Verdier. It is well formed and compact, with high centre, and its colour is a beautiful rich velvety crimson, a distinct and excellent variety. Other dark Roses shown well in this exhibition were *Reynolds Hole*, *Sultan of Zanzibar*, *Xavier Olibo*, *Abel Carrière*, and *Charles Darwin*, the last a new variety fast becoming a favourite. It was raised by Mr. Laxton a few years ago, and distributed lately by Mr. Turner, of Slough. It is said to be a good autumn flowerer. Another of Mr. Turner's new Roses was shown better here than we have before seen it, and that was *Mrs. Harry Turner*, which for brilliancy of colour will compare with any Rose grown. The flowers are large and beautifully imbricated, and the colour an intense crimson-scarlet. It certainly promises to rank as high as A. K. Williams, which, by the way, was also shown splendidly on this occasion. Somewhat similar, perhaps, too near a neighbour of A. K. Williams, is a kind called *Barthelemy Joubert*, introduced from France some three or four years ago. It is a beautiful variety, and one that will compare with the finest of exhibition Roses.

Constantin Fretiakoff is a lovely Rose which, as grown at Hereford, surpasses most of the older kinds of a similar colour. Its large, finely formed blossoms of a bright cherry red are deliciously scented and open beautifully. *Comtesse d'Oxford* was as fine as ever we have seen it, as were also *Mad. Marie Finger* and *Etienne Levet*, both gems amongst Roses. A large percentage of English raised, or at least English named, varieties was shown here; nowhere else had we seen such fine blooms of *Countess of Rosebery* and *Lady Sheffield*, while others, such as *Princess Beatrice*, *Peach Blossom*, *Crown Prince*, *Glory of Cheshunt*, *Beauty of Waltham*, *Duke of Teck*, fully maintained the high reputation they have won as English Roses. The best white shown, at least so far as purity goes, was *Boule de Neige*; two other varieties were also shown which appear to differ only in name. These were *Mad. Noman* and *Mdlle. Bonnaire*, both of which as shown here have conical white flowers, suffused with a delicate pink, rendering them very charming. General *Jacqueminot* was shown better than we have hitherto seen it this year. *Senateur Vaisse*, Dr. *Andry*, and *Alfred Colomb* were among other old established favourites that were well represented.

WEST OF ENGLAND ROSARIANS' SOCIETY.—The eighth annual exhibition of this Society was held on 20th inst., in Westwood Park, Helensburgh, and was a great success. A new feature

in the exhibition was the introduction of show and fancy Pansies and Pinks. The blooms shown by Messrs. W. Paul & Son were grand examples, and elicited much admiration. The display of the "Queen of Flowers" was a brilliant one—the Irish roses carrying off the two principal prizes. Messrs. A. Dickson & Sons Newtonards, Ireland, won the gold medal for 48 distinct varieties, while Mr. Hugh Dickson, Belmont Nursery, Belfast, secured first prize for 36 distinct sorts. There were 1408 Roses and 468 Pansies and Pinks.

HORTICULTURAL EXHIBITION.

AN exhibition of horticultural structures, appliances, implements, &c., was opened at this place on Monday last, at the Agricultural Hall, Islington, and will continue until August 5. The lower part of the hall is tolerably well filled with exhibits of a varied character. Whether the promoters consider it a success we are unable to say, but we were lead to expect a better display and a more representative one.

Among the exhibitors of glass structures are Mr. Rendle, Victoria Street, who shows a house glazed on his patent "Acme" system; Mr. Warhurst also has his "Eclipse" system of glazing without putty exemplified in his structure. Messrs. Deards, Harlow, have a spacious greenhouse glazed according to their patent "Victoria" dry system, and from what we see of the plan it seems both simple and effective, and likely to bear out all that is claimed for it. The house exhibited has a curvilinear roof, and the whole is made portable. Mr. Perry, Banbury, is an exhibitor of a large, well-built house, glazed and fitted with all the latest improvements. Amongst other houses shown, a well-built one, from Mr. Lascelles, Bunhill Row, has for its special feature patent cement slabs in place of brick supporting walls.

Boilers are shown by various firms. Mr. Warhurst has the *Monarch* and *Ben's Boiler*, which won the medal at South Kensington. Messrs. Jenkins, Rotherham, have a numerous display including several excellent independent boilers, and one on a new principle specially adapted for small amateurs' houses, as it is so simple and inexpensive. Mr. Watson, St. Albans, has his wedge-shaped boiler, which seems to be finding favour on account of its simplicity and efficiency. Lawn mowers are shown by Messrs. Crowley, Sheffield, whose display includes the machines (Edward's Patent) that took the medals this year at South Kensington. Among other exhibitors of machines are Messrs. Rollins & Co. who have that excellent little mower, the *Archimedeon*.

Large displays of garden statuary fountains, vases, &c., are made by Messrs. Rosher, Chelsea, the *Colebrooke Iron Co.*, and others; and Messrs. Green and Messrs. Jeffrey are extensive exhibitors of all kinds of wirework for gardens, seats, &c. Messrs. Ewart & Son, Euston Road, have some good examples of window conservatories now becoming so popular, especially in towns. These are shown in various designs adapted to the outlooks for particular rooms. Mr. Deverill, Slough, shows his patent irrigator in working. It is a useful appliance for watering lawns, &c. Various horticultural requisites are exhibited, such as peat, loam, sand, pots, Orchid baskets; the latter from Messrs. Smith & Williams being particularly noteworthy owing to their suitability for the purpose for which they are intended. Messrs. Cutbush, Highgate, occupy a considerable amount of space with a group of plants, trees, and shrubs, as do also Mr. Pulham, of Broxbourne, who has an example of artificial rockwork, though scarcely of such high merit as generally characterises his work of this kind in gardens.

MR. MATTHEW MOGGRIDGE.

THE death of this gentleman deserves a few more words than were given in last week's GARDEN. He was an enthusiastic naturalist, and to the last a regular attendant at many of the scientific meetings. Having, owing to the delicate health of his son, (the author of "Harvesting Ants and

Trapdoor Spiders," and also of the illustrated work on the flora of Mentone) resided for a number of years at Mentone, he was well known to many visitors there, and often led large parties of friends and plant hunters over the most interesting valleys and mountains near, with many of which he was familiar. We have ourselves had the advantage of his company in this way, having passed several days with him in the Tenda Valley and its branches. Though then between seventy and eighty years of age, he carried a knapsack and walked about thirty miles a day over some of the roughest ground. After the death of his son he settled in London, where we several times met him noting the period of flowering of trees and shrubs in the various parks. He died on the 14th inst., at his residence in Bina Gardens, South Kensington, aged seventy-eight. His estate was at Woodfield, in Monmouthshire. The second son of the late John Hodder Moggridge, Esq., of Woodfield, by his marriage with Sarah, daughter of M. Jeffreys, Esq., of Blakebrooke, Worcestershire, he was born in 1803, and was a magistrate for the counties of Glamorgan and Monmouth. Mr. Moggridge, who was formerly a captain in the Glamorganshire Yeomanry, married, in 1836, Fanny Llewelyn, eldest daughter of the late Lewis Weston Dillwyn, Esq., M.P.

OBITUARY.

DR. GEORGE DICKIE, ex-professor of botany in the University of Aberdeen, died at Aberdeen on the 22nd inst. The deceased, who was a native of Aberdeen, and was educated at Marischal College, was for some time in practice in the city as a doctor and dispensing chemist. His tastes, however, lay very markedly in the line of botanical research. He held the botanical chair in the Queen's College, Belfast, for a number of years, and on the fusion of King's College and Marischal College into one Aberdeen University he was appointed professor of botany. He discharged the duties for seventeen years, only resigning in 1877 on account of impaired health. Dr. Dickie had written numerous papers, and published some books connected with his favourite study, these including "A Handbook of Flora of Aberdeenshire," which was subsequently supplemented by a much larger volume, "The Botanist's Guide," published in 1860. His favourite department of botanical study was Algæ. On the return of the *Challenger* expedition he was, for the purposes of study, supplied with the Algæ collected during the cruise.

Production of roots.—For March number of the *Florist* (p. 78) read May number.—J. S. W.

Names of plants.—J. G.—*Gaultheria Shallon*.—*Flora*.—2, *Centaurea montana*; 3, *Spiræa Filipendula*; 4, *Veronica longifolia*; 7, *Aster Amellus*. We name but four plants each time.—*Alpha*.—*Libocedrus decurrens*.—*Non*.—1, *Marantia zebrina*; 2, M. Warcewicz; 3, *Claytonia perfoliata*; 4, *Stachysylvatica*.—*S. E. H.*—Please send a better specimen with more foliage.—*J. S.*—1, *Adiantum concinnum latum*; 2, *A. scutum*.—*M. S.*—*Hieracium aurantiacum*.—*Mac*.—Aquatic is *Alisma Plantago*, other a species of *Malva*.—*C. M. O.*—All the specimens of *Campanula* sent are *C. Burghaltii*, a pale variety of *C. latifolia*, a British plant. The composite is *Helichrysum rosmarini folium*, and the leguminous plant is *Galega persica*.—*W. M. S.*—*Oncidium pulvinatum*, *Blechnum boreale*, *Adiantum hispidulum*.—*J. R. H.*—*Lilium Martagon*.—*R. E. Paget*.—*Coronilla Emerus*.—*T. B.* (*Warwick*).—1, send when in flower; 2, *Campanula latifolia*; 3, *Hemerocallis fulva*; 4, *Hypericum perforatum*; 5, species of *Philadelphus*; 6, *Achillea serrata*. The other send again. Our rule is to name four at one time.—*Mrs. Lowell*.—No doubt the *S. violascens* of Jordan and Fourreau is a near ally of *S. calcareum*.

COMMUNICATIONS RECEIVED.

G. A. P.—E. A. P.—H. B. L.—G. R.—G. W. E.—J. E. B.—A. H.—J. C.—J. C. C.—R. H. S.—A. J. R.—B.—E. G.—A. D.—J. S.—C. W. D.—G. B.—J. S. W.—J. C.—W. W.—J. J. W.—S.—J. G. L.—H. S.—S. E. H.—B.—W. E. G.—J. R.—J. R. H.—B.—R. D.—Mac.—H. K.—F. M.—A. C. B.—D. & Co.—E. T.—T. S.—W. B. H.—J. D.—J. G. P.—G. M.—W. S.—G. S.—H.—R.—G.—J. R.—G.—J. G.—J. R.—J. N.—D. R. & Co.—J. C. & Co.—F. D.—J. S. & Sons.—W. T.—A. Y.—T. M.

No. 559. SATURDAY, AUG. 5, 1882. [Vol. XX/1.]

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ROSE GARDEN.

ROSE CULTURE NEAR TOWNS.

"J. D.'s" experience and advice contained in THE GARDEN of the 15th ult. is so very different from mine with respect to Rose culture in the vicinity of large towns, that I venture to say a few words on the other side of the question. I have nothing to state against the cultivation of the old White, the Maiden's Blush, the common Damask, and perpetual Damask. By all means let us find a place for them in our gardens, but to say that it is a question of growing these on "plants which produce nothing but shapeless masses of ragged petale" is certainly as far from the facts as anything which it is possible to conceive. I join issue with your correspondent on the subject of holding Rose shows in or near large towns. I believe there is nothing to be said against them, but everything to be said in their favour. It is fifteen years since, as a boy of sixteen, I first visited a Rose show. It was held in the centre of our hardware metropolis. I was then living about one mile and a half from the manufacturing district. With a light, dry, hungry soil I mixed a large proportion of marl, meadow loam, and manure, and within three years I had a stock of nearly 2000 Roses on Brier and Manetti, from which I have cut blooms as fine as any I wish to see. With Teas and Noisettes I was equally successful planted out under glass, but without heat. In 1875 I came nearer to the town, one and a half miles from the centre, and I have now in my garden five standards which I budded in 1869, transplanted in 1875, and which are the picture of health and vigour. Baroness Rothschild is just coming into bloom; the head of the plant is 18 in. through, and the shoots about the same length. There are eleven fine buds, and two expanded blooms crowning it, and I venture to think that if "J. D." saw it looking as I write after a shower so bright and beautiful he would alter his opinion as to the possibility of growing Roses in suburban gardens. Of a stock of about three hundred trees on the Manetti planted in 1875 there remain upwards of sixty still thriving and just coming into bloom. Year after year have they produced profuse crops of bloom. They suffered terribly in the winters of 1879-80 and 1880-81; but where are the stocks that did not? Within the past week I have seen a twenty-four, twelve, and six staged at a Rose show taking two first and one second prizes, grown within 1½ miles from the centre of the town, which might have been staged with credit to the exhibitor in any show in the kingdom. In the twenty-four was the finest specimen of Star of Waltham I have ever seen, and about which Mr. George Paul remarked that it was the finest specimen of the variety in the show, though he, Messrs. Cranston, and Mr. E. R. Whitwell were exhibiting it. I know of numbers of Rose amateurs who have been inspired by town Rose shows, and I assert most confidently that, with patience, perseverance, and judgment, such Roses as Charles Lefebvre, Marie Baumann, Captain Christy, Baroness Rothschild, Mdme. Victor Verdier, Victor Verdier, Gloire de Dijon, General Jacqueminot, Comtesse de Chabrilant, Annie Wood, Comtesse d'Oxford, Etienne Levet, John Hopper, La France, and Marquise de Castellane can be grown so as to be a credit and a pleasure to the grower.

Cultural directions.—I would strongly urge lovers of the Rose who have suburban gardens to persevere in its cultivation, and if they will follow the following directions, I feel sure they will be successful. First and most important, give the Roses a bed to themselves. Trees stuck in here and there amongst other things are

much more difficult to treat. In a bed 5 yds. square about forty trees may be planted. If the natural soil be poor, make a compost of marl (that in my bed was drawn from under the Midland Institute, Birmingham), rich loam, rotted turves, or vegetable refuse and cow manure; remove two-thirds of the soil from the bed to a depth of 2 ft. 6 in., and substitute the compost, which should be well mixed with the soil left; then with a good top-dressing of stable manure the bed is complete. Obtain in October or November a stock of strong plants on the Manetti, plant them so that the worked part is 6 in. below the surface, and take care that the stem above the worked part is surrounded by marl; plant firmly, and within two years the probability is that the tree will be well rooted on its own bottom and can dispense with the foster stock. Prune as late in the following spring as possible, and do not be afraid of the knife. Encourage the growth of the strong shoots that come up from just below the surface; these must make the tree for the following year. In pruning I always try to remove every particle of the wood two years old, and I believe this is the great secret in growing Rose trees near towns.

Insects.—Directly the trees begin to grow they must be looked over morning and evening in order that insect pests may be dealt with directly they appear. For the green-fly I find nothing so efficacious as a pair of brushes; if the affected branch be drawn through them the flies quickly vanish. Do not hesitate having recourse to disbud-ding; take off directly they appear the side buds, so that the whole strength of the bough may be concentrated on the centre bud. As the growth proceeds, assist it with liquid manure. This will not only increase the size and colour of the flowers, but encourage the growth of strong shoots from the bottom just referred to. Under such treatment year after year, and a purchase every autumn of 20 per cent. of new trees or Manettis for budding, the stock may be fully maintained, if not increased. Of course the blooms will not be equal to those staged by our leading growers at Rose shows, but bear in mind that those blooms are seldom cut off trees even two years old. These are nearly all maiden blooms, and such as are not are cut from trees not more than two years old. No nurseryman or amateur would dream of growing Roses for exhibition without budding his own Briers; but the flowers produced will amply repay the amateur for all the trouble and time expended.

I give my experience hoping that the success which has attended it may encourage other suburban lovers of the Rose to attempt and to succeed. At every Rose show I attend I register fresh vows for the future. I am sure shows are of the greatest service to amateurs, and when held in large towns do more than anything else to encourage the cultivation of the Rose in suburban gardens.

W. T. SMEDLEY.

57, Colmore Row, Birmingham.

White Roses.—The favourites among pure white Tea Roses are Niphetos, Devoniensis, Mdme. Willermoz, Marie Guillot, Innocente Pirola, and Alba rosea. Of these a few are tinted with colour in the open air, but pure under glass. The only pure white Hybrid Perpetual is Boule de Neige, but this bears a closer resemblance to the Provence habit, and is not so constant as the common Hybrid Perpetuals. It is, however, very beautiful early in the season. The best white Bourbon is Acidalie, and of Noisettes, Lamarque and Aimée Vibert. There are also Reine Blanche, the beautiful white Moss, the white Banksian, and though small, not least, the pretty little kind Fairy Pet, a lovely little Rose for pot culture.—A. D.

Roses from cuttings.—I was at Wood and Ingram's nursery a few days ago, where, amongst other things of an interesting character shown me, was a little frame in the propagating house filled with Rose cuttings rooting in a bed of Cocoa-nut fibre. The cuttings had been taken from plants grown under glass, the shoots of

which were just getting firm. Several were pulled up indiscriminately, and each had formed delicate little roots ½ in. or so long, just in the right condition for potting, or, as was remarked, planting out at once in the open border, judiciously sheltering and shading for a time. There was no heat in the house beyond sun heat, and of course the fibre being partly decomposed, there was no heat there. The majority of cuttings which fail are killed by the watering-pot; but cuttings in such substances as Cocoa-nut fibre and sawdust require but little water. As the material retains moisture, there is no occasion to be always watering. The middle or end of July is a good time to strike Rose cuttings in a frame full of Cocoa-nut fibre or old moist sawdust from hard wood, not deal. Take the shoots that are getting firm, shade in bright weather, and dew the leaves over occasionally. As soon as the roots are formed, the little plants must be taken from the propagating bed, and potted off or planted in good earth with a frame over them. Many things strike in some non-conducting material, such as Cocoa-nut fibre, old tan, or sawdust, better than in sand, that one has to be constantly watching for fear it should get too wet or too dry.—E. H.

FLOWER GARDEN.

FREESIAS.

"F." (p. 94) treats *Freesia Leichtlini* major as a chance seedling; this we wish to correct. The cross was effected as follows: *F. refracta alba* we had in our possession long previous to its being exhibited at South Kensington, where it obtained a first-class certificate. *F. Leichtlini* was not in bloom for at least a fortnight after *F. refracta alba* was all over; we therefore gathered pollen, and kept it dry till our first bloom of *F. Leichtlini* was open. The day previous to its opening we cut one of its sepals away, and extracted the unburst stamens, and the following day we applied the pollen of *F. refracta alba*, the result being several seeds, from which came *F. Leichtlini* major, a thoroughly distinct plant. Moreover, we picked all flowers (in the bud) off *F. Leichtlini* until the cross was quite out of bloom, so as to avoid the probability of an after-fertilisation. We are therefore not prepared to look on it as a chance seedling. Still stranger, our plant of *F. Leichtlini* produced no seeds of itself that year, although we attempted to fertilise it with its own pollen. We presume this might be accounted for by its having been recently imported. The following year we reversed the cross, using *F. refracta alba* as the seed-bearing parent, and had five seeds, the produce of which flowered weakly; these resemble *F. refracta alba* in structure, but still are strongly like *F. Leichtlini* major. That "F." has met the plant before is quite possible; the cross may have been effected in a wild state. We, however, have raised thousands of *Freesias* from seed, but never had such good fortune until we artificially crossed the two parents. CHARLES SMITH & SON.
Guernsey.

LILIUM HARRISI.

THIS Lily was brought out last fall by Mr. Wm. K. Harris, of Philadelphia. It resembles very much the old *L. longiflorum*, the flowers being of the same shape, merely somewhat larger and more fragrant; the colour is likewise pure white. The peculiarities which raise it above *L. longiflorum* are its great precocity when forced (blooming in January), its being more floriferous (first size bulbs yielding from five to eight flowers), and its being very prolific as regards reproduction (scales producing flowering bulbs in one year, and small bulblets of Pea size flowering the first year already). This Lily was tested last winter in New York and Philadelphia by the most prominent growers of cut flowers, whose testimony stands equal to that of any European authority, and they have endorsed it as being true to what has just been claimed for it. Another Lily was put in the market at the same time under the name of

Lilium floribundum. Some American houses state their belief that there is no difference between the two, and it is evident that in a few cases *floribundum* was substituted when ordered for *Harrisi*, but there is a difference between the two, and a decided one according to my knowledge, derived from personal observation. The true *Harrisi* is dwarf, from 12 in. to 18 in. high, and early in flowering. *Floribundum* is tall, 4 ft. and more, and its flowers are nearly four weeks later. This being so, *Harrisi* is of special value to florists who grow for market. Both Lilies came originally from Bermuda. *Harrisi* is propagated from one bulb, and runs uniform and true. The stock of *floribundum* is from a collection of sundry bulbs, and cannot as such run uniform.

New York.

WINFRED ROLKER.

[The foregoing statement, handed to us by Messrs. Watkins and Simpson, is intended to clear up a misconception that has got abroad regarding these two Lilies.]

HARDY GERANIUMS.

THESE include some of our choicest alpine and border plants. A non-structural difference between them and Pelargoniums, and consequently an unreliable one, is, that with one exception (*P. Endlicherianum*) Pelargoniums are all greenhouse plants, whereas Geraniums are hardy. There is a very considerable tendency on the part of the alpine species of Geraniums to form but one root-stock, and on this account their propagation is comparatively difficult. Cuttings cannot be induced to strike, because what few branches do spring up are wholly flowering stems. I have tried sowing seeds (which, by the way, are not easily procurable) in the usual way, that is, gathering and storing them until the following spring, but have been successful only in the case of *G. subcaulescens*. I have also parted the root-stock, but in every case, except that of *G. sanguineum* (a British species), they have refused to grow. I once lost a very fine specimen of *G. argenteum* by trying the root-dividing process. The way in which a stock was kept up of *G. cinereum* and the silvery *G. argenteum* was quite accidental, and this was by self-sown seedlings coming up in the autumn of the summer in which the seed ripened. This only confirms the expediency of sowing seeds of hardy plants, especially alpinists, as soon as they are ripe, for very often seeds carefully kept until spring never come up.

G. argenteum (silvery), *G. cinereum* (grey), and *G. subcaulescens* are all much alike, having stalked, orbicular more or less divided leaves, and few flowered umbels of rosy flowers. All enjoy a dry, calcareous loam in a sunny position. *G. sanguineum* is very distinct in habit, and one of the choicest and most beautiful. It roots very deeply in loamy soil in sunny aspects, and forms yearly a few woody underground stems, from which are emitted prostrate herbaceous flowering shoots, bearing short-stalked, much-divided leaves, with slender, one-flowered, axillary stems. The flowers are individually large, bowl-shaped, and rich rosy purple in colour, finely veined. This veining is shown very prominently in a dwarf, pale flowered variety, named *G. sanguineum* var. *lancastriense*.

Amongst border species are some not less beautiful. They differ from the alpine kinds in being distinctly herbaceous. *G. arvense* is a very showy species, being quite distinct from any other with which I am acquainted. When in good form it has a bold, handsome habit, grows upwards of 3 ft. in height, and has well stalked, neatly divided, orbicular leaves. Its flowers, which are borne on branched umbels, are very similar to those of *G. sanguineum*, being purple veined with black. It succeeds well in good rich loam, and is well adapted for a shrubby border. It is not easily increased, and requires very careful division, as seeds of it seldom ripen in this country. *G. Endressi* is another very showy kind, with soft hairy stems and leaves. It grows about 2 ft. in height, and is very floriferous, flowering for upwards of six months out of the twelve, and

the flowers are a beautiful rosy self, on branching umbels. The secondary flowering stems carefully taken off are very useful for bouquet work. It is very easily increased by seed or division. *G. nodosum* bears some resemblance to *Endressi* in general appearance, but the leaves are not hairy, and the flowers are rosy purple. Its specific title is derived from its nodose or swollen roots. It is easily increased by division. *G. striatum* is a very old Italian species, long grown in gardens, in which it sows itself freely. It grows about 2 ft. in height, and bears abundantly pretty pale rosy flowers, beautifully striped with dark purple. *G. ibericum*, a Levantine species, has long been introduced to English gardens. I once recognised it in a provincial market where it was offered as a blue Geranium. It is a somewhat hairy plant, with orbicular, slightly divided leaves. It forms a neatly rounded top of foliage, through which appear short-stalked, umbellate cymes of clear blue flowers. *G. eriostemon* is a near ally, but is woolly. *G. pratense*, a British species, is an abundant bloomer, producing good-sized blue, white, or striped flowers according to the variety. Its leaves are pedate, being deeply lobed and cut. Its flowers are produced on umbellate cymes, rising considerably above the foliage as the season advances. All these Geraniums flower from May and June till September.

T. D. H.

TUBEROUS BEGONIAS IN THE FLOWER GARDEN.

THE more varied the experience with these Begonias as bedding plants the greater the claims on us they seem to have. It is hardly possible for any tender plants to pass through a more trying season than the present and still live. The earth is saturated with moisture; the nights are, for the most part, icy cold; and the days are stormy and dull with only a gleam of sunshine at long intervals. Pelargonium flowers are washed into a black mass. The soil between the plants of *Calceolarias* is strewn with blooms knocked off by heavy rain. The *Coleuses* and *Alternantheras* are much smaller than they were when planted, and look very unhappy, and all other bedding plants, except these Begonias, are in about the same condition. But the Begonias are excellent in spite of the continuous storms, cold nights, and sunless days which we have had. They still grow and flower in the most profuse manner. We planted out nearly 20,000 bedding plants of various kinds, and up to this time the Begonias are the only ones that are really satisfactory; they are the only bit of bright colour we have in the garden. We treat our Begonias for bedding in the most common-place manner. We sow the seed in August as soon as it is ripe, growing the plants on in pans in a warm house until the end of the year. The pans are then placed on the floor of a cool house where they remain until April or May following, when they are brought up to the light and the soil kept moist. In June we make a bed of soil in a cold frame and in this plant the young plants and let them remain there until they die down in autumn. The winter treatment of the young tubers, as well as those that have been bedded out in the flower garden, is just the same; on the first approach of frost they are taken up, all the earth is shaken from the roots, and then they are laid on the floor of a plant house to which fire heat is only applied to keep out frost. As the tubers lie on the floor beneath the stage, they take but little room. In April, when they begin to show signs of starting into growth, a cold frame is prepared for them. The frame is placed in a sunny position in the frame ground, a depth of 6 in. or 8 in. of soil is placed in the bottom, and in this the tubers are planted 6 in. apart each way; as they advance in growth the air is increased until the lights are left off altogether during the day. From this bed of soil the plants are lifted, placed on a hand-barrow, and carried to where they are wanted. It has been recommended that tubers for bedding should be started in heat on beds specially prepared. Such treatment may do for the warmest parts of Ireland, but it will not do for England,

not even the favoured county of Somerset. I can get them quite as large as it is necessary to have them under the treatment just described, without the aid of artificial heat. Our plants begin to flower directly they are bedded out at the end of May, and to have them more forward would be to run great risk of losing them altogether. Some tubers left in the ground all the winter have come up very strongly, and have commenced to flower.

J. C. C.

WHEN TO SOW HARDY ANNUALS.

SEVERAL remarks have appeared lately in THE GARDEN upon this subject; to my mind the advice to sow all hardy annuals in the autumn is the worst that could be given. There may be cases in which autumn-sown annuals would be required—that is where spring bedding is carried out; then *Silenes*, *Saponaria*, *Virginian Stock*, *Nemophilas*, *Limnanthes Douglasi*, and some others are indispensable; but in the case of ordinary well stocked gardens there should be such a wealth of hardy spring-blooming perennials, bulbs, &c., that annuals at that season would not be required. Again, the ordinary succession of these things would continue far into the summer; therefore annuals are not really required until the summer is well spent. I think that instead of sowing in autumn, annuals as a rule are even sown too early in the spring. When sown late they last much longer than when sown early. Annuals that bloom in June and July are quickly hurried to seed, and are sown over; whereas when they do not come into flower before August, and this is the time when the ordinary herbaceous borders begin to look tame, the longer and cooler nights and diminished sun-heat enable them to hold on until in fact the frost comes and stops them. Thus treated, annuals are valuable, but in their case, as in many others, the more naturally they are treated the more pleasing they are. I saw last year a garden made very gay entirely with annuals. It was newly laid out, and the shrubby beds and borders looked bare. To fill all with perennial plants was out of the question, so annuals were chosen; the ground was well manured and dug, the seed was sown in the end of May, and the selection confined to a dozen sorts—viz., *Calliopsis bicolor*, *Centaurea Cyanus*, *Eschscholtzias*, *Larkspurs* (tall and dwarf), *Linum grandiflorum*, *Godetia Lady Albemarle*, *Lupines*, *Nemophilas*, *Malope grandiflora*, *Poppies*, *Leptosiphons*, and dwarf *Nasturtiums*. They were not sown in any formal manner, but strewn about in the most irregular way. The surface was soon green with young plants; by-and-by a flower here and there appeared, then other flowers, and thus the evolution went on continuously until the whole place was a gorgeous medley of flowers, which continued until a severe storm of rain and wind one October night smashed them all up. Now, my contention is that had these seeds been sown in March—the usual time—the whole display would have been over by the end of August, and the winter waste lengthened by two months and more. Had they been sown in autumn, they would have been all over by the end of June or early in July.

Newry.

T. SMITH.

Herbaceous rubbish.—I am very glad that there is some prospect of our being advised what to avoid as well as what to get. Might I suggest that all readers of THE GARDEN who grow herbaceous and alpine plants should, from their own experience, send in a simple list of plants they do not advise their brethren to grow? and if these were collected together, they might in the end form an excellent "index expurgatorius," which would be of use to future purchasers. Catalogues cannot be depended upon, whether it be that growers for sale do not take the trouble, or are so enthusiastic, that provided a thing is herbaceous and hardy that is enough; but the fact remains, and too often when plants are sent to compensate for carriage they are some easily grown and propagated plants of which a year's experience is enough; there are some families which are hope-

lessly bad; there are others which contain some highly respectable members; while others are thought good for cutting. Take the Groundsels; highly valuable as *Senecio pulcher* is, I have two now in flower which are not half as good as the common Ragwort of our fields and lanes, and which must make way for something better. I have Campanulas which are a pest to the borders, and Anemones which are the bane of the rockery; and had such a list been in existence, one would have been saved a deal of trouble.—DELTA.

Meconopsis Wallichii has been fine here, bearing from twenty to thirty flowers every morning on plants over 6 ft. high. As a Poppy the genus is singular in liking a moist soil and partially shaded position. In all its phases of leafage and flower it is a lovely plant, as is also the yellow *M. nepalensis*, which, however, flowers much earlier and seems harderier.—B.

Root-work.—In the town paradise which Mr. Albert Grant tried to make at Kensington, and which is now as strange a piece of weediness as one could find, one of the features is perfectly rotten banks made of tree roots. It is only a few years since the garden was made, and yet these always ugly objects have already gone to powder. All lovers of plants, and particularly alpine plants, should beware of tree stumps!—V.

Old-fashioned plants.—Can anyone tell me the modern name for a plant described by Gerard as Sweet St. John? Also has anyone ever met with the double form of *Lychnis Flos-cuculi*, called by Gerard Double Crow-flower or Wild William? In an old-fashioned garden the other day I saw a double *Geranium pratense*, and another very handsome plant, that looked like a gigantic form of *Lotus corniculatus*. Has anyone ever heard of a climbing Meadow Sweet?—S. S. J.

Senecio speciosus.—This is a good plant for the mixed border in places where cut flowers are in demand. It lasts long in water, and keeps blooming continuously through the summer. The winter being so mild, I cannot speak as to its hardiness. I grew it in pots last year, but found it unsuitable for that purpose, the spikes growing so long and straggling. Planted out in the open border, it does not grow so tall. It has bloomed since May, young plants carrying from twelve to twenty spikes at a time. I have one fault to find with it, however, and that is, its not being quite telling enough in colour, being more lilac than purple—at least so it is with me.—R. STEVENS, *Paston*.

Saxifraga diversifolia.—This interesting and pretty plant sent to me by a nurseryman some eighteen months ago under the name of *Hypericum* species from the Himalayas is now nicely in bloom in a shady border at the end of my garden, and quite deserves all you say in its praise in your last issue (p. 87). It is well figured in the January number of the *Botanical Magazine* for this year, and is more than usually well supplied with names, as it has been described by various botanical authorities under the names of *S. parnassifolia*, *S. Moorcroftiana*, and *S. lysimachioides*. It is found in the range of the Himalayas from Cashmere to Bhotan at elevations varying from 9000 ft. to 17,000 ft. above the sea level.—W. E. GUMBLETON.

Francoa ramosa.—The discussion about the plant which should rightly bear this name proves how mixed are our plant names and how little of meaning there is in them. "Delta" sends me a private note to say that my pink variety is *F. sonchifolia*—the white variety being *F. ramosa*. I find on tracing out the meanings that *Francoa* means that the plant was named after Franco, a Spaniard, and *ramosa* means branched, a feature common to both the white and the pink. Then *sonchifolia* means Sow Thistle-leaved, and again both have leaves like the Sow Thistle, as has also the *F. rupestris* sent me by Mr. Wolley Dod, who had it thus named by Mr. Harpur Crewe, and which again appears to be identical with the white-

flowered plant of "Delta." Lastly, Mr. Gumbleton finds the term *appendiculata* to be a synonym common to all. But what is the appendage which gives this distinction to the plant I cannot discover. At any rate all the plants appear to be alike in leaves, stalks, and flowers, excepting only in the colour. I therefore think the names will do very well, viz., *F. ramosa* for the pink, and *F. ramosa alba* for the white variety. At any rate, do not let us have *F. sonchifolia* as the name for so lovely a plant.—BROCKHURST, *Didsbury*.

—*Francoa ramosa* is, I have no hesitation in saying, always white. Moreover, it is not hardy, and requires the protection of a greenhouse in winter. *Francoa rupestris* I raised from seeds sent me by Mr. Thompson, of Ipswich. It may very possibly be a very bright-coloured variety of *F. sonchifolia*. It is, however, of a much more robust constitution and stands any amount of cold. I have lost *F. ramosa* and *sonchifolia*.—H. H. CREWE.

—With us this plant agrees with "Delta's" description; the flowers are pure white, and the spikes grow over 2 ft. in height. There being such differences of opinion respecting this plant, I cannot say whether ours is true to name or not; it was received from the gardens at Milne Garden, and this is the name we had with it. The flower-spikes are not branched, as Mr. Wolley Dod says they should be; however, they may come so occasionally. It will not be in flower with us for a month yet.—R. STEVENS, *Paston*.

—It is evident from the notes on this subject that the nomenclature of these plants has got somewhat mixed, and it would be well that it should be cleared up. It is quite clear, I think, that "Brockhurst's" plant is not *ramosa*, but that it is the species or variety named in Ware's list *sonchifolia*. I sent a piece of that which I have to "Brockhurst" who seems to have it as *ramosa alba*. Then the other day I met one in a garden in Staffordshire which was called *appendiculata*; this was white with purplish spots on it, but I found *appendiculata* described in the "Cottage Gardener's Dictionary" as purple. I have asked that a flower and leaf of this should be sent to Mr. Baker, of Kew, and I am sending him a piece of mine with a request that he will kindly give us his judgment on the matter; and if any of the growers of herbaceous plants who may possess any of the *Francoas* would do the same we might get at the bottom of it.—DELTA.

Loose gravel on walks.—Where there is loose gravel or shingle lying about on the surface of walks it is evident that the material is not a binding one, and that if the shingle be swept off, the evil will soon become as bad as ever. The best remedy would be pouring over the surface some boiled tar, but then the colour might prove objectionable. The next best thing, therefore, will be to get in the winter some very finely screened sandy clay—rather more of clay than sand. Spread it thinly over the surface, and apply the roller whilst it is raining hard, so that the material may become not only like mortar, but will not adhere to the roller. If not done during rain, then the watering-pot should be freely used. Whenever the gravel is by rolling worked into a soft mortar-like condition, and is so left to get solid and dry, a firm, hard path is almost invariably the result.—A. D.

SHORT NOTES.—FLOWER.

Bronzy Tropæolum (J. D. N.)—The flower you send represents a colour by no means common—a beautiful soft, satiny, Wallflower tint, well worth perpetuating.

Double Carnations becoming single. Last year we planted in a good border some fifty plants of double Carnations, named varieties. They all flowered well; this year, however, the flowers are all single. Can anyone oblige me with an explanation of this occurrence?—J. W.

Beware of Bindweed.—The power of this plant to destroy vegetation was probably never better illustrated than in the garden at Kensington House, which, neglected only for a short time, has now its beds of *Rhododendrons* and other choice shrubs completely hidden by this pest.

Hardy plants and the season.—Although we have had many cool, wet summers, yet have I never seen hardy plants thriving and looking so green and vigorous as they do now. Especially is this the case with Primroses and Polyanthes, all of which are not only continuing to make vigorous growth and to be full of rich green leafage, but actually are, in many instances, blooming freely. I have but just now gathered quite a charming bunch of many coloured Primroses, a most unwonted thing to do in the month of July, for as a rule here in all summers the plants have been by thrips and heat denuded of their leaves. It is not merely one or two plants that are blooming, but many, and the circumstance is indeed so strange at this time of year that I feel it merits more than passing notice. Then all kinds of Violas and Pansies are blooming singularly well, and are standing the season beyond all precedent. Usually many spring-planted plants die during the summer, but this year not only is this a rarity, but the plants flower most profusely, and where the self-coloured sorts are in masses they are making most effective displays. The Old Blue King and Blue Beard Pansies are really beautiful; so also are the mauve *ilacina*, the yellow Sovereign, the purple Mulberry, and the white Vesta, and for the production of masses of bloom these seem to be unrivalled. But all kinds of perennials, whether spring, summer, or autumn bloomers, are thriving wonderfully, much more satisfactorily than are many tender things which need sunshine and heat. The alternations of rain and sunshine seem to have suited the hardy plants better than too much cloud and rain, for although Primroses always the first plants to tell of heat in the open, are so full of leafage, yet the soil is comparatively dry. A cool, moist atmosphere is often more beneficial than abundant rains.—A. D.

EDITOR'S TABLE.

PLATYCODON GRANDIFLORUM.—The handsomest perhaps of the Hairbell race of plants, and always very fine and showy in very warm soils, but slow in some. Good specimens come to us from Coombe Wood.

DIPLOPAPPUS CHRYSOPHYLLUS.—A shrub which seems hardy, with small leaves and shoots dusted over with gold like golden Ferns. It seems to flower freely at Coombe Wood. An interesting subject for a low wall or dry bank.

SPIRÆA CALLOSA PUMILA ALBA AND SIBIRICA.—These plants come to us most plentifully early in the summer, and it is no less pleasant to see them fresh and good now. The above two from Coombe Wood in very good condition.

BERBERIDOPSIS CORALLINA.—This excellent and distinct shrub is sent to us by Messrs. Veitch full of red berries. It has been too long a botanical curiosity, and really is a valuable thing to train up a wall or round a window on the sunny side of a house.

VERONICA ANGUSTIFOLIA.—One of the New Zealand Speedwells, slender in leaf, and with long graceful racemes of delicate blossoms. Where they grow well these New Zealand Veronicas deserve a good place and to be well grown. Admirable in all moist genial and hilly districts, and if tastefully associated with Fuchsias and other autumn blooming plants, help to make a pleasant autumn garden.

BLUE JAPAN HYDRANGEA.—This is a distinct bush with large flowers round the ray only, but with the little perfect flowers in the middle blue also. Sent from Coombe Wood, and likely to be an

excellent shrub. We suppose it to be a wild form of the garden Hydrangea, but it is said to come regularly of a good blue in the open air.

*

SIDALCEA CANDIDA.—A little Hollyhock with cream-white flowers, very good in form, and one that, like the Musk Mallow, would, we think, prove a good cutting plant for those who care for the less showy flowers. For general work the white Musk Mallow is the best.

*

CALOPOGON PULCHELLUS is a very delicate spiky American Orchid, of a bright, though pale, magenta colour, and is most refreshing to see at this time of year, when showy flowers are mostly those that remain to us. It must be a charming plant in its native bogs in North America. From Mr. Ware.

*

WALLFLOWERS IN AUGUST.—While the last suspicion of spring and early summer flowers has faded from the hot and dusty streets, Col. Stuart Wortley surprises us with a nice, fresh bunch of Wallflowers from spring-sown seed. Also blooms of a large seedling buff-yellow Carnation, which, if vigorous and free, should be increased as a good border flower.

*

THE FRANCOAS.—These have been neglected. We have not generally known the way to treat them, though the plants have been long known. Mr. Ware sends us several forms of the pinky one (*F. appendiculata*) and the elegant white one (*F. ramosa*). This year they do very well out-of-doors, but they are also very useful for cold frames or window culture, and even as greenhouse plants.

*

HARPALIMUM RIGIDUM and *Helenium autumnale* are two really good and handsome yellow flowers, now well known, and worth dozens of the ragged composites which we so often find in the "own selections" of the hardy plant nurseryman, and which go to form the rich stores of "herbaceous rubbish" which occupy the space that ought to be given to distinct and good plants that repay for the space and care given them.

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CALOCHORTUS MACROCARPUS.—The first flower we have seen of this rare Californian is from Mr. Ware. It is somewhat similar to the better known *S. venustus*, but differs from it in being quite erect, the stout stem bearing a large cup-like flower, some 2 in. across, and of a beautiful light purple, traversed by numerous pencillings and veinings of a deeper hue. It is certainly a very important new plant, and one we hope that will take the place of less handsome species. The name *C. macrocarpus* occurs in many gardens, but we doubt if the true plant is represented.

*

A JAPANESE HYDRANGEA, from Mr. Henry Stevens' garden at Addlestone, is one of the most beautiful we have seen, and, moreover, the most distinct. It is one of those species having small, inconspicuous fertile flowers in the centre of the cluster, and large showy sterile blossoms in the ray. The colour of these ray flowers, which measure 1½ in. across, is a lovely deep carmine, mottled and speckled with white. The toothed edges of these sterile flowers add much to their beauty. With it comes a variety with pure white ray flowers, a most beautiful contrast to the other. In a cut state such Hydrangeas as these are very effective, and they continue in beauty a long time.

CHRYSANTHEMUMS.—I send you a little box of flowers of the very pretty border plant, *Chrysanthemum inodorum plenissimum*. I find it very useful for cutting from, as it will last nearly a fortnight in water; it is also invaluable for making wreaths, &c. I find it described in the catalogues as an annual. The flowers in question were cut from a plant that withstood the last two winters without any protection whatever; it is now a plant 3 ft. across and 18 in. high, and a mass of lovely white flowers.—J. B. FIELD., *Stanley Hall, Bridgnorth.*

[Very pure, very double, and very large. The best we have seen of the flowers of this plant, of which we have never thought much on account of its weedy look.]

KITCHEN GARDEN.

MODEL CUCUMBER.

AFTER growing this variety for two seasons I find it to be one of the handsomest and most prolific kinds in cultivation. It produces Cucumbers averaging from 18 in. to 22 in. in length, of perfect outline, and with scarcely any neck or handle, as it is sometimes termed. Their colour is a very dark green, and they carry a beautiful bloom. The plants make strong, short-jointed shoots, and produce several fruits at each joint. They continue bearing for a long time, if properly cared for with regard to keeping the shoots tied out regularly, and cutting out the old leaves. After being in bearing a time, they require feeding with liquid manure. If grown in pits or frames the shoots must be kept thin, cutting out the old leaves as soon as they begin to shade the young, growing shoots, or young crop. By no means use shading over the glass at any time; if the plants are in good health and growing freely shading is not required, even at midsummer when we have bright sunshine.

In the Cucumber house keep the shoots well pinched back to induce them to form plenty of fruiting wood. Our house is span-roofed, divided into two divisions with a bed on each side, and a path down the centre. The soil in which the Cucumbers are planted rests upon wooden planks, bottom-heat being furnished by means of hot-water pipes under the beds. The brickwork being close, no heat is lost, and we are enabled to have a steady bottom-heat. The pipes are a good distance (3½ ft.) from the soil, which is better than when they are close to it, for, when too close, they dry it, and often destroy the crop if not well attended to with water. Top-heat is furnished by means of 3-in. hot-water pipes distributed over the house, which is better than having them all round the sides of the walls. I have pipes round the sides of the house and down both sides of the path, and in this way I obtain a regular heat all over the house.

The soil consists of good turfy loam, to which are added rotten manure and some lime rubbish to keep the whole open. Small hills are made for plants, which is planted when the soil gets warm; the plants then soon make a start and reach the wires upon which they are trained. I pinch out tops of the shoots as soon as they have made four eyes beyond the first wire. Even with the very largest squares of glass, shading is not needed. The width of the squares in our house is 18 in., and we use no shading, but give the plants plenty of water at their roots, and abundance of moisture in the paths.

Model began fruiting in February, and now at the present time, the 1st of August, it is still growing and fruiting as freely as in March and April. This Cucumber delights in rather a higher temperature than most varieties, but it will grow and fruit freely in a cold frame during the summer months. I always plant my first crops of Melons and Cucumbers on the same day, and in the same house, planting the Melons on one

side and the Cucumbers on the other. Thus they both grow and fruit freely side by side. The hills of soil are made the same both for Melons and Cucumbers, but for the former it is made a little stiffer, adding more in both cases as the roots grow. Under this treatment both fruit freely.

Bromley.

WM. CHRISTISON.

SOWING CABBAGE PLANTS.

COMMON as this operation may be considered to be, it must now receive attention, and every gardener knows what an important matter the successful management of the Cabbage crop is. Choose a border for the beds, say after Potatoes or early Peas, as poor and dry as possible, but well exposed to the winter sun. Dig it over on the evening of a very hot day. Few are aware of the advantage gained by thus economising twelve hours of sun heat. In order to obtain nice, stocky little plants, avoid giving manure of any kind. After digging tread the piece of ground, and, marking out the beds, sow the seeds and name them carefully; give a fair soaking of water, and sow soot over the beds, which serves a three-fold purpose. The seeds being, as it were, imbedded in soot are quite safe from the ravages of birds, and it also prevents the plants from "clubbing," and last, but not least, it fertilises the soil. Then spread a few spadefuls of well-broken soil over the beds, and finish them up according to taste. I always prefer sowing Cauliflower seeds in lines, but otherwise I give them the same treatment as Cabbage seed. As soon as the young plants can be handled they should be "drawn," in order to thin the beds, and laid deeply in rich, light soil, in lines 6 in. apart and 2 in. between the plants. Thus treated they will pass a comparatively hard winter in safety, and be found in spring well-rooted, bushy little plants.

W. D.

THE PEA CROP.

PEAS, speaking broadly, are not a good crop hereabout; they grow fast and tall enough, in fact too tall, and they bloom sufficiently well, but the pods form badly, and do not fill well, many having only two or three Peas in a pod, and some none at all. Huntingdonian, Little Wonder, and G. F. Wilson are amongst the worse, and Sharp's Invincible, Fortyfold, Advancer, and Wellington are the best. These are of the marrow type; some kinds are only in bloom, so cannot say how they will be as yet, but we do not expect them to be better than the rest unless we get a good deal more sunshine than we have as yet had. It is not because our soil is damp and cold, or shaded in any way, nor because we cultivate badly. We trench two spits deep, working in manure in the bottom spit, and we sow thinly 15 ft. apart, planting Ashtop Potatoes between them 30 in. apart, and Brussels Sprouts between each row of Potatoes in the early part of June, as we want to make the most of the ground. By planting the Peas in this way they get plenty of air and light—two important points in Pea cultivation. All kinds of Peas are this year growing from 1 ft. to 3 ft. over their average height, and they do not possess that dark green colour which one likes to see, clearly showing that they want warmth; for although they consume large quantities of water, as the dry soil when the crop is cleared off indicates, yet they like warmth. We usually mulch ours, but this is not needed as yet this season. Mildew is now beginning to make its appearance. As regards new Peas, are we advancing in any way beyond size? Is there yet any better dwarf early Pea than McLean's Little Gem, or Advancer, or Kentish Invicta? or is there any better late Pea than Ne Plus Ultra or Veitch's Perfection, all points considered? It is not size, but flavour we want; height, too, is of little importance, except the whole of the haulm produces Peas. It is no unfrequent thing to see Peas produced only on one half, and sometimes not that of the whole height. The main thing is to get the largest amount of good flavoured Peas we can on a given space; but

flavour should be the first point. Is there not some danger that, owing to so many kinds being grown by seed growers, there may be some difficulty in obtaining many of our good old types true to name? The old Essex Rival does not appear to be grown now, at least it is not in many seed lists. We have far too many names and too little real variety. J. C. F.

Diseased Potatoes.—We have a fine crop of Potatoes in the garden here, each variety being better than usual, large and first rate in quality. Disease has, however, set in amongst the early and mid-early varieties. Several of the sorts, such as Early Rose, Schoolmaster, Grampian, Early Shaw, Bread-fruit, and Early Vernon, are nearly all diseased. Late varieties still, however, look promising, no appearance of disease in their haulm being as yet visible.—WM. CHRISTISON, Bromley.

Exhibition Potatoes.—A correspondent inquires how he is to prepare Potatoes for exhibition. In the first place, they must be well grown. When the tubers turn out clean, shapely, and handsome, then the grower has but to select the best and most even-sized ones, preserve them in dry sawdust to the day or so before the show; then get them out, wash and wipe them dry, re-select the handsomest, after being washed paper them up, and pack carefully for travelling. There can be no difficulty in selecting rounds from kidneys, because the forms of the tubers are so diverse and the sorts so distinct. When we are lifting roots we select as we lift any specially good-looking tubers, and lay them on one side. After the sort or row is lifted, these selected tubers are gathered up separately, and if, on a second look, any seem imperfect they are rejected. Show tubers should be free from scab or rust. They should have no disease about them or worm holes, or be in any way disfigured. Very large tubers should also be rejected, as these are rarely shapely. A dish should be always of even size. We prefer setting them up in plates as follows: If nine tubers are shown, place six of the smallest tubers for a base, and then put the other three on the top to the best advantage. In the case of a collection good setting up is of considerable importance.—A. D.

Tomatoes under glass.—Unless Tomato plants in houses can have almost unlimited space to cover, the roots are best in pots. Tomatoes will find food almost anywhere; they literally eat up the soil with their enormous mass of root fibres, but at the same time top growth is made in such abundance that the knife must be ever in request to keep it within bounds. What is needed, however, is not leafage and shoots, but fruit, and this can only be got by keeping the roots confined. Ten-in. pots are, perhaps, the best for single plants, and if set on a soil bed so that the roots may, to a limited extent, find their way into it, the plants will hold on all the better. It is important to give them plenty of room, and in order to secure this each plant should be placed quite 4 ft. from the other, and each one should be trained either to a movable or fixed flat trellis; indeed, it is doubtful whether any plan of training is better for Tomatoes than that usually applied to Peach trees in span houses, because then the plants get all the light and air possible. Thin the fruit, pinch out needless shoots, and give an ample supply of water. Liquid manure may be given freely after the plants have become strong and fruit is being formed.—A. D.

Potato prospects.—It was very distressing to read in connection with the reports of the condition of the fruit crops furnished from so many sources to find statements adverse to the Potato crop so general. From the north, where the season is always later, we learn that the Potato plants yet look fresh and vigorous; but from the west, where perhaps growth is a month earlier, the reports announce great disease, the tops especially being nearly all destroyed. Throughout this district the fungus appeared in the haulm early; indeed it was seen in some first early kinds before the month of June was out, and since then it has been

progressing fast; indeed there is hardly a green leaf left upon early and second early kinds, but such late sorts as Magnum Bonum, Reading Hero, Champion, &c., are still green, though the fungus is fast decimating the leaves. It is most probable should showers or occasional misty nights continue that we shall have to report the total disappearance of green leaves on the Potato by the middle of the month. It is yet difficult to forecast the nature of the crop and of the amount of the disease that will prevail. It is most improbable that we shall save all the crop; indeed if we can lift two-thirds sound it will be well. I have got up Ashleaf Kidney, of which only about one-twentieth were diseased, but the soil was fairly dry and far from rich. It is in the highly manured rich soils where the greatest amount of mischief is evident, thus showing that either the stems being more succulent are the more easily destroyed by the fungus in its downward course to the tubers, or else that the skins and flesh of tubers grown in rich soil are the more tender and less able to resist the attacks of the fungus spores in the soil. I think pulling up the tops a waste of labour, and the lifting early of all kinds that are not ripe and have firm stems to be injudicious. With a month of fairly dry weather, the tubers will certainly keep better in the soil than if lifted.—A. D.

NOTES OF THE WEEK.

APPOINTMENTS.

Aug. 5 and 7. — Southampton Summer Show.

7. — Manchester Gooseberry and Flower Show.

8. — South Kensington Meeting of Fruit and Floral Committees.

IMPORTED FRUITS.—Mr. Draper informs us that the sales in Covent Garden Market of imported fruit were last Friday the largest ever known. This and many other things may, we hope, wake up our home-growers to make a greater effort, and above all things lead to such changes in other matters as will make it possible for a man cultivating some land to plant trees and wait for the result. We in fact want many small freeholders who are not above hard work.

MUSA VITTATA.—Since the appearance of my note on the flowering of this Musa at Kew I have learned that under the name *M. sapientum* var. *vittata* an excellent figure is to be found in the "Botanical Magazine," drawn from a Kew-flowered specimen. I am told that some years ago this Musa was well cultivated at Kew, many fine specimens of it being in the Palm house, where they were quite at home. It is also stated that in some of the colonies in which this variety is grown the fruit has proved in every way superior to that of the other kinds. Like the foliage, the fruit is variegated.

OSBORN'S NURSERIES.—All who know these nurseries and their interesting contents will regret to know that they are to be brought to the hammer in October, and that "Osborn's, of Fulham," henceforward disappears from famous London nurseries. It was one of the best, conducted by trustworthy men, loving their work and understanding it. Nurseries where so many fine and rare trees and shrubs were grown are far too rare, and we regret much that this should disappear, as Loddiges', Rollisson's, and others have disappeared. Let us hope young firms and young men will come forward and carry on the work no less worthily than those who have passed away.

THE FILMY FERN HOUSE in the Pine-apple Nursery, Maida Vale, filled with fine specimens of *Todea superba*, is at all times a refreshing sight, but more particularly at this season when heads of new fronds are developed. The effect of such a large assemblage of this lovely Fern

is beautiful in the extreme. This *Todea* is above all others the great feature among Filmy Ferns; it is grown to perfection in a lean-to house with a north aspect, and with no means of heating it artificially; consequently the plants become frozen in winter, but even that does not injure them, for each recurring summer they wear even a healthier appearance than in the preceding season. We remember seeing the plants two years ago with every frond covered with icicles. During the summer, pools of water are constantly kept beneath the stages on the cemented floor, so as to maintain the requisite amount of atmospheric moisture, and the house is shaded from direct sunlight. Those who are interested in the culture of this exquisite Filmy Fern would do well to see this fine collection.

LICUALA (PRITCHARDIA) GRANDIS.—We are informed that the fine specimen of this rare Palm, lately the property of Mr. Wills, has been recently added to the rich collection of Palms in the Royal Gardens, Kew, where it may now be seen in No. 1 (the Aroid) house. Until within the last two years this specimen was the only one known to be in cultivation in Europe, but within that time quantities of young plants and seeds of it have been imported. The Kew specimen stands about 10 ft. high, with about 2 ft. of bare stem at the base, the rest being clothed with large dark green fan-shaped leaves, quite distinct in appearance from those of any other cultivated Palm. Last year Mr. Wills was so fortunate as to flower this plant, when it proved to be a *Licuala*, to which genus it had already been referred by Mr. Wendland.

IN BATTERSEA PARK the finest feature just now is a hedge composed of *Clematis Jackmani*, *Everlasting Pea* (*Lathyrus latifolius*), *Canary Creeper* (*Tropaeolum aduncum*), and *Eccremocarpos scaber*, all of which are flowering profusely, and their colours harmonise with each other in a beautiful manner. The *Clematis* preponderates, and forms a dense mass of the richest purple imaginable, while the others intertwine with it in a charming manner. This bright floral fence is in the sub-tropical garden, just at the point where two walks diverge which encircle the inner lake. The hedge or trellis fits into a sheltered nook, and, being above the pathway, is seen to good advantage. For several years past this has been a great attraction, but it is better this year than hitherto.

COLOURS OF FLOWERS.—To last week's *Nature* Mr. Grant Allen communicates an interesting paper on "The Colours of Flowers as illustrated by the British Flora," of which the following is an extract: "The different hues assumed by petals are all, as it were, laid up beforehand in the tissues of the plant, ready to be brought out at a moment's notice. And all flowers, as we know, easily sport a little in colour. But the question is, do their changes tend to follow any regular and definite order? Is there any reason to believe that the modification runs from any one colour towards any other? Apparently, there is. All flowers, it would seem, were in their earliest form yellow; then some of them became white; after that a few of them grew to be red or purple; and, finally a comparatively small number acquired various shades of lilac, mauve, violet, or blue. Some hints of a progressive law in the direction of a colour change from yellow to blue are sometimes afforded us even by the successive stages of a single flower. For example, one of our common little English Forget-me-nots, *Myosotis versicolor*,

is pale yellow when it first opens; but as it grows older it becomes faintly pinkish, and ends by being blue like the others of its race. Now this sort of colour change is by no means uncommon, and in almost all known cases it is always in the same direction, from yellow or white, through pink, orange, or red, to purple or blue. Thus, one of the Wallflowers, *Chelidanthus chamælo*, has at first a whitish flower, then a citron-yellow, and finally emerges into red or violet. The petals of *Stylidium fruticosum* are pale yellow to begin with, and afterwards become light rose-coloured. An evening Primrose, *Oenothera tetraptera*, has white flowers in its first stage and red ones at a later period of development. *Cobæa scandens* goes from white to violet; *Hibiscus mutabilis* from white, through flesh-coloured, to red. The common Virginia Stock of our gardens (*Malcolmia*) often opens of a pale yellowish green, then becomes faintly pink, afterwards deepens into bright red, and fades away at last into mauve or blue. Fritz Müller noticed in South America a *Lantana* which is yellow on its first day, orange on the second, and purple on the third. The whole family of *Boraginaceæ* begin by being pink and end by being blue. In all these and many other cases the general direction of the changes is the same.

RIVINAS.—Mr. Muir in his note on these berry-bearing plants does not say one word too much in their praise. They are eminently deserving of more general cultivation than they meet with at present, as from their profusely borne bright-coloured berries, and the graceful habit of the plant, they are well suited for growing along with miscellaneous store plants, and are by no means unworthy of a place on the dinner-table. We grow about a score of each kind for winter and spring use, though they will produce their berries at any time of the year. In a previous number of THE GARDEN mention is only made of three kinds, viz., *R. lævis*, *R. humilis*, and *R. flava*, though there is another red-berried kind, *R. octandra*, which is quite as ornamental. In my opinion, *R. flava*, with its bright yellow berries, is the most useful, as, with us at least, it makes a much finer plant, and bears larger berries than the red ones do. A few old plants may be cut in and grown on so as to form little standards, which when furnished with a well-berried head are very attractive. As Mr. Muir has stated, they all come freely from seeds, and also from cuttings. In the summer a cool frame where there is a little shade from bright sunshine is the most suitable position for these plants, as if grown in too high a temperature they are invariably much disfigured by red spider.—B.

Tropæolums.—All kinds of these are wonderfully gay this summer. I do not grow the Tom Thumb kinds, but have seen them blooming most profusely at Chiswick where all are grown for trial. Of these there are several colours—King of Tom Thumbs, scarlet; King Theodore, maroon; Golden King, yellow; Ruby King, carmine; and Spotted King, yellow with dark spots. There is also coming out a very bright crimson-red kind, named Empress of India, in the way of King of Tom Thumbs, but much richer in colour. All these are of Messrs. Carter's growth and are classed as *Nasturtiums*, but in reality they are *Tropæolums*. The general character of the King section is to bloom very freely early in the season; but when the first bloom is exhausted no further display is made, as the leaves overpower the remaining blooms. The compactums, on the other hand, if less gay just in the earliest part of the summer, are much more enduring, and maintain a brilliant

mass of colour till quite late in the autumn. They spread far more over the ground than the other section does, and produce from individual plants three times the amount of flower. Cuttings of these put in in the autumn keep well on a greenhouse shelf during the winter and will give plenty of tops for spring propagation. Plants from cuttings furnish more bloom and less leafage relatively than those from seed and make very effective masses of colour, but they produce no seed. The best kinds are Bedford Rival, brilliant scarlet, a very beautiful kind; Compactum aureum, clear yellow ground spotted with maroon; Octoroon, rich crimson-maroon; and Lustrous, crimson scarlet; the latter is very scarce. In the way of climbing *Tropæolums*, Brilliant, very fine form and of an intense deep scarlet hue, and Arthur Veitch, very dark rich maroon, are both fine kinds, and, indeed, are both beautiful winter bloomers in pots in a gentle heat.—A. D.

ADDLESTONE LODGE.

AT this place, the residence of Mr. Henry Stevens, is a garden wherein much may be learned as to how to make a place enjoyable by simple means without having recourse to the puerilities generally considered indispensable in garden design now-a-days. It is planned and planted with a view to obtain the boldest effects, and good use has been made of the available material. Situated in one of the most picturesque parts of Surrey, between Chertsey and Weybridge, it possesses great natural advantages, and, moreover, it is placed well away from the highway. The carriage drive, admirably planted on either side with a good selection of ornamental trees and shrubs, winds through meadow land, and immediately surrounding the house are some noble specimens of trees, including a magnificent Turkey Oak (*Quercus Cerris*), which throws its huge limbs across the lawn, and which in autumn is covered with its mossy acorn cups. The North American Red Oak (*Q. coccinea*) is likewise a conspicuous object, particularly in winter, when its foliage dies away with resplendent hues. Smaller trees abound about the house, and include some of the finest specimens of scarlet fruiting Thorns (*Cratægus coccinea*) and others that we have seen. These in autumn and winter are a sight in themselves, the trees being covered with bright red berries as large as Cherries. In the spring the place is lit up with bold masses of Paul's Scarlet Thorn properly placed—not close under the windows, but away across the meadow land where numbers are grouped in bold masses, the effect of which from the house is fine in the extreme. The same thing is done in the case of other ornamental trees and shrubs, and excellent use has been made of what we would call pictorial trees, such as the purple Beech, variegated Maple, golden Elder, or any with bold and striking leafage. Conifers, too, are made free use of, and rarely have we seen such thrifty specimens of *Abies Nordmanniana* as may be seen here, especially having regard to the comparatively short time during which they have been planted. Nordmann's Fir is certainly a most valuable conifer for a garden, as it seldom fails, and its rich, deep green foliage and tabulated branches render it most effective in the landscape. Another beautiful coniferous tree exceptionally fine here is the Knap Hill Cypress (*Cupressus Lawsoniana erecta viridis*). The erect plummy growth of this conifer and its vivid green render it distinct from any other, and the effect of a large number of it, as may be seen here, is very fine. The generous soil of the place suits all kinds of trees and shrubs, as may be imagined from the fact that in four years the

diameter of the boles of some, such as the Black Italian and White Poplars, is from 6 in. to 9 in., and even a picturesque group of Willows on the lawn looks as thriving as if they grew by the side of a stream.

On one front of the house is a well-kept lawn, the predominant feature of which is a magnificent specimen of *Rhododendron ponticum*, one of the finest we have ever seen, having a ponderous stem and a wide-spreading head. The branches of this huge shrub feather down to the lawn on all sides, and in early summer when smothered in bloom it is a floral sight worth seeing. All kinds of peat-loving shrubs thrive admirably here, particularly Ghent Azaleas, *Kalmias*, and *Pernettyas*, of which there are bushes 5 ft. high, which in autumn are wreathed with bright-coloured berries. At the time of our visit the *Kalmias* were in flower, and one, a variety of *K. latifolia*, was specially noteworthy; it had very large umbels of blossoms, each of which was not less than $\frac{3}{4}$ in. across. The ordinary form of the Mountain Laurel is beautiful enough, but this variety surpasses all we have seen. Among other noteworthy shrubs were *Spiræa arifolia*, of which there were some grand specimens completely covered with blossoms, and which for the time being were an inexhaustible supply for cutting for room decoration, for which purpose the white feathery clusters mixed with Roses or other flowers were admirable. The variegated *Aucubas* with bright red berries were also attractive, and Mr. Stevens is particularly successful in obtaining good crops of berries by simply placing the pollen-bearing varieties near those of the fertile ones. Associated with other shrubs they have a pretty effect.

Deutzia gracilis is perfectly hardy here beneath shelter of trees and was prettily in flower, as was also its hardier, but larger and showier relative, *D. scabra* fl.-pl., which like the *Spiræa* is so fine for cutting. Trailing picturesquely over some tree stumps are Clematis and other climbers, and among them we descried the Chinese *Akebia quinata* rambling about in luxuriant health, and in such a position it has been for several seasons. It is an elegant plant, when thus treated, even for its growth and foliage alone. Of plants of a herbaceous character we noticed several huge specimens of the Cape Crinum (*C. capense*) flourishing admirably in the open borders, and developing tall stout flower-stems furnished with bold handsome flowers varying from white to deep rose. About the shrubberies Lilies crop up here and there in a beautiful way, even the rather tender *L. speciosum*, which is doing admirably. No plants are tolerated unless they can well take care of themselves, the result being that only those plants are seen that are vigorous and full of health.

One of the most instructive features of the place is the conservatory, a large span-roofed structure divided into two compartments, so as to modify the temperature, one being kept a few degrees warmer than the other. This house is a veritable *multum-in-parvo*, as it contains such a great variety of subjects, all in the rudest luxuriance. They comprise numerous fine specimens of Tree Ferns, chiefly Dicksonias, a great variety of other Ferns, including some grand specimens of *Adiantum farleyense*, *Crotons*, *Dracænas*, *Ficus*, *Anthuriums*, and Orchids, which latter are quite as much at home as other plants, and quite refute the idea that they cannot be grown well with

other plants. Here they are placed in various positions—some in pots and baskets, others in suspended pans and blocks. The arrangement, moreover, is by no means conventional, for the plants are intermingled, so as to set each other off as it were. The walls covered with the spontaneous growth of myriads of Ferns add a great charm to the house, and the stems of the Tree Ferns and even the pots form a foothold for colonies of sporting Ferns, which in many instances have attained maturity and dispersed spores for another generation. Such a house as this is instructive, inasmuch as it shows what may be done with little labour, for Mr. Stevens sees to it all himself; indeed, he is his own head gardener, and has planted everything about the place. One of the greatest aids he possesses is a good supply of water, with which, by means of a hose, he waters the house thoroughly as often as required, so as to keep it constantly moist, and it not only keeps the plants in health, but keeps them clean, for the absence of insect pests is conspicuous. A curious incident has lately occurred in this house. A wren built her nest among the bulbs of a plant of *Cattleya* attached to a suspended block of cork, and in it she has brought up a brood of young ones, notwithstanding that the usual operations of watering and ventilating have been going on as usual. She built her nest of the Sphagnum gathered from the Orchid pots in the house, and of course took a considerable quantity. A singular fact is that neither the mother nor young took the least notice of the persons in the house or the swaying to and fro of the hanging block. This circumstance is almost as remarkable as that of the wren which built its nest in the body of a dead crow, which has been exhibited in the window of the *Field* office.—W. G.

PLANTS IN FLOWER.

THE VICTORIA REGIA has rarely been finer at Kew than it is this year. Its huge leaves turn up their rims boldly, a sure indication of luxuriance, and blossoms succeed each other so quickly that the plant is rarely flowerless.

CARNATIONS IN LONDON.—We notice these thriving very well indeed and flowering abundantly in the Botanic Garden, Regent's Park, proof enough that they are among the flowers which can be grown very well in London if anyone takes the trouble; not, however, in the shade of walls or trees.

PONTEDERIA AZUREA.—This plant is now in flower in the Regent's Park, and we have seldom seen anything more beautiful. The strange azure spike with the orange dots and the fine form of the flowers are very charming. One of the men in charge told us that he had seen as many as sixty spikes at a time, these spikes varying much in size and shape. It is almost worth while having a tank for this plant alone. We are proud of having figured it in *THE GARDEN*, the first plate, we believe, issued of it.

WHITE AFRICAN LILY.—Of the host of plants that adorn the capacious conservatory at the Pineapple Nursery, Maida Vale, none are more attractive than this, the *Agapanthus umbellatus albus*. It is not only an attractive plant under pot culture, but most valuable for cutting from at this season, the individual flowers being particularly well adapted for bridal bouquets, wreaths, &c. The plant differs in no way from the typical blue

African Lily, except in colour. Numerous specimens of it are now in flower, and, grouped with the blue kind and various fine-foliaged plants, they are most effective.

THE ROSY JASMINE.—This beautiful plant, named *Mascarenhaisia Curnowiana*, is now finely in flower at the Clapton Nursery. Messrs. Low, who first introduced this plant from Madagascar, have been particularly successful in its propagation, but, however quickly it may be propagated, we doubt if the supply will be equal to the demand when the beauty and value of the plant become known. A good coloured figure of the Rosy Jasmine was given in *THE GARDEN* at the beginning of this year.

OLEARIA HAASTII.—This pretty New Zealand shrub may now be considered to be thoroughly hardy, for it has withstood full exposure in the neighbourhood of London for several seasons past. It is now finely in flower in Messrs. Henderson's nursery, Maida Vale, both against walls and in the open, and in all cases it is covered with clusters of small white blossoms. It is a densely branched shrub about 3 ft. high, forming a compact rounded bush with evergreen foliage like that of some varieties of Box. It thrives well in ordinary garden soil, and is particularly well adapted for the rock garden.

CLEMATIS JACKMANI SUPERBA.—Judging from specimens sent to us by Messrs. Veitch from their Coombe Wood Nursery, this variety differs considerably from the ordinary form both in size and colour. The petals are broader, and in most of the flowers number five instead of four, and the colour is a very deep, velvety purple, while that of the ordinary Jackmani is bluer in tint. Like the type, it is a most valuable open-air plant, and poorly off indeed in that garden which does not possess at this season a flower-smothered bush of Jackman's Clematis.

CLETHRA ARBOREA.—It is much to be regretted that this extremely pretty shrub is not quite hardy in our climate, for it produces its graceful clusters of blossoms just at a season when there is a paucity of other shrubs in flower. A large specimen of it just now in full flower in the temperate house at Kew arrests everybody's attention. The flowers, which are pure white and Lily of the Valley-like, are produced in large spreading clusters, terminating the branches. It is only suitable for a large conservatory, in which it can show itself off to advantage. It is a native of Madeira.

DISA GRANDIFLORA.—A beautiful display of this showy Cape Orchid is now in perfection in Messrs. Henderson's nursery, Maida Vale. Among such a number of flowering plants there are necessarily numerous varieties, but it is not difficult to single out the very fine kind usually called *superba*, which is characterised by the intensity and richness of its scarlet colour; indeed, the variation between the poorest and the finest forms is remarkably wide. The plants are grown in pots in a spongy compost, consisting chiefly of Sphagnum perpetually kept in a saturated state, and this treatment, and the plants being in a congenial atmosphere and well exposed to light, accounts for the success which has attended their cultivation. The house in which these Disas are grown is one recently constructed specially for cool Orchids, and special attention has been paid to ventilation and the means for maintaining moisture in the atmosphere. Beneath the central stages is a

capacious tank, which always contains a good depth of water, and likewise beneath the side stages water is held by means of shallow cemented troughs, so that from these, as well as from the tank, moisture is being continually given off. The house is ventilated both in the roof and around the sides, and the heating arrangements are seemingly perfect. The house to all appearance suits the class of plants which it contains admirably, judging by the hundreds of healthy *Masdevallias*, *Odontoglossums*, and other cool-house Orchids which it holds.

RUBUS PHENICOLASIUS.—This Japanese Bramble when profusely laden with fruits, as a bush of it in the temperate house at Kew now is, is a highly ornamental object. This specimen has entwined itself around an upright support, and is some 12 ft. or 14 ft. high. The branches, which are slender, are terminated by dense clusters of fruits like those of an ordinary Raspberry, but of various shades of orange-red, and so abundant are they that their weight gracefully bends down the shoots on all sides of the plant. For a large greenhouse or conservatory it makes a handsome and uncommon object, and in the warmer parts of the country it would probably succeed out-of-doors.

FINELY FLOWERED LILIUM AURATUM.—I send you a photograph of a *Lilium auratum*, an imported bulb eighteen months ago, which has flowered beautifully with us. Last year it produced one spike with five blooms, and this year it has two spikes 5 ft. 6 in. high, with twenty-two blooms. This is undoubtedly one of the most beautiful of Lilies, perfuming the whole conservatory from the commencement of its opening.—F. W. E. [The spike shown seems a massive and very handsome one, and if, as we suppose, a pot specimen, good; but such specimens as those at Weybridge (Mr. McIntosh's) surpass all potted ones. Few people would believe without seeing them how fine they are.]

AMPHICOME EMODI.—This beautiful Himalayan plant is now one of the most attractive objects in the house No. 6 at Kew. It is a Bignonaceous plant, of dwarf growth, being not more than 1 ft. high; the foliage is pinnate, and the flowers are produced in terminal clusters. They are tubular, much resembling in form those of some species of the *Bignonia*. The colour is a delicate deep rose, with which the deep orange blotch in the interior forms a beautiful contrast. It is remarkable that such a showy and easily-grown plant should not have found its way into general cultivation, for it is many years since it was first introduced. It is showier than *A. arguta*.

HYACINTHUS CANDICANS, or as it is now called *Galtonia candicans*, is grown well, and used very effectively by Mr. Burnett at The Deepdene, Dorking. In a long border, skirting the principal walk to the kitchen garden from the pleasure grounds, there is a fine row of it placed a yard or more apart and interspersed with hardy herbaceous and other plants, above which the tall spires of the *Galtonia*, gracefully furnished with pure white bell-like blossoms assert themselves boldly, and will be the main feature of the border for some time. We are glad to see such gardeners as Mr. Burnett growing this plant so finely and using it so well, as it induces others to introduce it into their mixed borders, which too often wear a rubbishy appearance rather than abounding in attractive plants.

THE BEST CEANOTHUSES for the shrubbery are undoubtedly those that have sprung from the hardy and beautiful *C. azureus*, and of these there are now several excellent kinds in flower against one of the walls in the Pine-apple Nursery, Maida Vale. These comprise one called *Gloire de Versailles*, a very fine plant with large spreading panicles of delicate azure blue flowers, which look like clusters of feathers. In habit it is bushy, and the leaves are larger than those of most other species. There are other named varieties of *C. azureus* represented in this nursery, but through them all runs a great family likeness. Such beautiful shrubs as these should certainly embellish every ornamental shrubbery, at least in the south, where they have been proved to be quite hardy.

TWO CAMPANULAS.—I send herewith two sprays of *Campanulas* which may interest you. The lesser one is the rare alpine *C. Zoysi* referred to in my notes last week. You will see how singularly it differs in form from all other *Campanulas*, the opening of the bell being closed in to an apex, giving the front view of the flower a starlike outline. It is flowering here most plentifully. The other is a flower of a double variety of *C. Trachelium* I recently found in an old garden, and which is, I think, an exceedingly pretty *Campanula*. I suppose it has assumed the double form by long cultivation in rich soil; and, oddly enough, although there were a great many double flowers of this *Campanula* in the garden, I could not find any single ones. The gardener was unacquainted with its origin; in fact, he had never noticed that it was anything unusual. I take it to be *C. Trachelium fl.-pl.*—WM. BROCKBANK.

NEW HARDY CRINUM (C. Powell).—A new hybrid *Crinum*, which is likely to be the forerunner of a distinct race of hardy varieties, may now be seen in bloom in Messrs. Henderson's nursery, Maida Vale, where for the last few seasons some scores of plants of it have flourished in the open air without protection. It is the result of a cross between *C. capense*, the common hardy species, and *C. ornatum*, usually cultivated in stoves. The progeny is strikingly intermediate in character between the parents. The leaves are long, deeply channelled, and glaucous. The flowers, borne in terminal clusters on stout stems, rising well above the foliage, are nearly as large as in typical *C. ornatum*. The colour varies from pure white to a delicate rose pink, and the varieties differing in colour will no doubt receive distinctive names. The value of this new race of bulbous plants cannot be overrated as it is so totally distinct from any other hardy plant we have, and infinitely superior to the older varieties of *C. capense*. As there are several scores of plants still to flower in the open-air bed, there will be a continuous succession of bloom of *C. Powellii* in the Pine-apple Nursery for some time to come.

Iris susiana in Germany.—In the autumn, 1880, I got from an English firm about two dozen of this *Iris*. They were potted at once, and wintered in a brick pit, in which they flowered well the following spring. The flowers of this *Iris* being much in demand at this place, we planted the plants out, and left them outdoors during last winter, which very much resembled an ordinary English winter. But instead of flowering freely, as other *Iris*es do in Germany, they did not yield a single bloom. I obtained another lot of this *Iris* last autumn, kept them in pots like my first importation, but got no flower from them. Others hereabouts, who planted this *Iris* in the open

ground, have experienced the same mishap. I therefore believe it to be somewhat tender, and to need planting in a very sheltered spot, or in a cold frame and in mellow soil. What is the opinion of some of the readers of *THE GARDEN* in reference to this *Iris*?—E. H.

NOTES AND READINGS.

ORCHID DESCRIPTIONS.—Apropos of this subject I have just been reading Williams' "Orchid Album," first volume, and have been struck by the difference between the plate of *Pescatorea Klabochorum* there given and that of the same plant published in *THE GARDEN* of July 8. No one would recognise them to be the same plant. The flowers, foliage, and mode of flowering are all quite different in the two plates, and totally unlike. *THE GARDEN* plate is the typical one, and it answers to the description given in the Album much better than the plate furnished there with the letterpress. The way in which the plant throws up its flower-spikes is also shown to be quite different in the two plants.

*
"OUR OWN SELECTION."—That serviceable article of the writer from "Wormwood Scrubs," in *THE GARDEN* (p. 59) suggests this paragraph. "Our own selection," which, with growers for sale, extends to anything that happens to become popular among fruits, flowers, or vegetables, now includes herbaceous plants, and provides an excellent channel for the dissemination of rubbish of the kind described by "J. C. L." Our advice is "don't" meddle with such selection of herbaceous plants and alpine, or anything else, we were going to say, if you do not want to be encumbered with things you would rather not have and will have to pay for. Hardy plants, like Orchids, should be selected when they are in flower or growing, and if gardeners and amateurs would only observe this rule, there would soon be a weeding out, and nurserymen would not be called upon to keep in stock many subjects in anticipation of orders from people who do not know what they are buying, but are led away by the glowing descriptions of others. Your enthusiastic alpine or herbaceous man is seldom a safe guide for the general cultivator, and if he be a "botanist" as well, and carries a pocket lens, give him a wide berth. To ninety-nine people in every hundred pretty and interesting flowers are things of first sight, and we must consider this in gardening more almost than in anything else. "Rubbish" is not by any means confined to herbaceous plants. We have rubbish in many classes of plants, rubbishy Roses far more than good ones, rubbishy shrubs and other plants, rubbishy Apples and Pears and other fruits, and rubbishy vegetables. Over all the broad lists of plants and novelties submitted to the cultivator every year or oftener there is not a page on which the word might not be written, and it is sad to think that it is so, and that cultivators are almost helpless in the matter.

*
WORTHLESS VEGETABLES.—A writer in the *Field* is pungent on the subject of big vegetables that as regards flavour and other desirable qualities are worthless. It would seem as if some of the raisers of new vegetables had entirely mistaken their vocation, and were wholly ignorant of the proper uses of those vegetables which they have undertaken to "improve." A skilled cook,

for example, recognises the value of a good Scarlet Runner in its proper place, but a big coarse French Bean he discards at once. He likes to make a distinction between the two, and if he prefers the first large and pulpy, he prefers the second of fine quality and moderate size. Why any one should spend their energies in trying to produce a Kidney Bean that will rival a Scarlet Runner is one of those enigmas nobody may ever hope to comprehend. The same may be said of the Brussels Sprout, the value of which originally consisted in its being a "sprout" as hard as a Filbert and not much larger; but now the chief aim of some raisers appears to be to restore it to its original Cabbage proportions by a backward process of selection which they only understand. The monstrous Brussels Sprouts are now out of favour, but the Aigburth variety tends in that direction. These remarks apply also to Orions, Potatoes, Peas, and many other things. A prolific and vigorous habit, a sound constitution, and good flavour are qualities much to be desired in many vegetables. Instead of winter Broccoli of prodigious size we want varieties that will be as hardy as the Brussels Sprouts or greens—a thing not impossible. Instead of Onions of monstrous size we want varieties that will come true to description and that will not in most cases run into "neck." We have only one variety at present that is not liable to do that—the Yellow Danvers, a grand type of an Onion. Instead of Broad Beans whose qualities are measured by the length of the pod, we want prolific early sorts of the Broad Windsor type, in which the flavour is superior and the size of the Bean good, &c.; in short, instead of grossness generally in vegetables we want quality just as we do in fruit, where far more importance is placed upon flavour than upon size, unless in the production of sensational examples, which, however, are mostly only advocated on their own merits in that respect.

*
DOUBTFUL TEACHING.—In an article on herbaceous plants and their use in another paper I read that "the interest excited by individual plants may be set aside as of comparatively small moment, the real point of interest to many being the decorative effect of the whole." This is exactly the kind of teaching that led to the general banishment of herbaceous plants and variety a score of years ago or more, and produced all those baneful results which the advocates of a better state of things have so much deplored. The "real point of interest" got so narrowed down by flower gardeners that it became in the end a thing of *Pelargoniums* and *Calceolarias* principally, and will do so again probably should it get possession of gardeners' minds. The tendency to revert to the original state of things is curiously exemplified in this way every now and then. For example, no sooner have we got the simple, beautiful, single *Dahlia* than we have raisers trying to bring it to the double form again. We heard a gardener congratulating himself the other day that from a packet of seed he raised several plants that produced flowers with a double row of petals! It would be a humiliating confession, if true, that the interest excited by individual plants was of little moment; but fortunately it is not true, as the pages of the horticultural papers testify. If we want to destroy the individuality of any plant, use it to produce "a decorative effect on the whole." That will do it effectively; but isolated, it becomes an object of interest in itself.

PEREGRINE.

TREES AND SHRUBS.

FREMONTIA CALIFORNICA.

THE *Fremontia* is one of the handsomest among the many introductions that have been made to

rigour of our climate unprotected, though under the shelter of a wall it attains almost full size in a comparatively short space of time. For clothing warm, sunny walls indeed there are few finer shrubs in cultivation; in early summer its long, slender

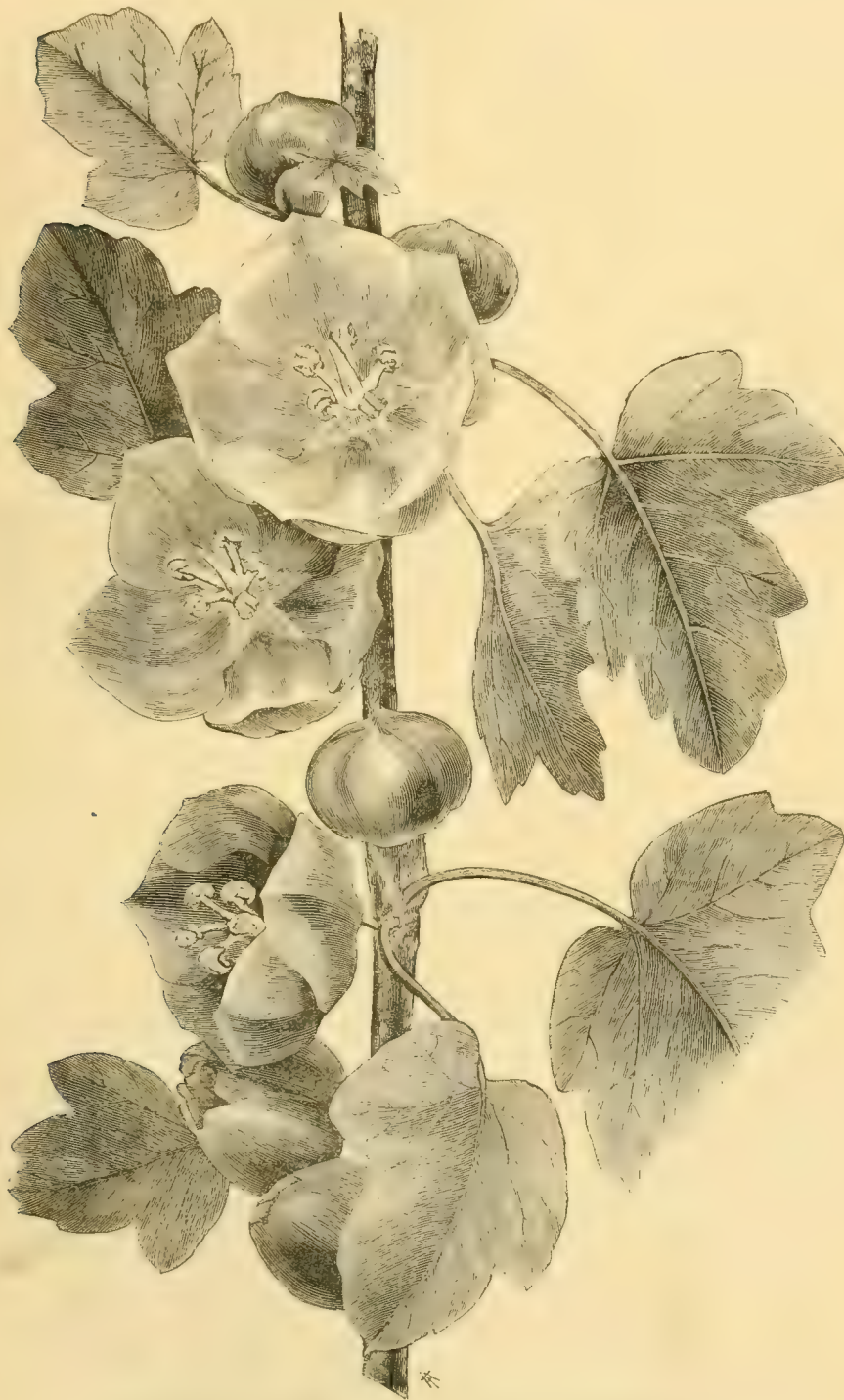
shrub thrives admirably, planted against a warm south wall, where it flowers profusely every year. In such a position it is quite hardy without further protection; it should in all cases be placed in a sunny aspect, for it seldom does well otherwise. Till within a few years ago there was a fine specimen of it against one of the walls at Kew, but, the aspect being almost due north, the wood never thoroughly ripened; consequently but few flowers were produced, and during the winter two years ago it succumbed. A warm aspect is indispensable, and this, with a light, thoroughly drained, but rich loamy soil, is all that it needs. It is a difficult plant to propagate, and it is only lately that Messrs. Veitch's propagator has been successful with it, hence another cause of its rarity. It will, however, now become more common, as plants of it are being propagated more numerous than they hitherto have been. In its native country the *Fremontia* attains 10 ft. and often 20 ft. in height, and sometimes its stem is as much as 1 ft. in diameter at the base. It inhabits the dry hills from Pit River to San Diego, but is most abundant in the foothills in the Sierra Nevada, where it was first discovered by Colonel Fremont during one of his Californian expeditions, and in compliment to whom the genus, which is monotypic, has been named. The conditions, therefore, under which it is found naturally give a clue to the treatment which it should receive in cultivation; in no case must it be subjected to excessive or stagnant moisture.

W. G.

SEQUOIA GIGANTEA AT HOME AND ABROAD.

It was stated in *THE GARDEN* some time ago that this *Sequoia*, or *Wellingtonia*, will not succeed in this country, the specimens here being but poor compared with those in their native haunts. It is only natural that a tree should do best in its native habitat, but that does not prevent such trees from flourishing in an alien land. I have seen some beautiful specimens of this *Sequoia* both in England and on the Continent. There were a few years ago in Dr. Woodman's nurseries at Exeter two beautiful *Sequoias* 40 ft. high (speaking from memory), and I dare say many readers of *THE GARDEN* have seen the two trees of this kind in front of the Beau Rivage Hotel at Ouchy. They look 50 ft. high, pictures of health and clothed down to the ground with luxuriant branches. I have a fine, but small, one in my garden in an exposed place that has withstood the winters of the last ten years and has not a dead twig on it.

I have seen these huge *Sequoias* in California. They are rightly called "Big Trees," but when you have said that, you have said all you can say in their praise; they are neither healthy-looking nor handsome unless one can call a tree with a bare trunk 200 ft. or more in height surmounted by a scraggy head handsome. I did not see one tree in California in as good health as those at Ouchy or Exeter. We cannot expect to get a tree in England in 40 years as large as those in California that are said to be 4000 years of age. But I maintain that the *Sequoia* does do well in this country, and repays one for the trouble and expense of planting it. There are 1480 of these giants of the forest in one spot in California. I measured one, and found it to be 97 ft. in girth near the ground. I had seen what I thought were big trees in Gipps Land, Australia, but none such as these, although some say that Gum trees in Australia are larger than the big trees of California. If such is the case I could not find them, and I travelled some hundreds of miles in search of them. I do not



Flowering branch of Fremontia californica. Drawn at Coombe Wood in June.

our gardens from the wealthy flora of California. Though several years have elapsed since Mr. William Lobb first sent it home when collecting for Messrs. Veitch, it is only in botanic or in the best of private gardens that it is to be found. The chief reason of this is no doubt owing to its not being sufficiently hardy to withstand the full

branches are completely wreathed with large cup-like blossoms of the richest yellow, and these remain in perfection a long time, the numerous buds opening along the branch in quick succession. The specimen from which our drawing was made was sent us a few weeks ago by Messrs. Veitch & Sons, in whose nursery at Coombe Wood this

say they do not exist, but if they do I am sorry I did not see them. The Calaveras grove of "Big Trees" is, I believe, 4000 ft. above sea level; when I visited it in April there were six feet of snow on the ground on parts of the route. Some idea may be gleaned of the size of these huge Sequoias when I say that I have ridden through the stem of one of them on the top of a coach and six, and there was plenty of room.

The principal trees of the Calaveras group are the Mother of the Forest, the bark of which taken off in sections to a height of 116 ft. was until recently shown in the Crystal Palace at Sydenham. This tree still stands, but of course is dead. The Father of the Forest is a fallen monarch, inside whose trunk hundreds have ridden on horseback, fire having burned out the heart for about 200 ft. in length. And as to the original Big Tree, cut down some years since, five men worked 25 days in felling it. The stump of this tree has been smoothed off, and now easily accommodates 32 dancers.

The South Park Grove, six miles from Calaveras, contains several hundred trees of immense proportions. There is one tree in this grove in whose base a room has been excavated by means of fire large enough to contain 16 men on horseback at one time. I am told the temperature never reaches much over 70° in the summer at the Calaveras grove. I do not for a moment suppose anyone believes that Sequoias will ever reach such huge dimensions here as they have in California. If they do, it is quite certain the present generation will never see them. But that they will flourish and form fine trees in a short space of time I am convinced.

Milton, Cambs. G. A. PASSINGHAM.

. [This tree has been greatly overrated as suitable for our country generally; the greater number of specimens one sees in the midland and home counties are in a poor state, and nearly always ugly. The good soil and good position the tree generally is favoured with carry it through its early years, but when grown above the cosy surroundings and the roots well into the natural soil of the place, we soon see its value if we take note of specimens in various positions. There are favoured spots where it will thrive, but even in these we never saw the same wonderful strength of growth which young trees show in its native land. Apart from actual results it is not likely that a tree inhabiting one of the most delicious hill regions in the world (where nearly every Pine becomes a giant), and with ample opportunities of spreading into cooler regions near, would be suited for cool northern climates. No opinion of the value of this tree based on what it does in a few places can be of general utility. For years now there has been an enormous waste of means and ground in planting trees like this of no proved value for our own woods or lawns. The best soil and all the care and expense usually go to the production of wretched sticks and singed pyramids, while very often no attention at all is paid to trees that we know are hardy, and which, well planted and well placed, would attain their full natural stature and dignity, and pass into picturesque old age many generations after being planted.—ED.]

Yew trees. Where are the largest Yews in England; and what is the extreme diameter of the spread of their branches? I want to plant and give room in order that I may have the finest specimen that can be grown. V. H.

Rare Rhododendrons. Can anyone give any information as to where the Himalayan Rhododendron Wightii or the Siberian Rhododendron chrysanthum can be got true? I have been sent several plants under the name Wightii from various nurseries, but not one genuine. JENNY HUDSON, Gloucester, Fernhill.

PLANTING TREES ON ROADSIDES.

WITH regard to the objection made to this practice by the Tottenham Local Board on the ground of the roots tending to choke up the culverts and prevent the storm waters from being carried away, as recorded in THE GARDEN (p. 74), I must say that although no one could possibly wish to see anything like a great diminution of the fine trees which go so far to adorn and beautify our English landscapes, still it can hardly be denied that roadside or hedgerow planting is in some respects objectionable, or at all events capable of considerable improvement. In the first place, the best trees for the purpose are not always selected, and in the second place, however judiciously they may be chosen, the planting of them in rows or lines at equal distances apart presents an aspect of formality not always pleasing. Their shade is doubtless acceptable during hot sunshine; still that shade in summer and the drip from their boughs in winter tend to keep the roads under them in a damp and uncomfortable condition, to say nothing of their roots obstructing drains. Many years ago Mr. Barron, of Borrowash, showed in "The British Winter Garden" that hedgerow timber, or at all events too much of it, was objectionable, tending, as it does, to retard the development of efficient hedges, inflicting serious injury upon crops of all kinds, more particularly when such trees as the Ash and the Elm are used, which they too frequently are, and as far as the beauty of the landscape is concerned he considered that it would be greatly enhanced rather than otherwise by the entire removal of hedgerow timber. He recommends in its place the planting of small groups or clumps of evergreen or coniferous trees at the corners of fields. These, he says, would afford shade and shelter to all kinds of stock at all seasons, during winter as well as in summer, and as the corners of several fields or enclosures necessarily about upon each other, groups of trees of considerable size would frequently be formed, and painful formality would be avoided. He recommends also the gradual substitution of the common green Holly as a hedge plant, instead of the white Thorn or Quick of which hedges in this country are mostly formed, and which, although interesting and pretty enough in spring and summer is neither ornamental nor useful as shelter in winter, when the latter is most required. In some parts of the country, where soil and climate appear to be conducive to the rapid development of the Holly, it certainly proves itself to be an excellent hedge plant, as may be witnessed in some parts of North Norfolk or in the neighbourhood of Cromer and elsewhere, where it appears to be extensively used for this purpose, and for which it proves itself to be greatly superior to the White Thorn. There may, however, be diversity of opinions regarding the merits of this plant and that of the time-honoured Quick for forming hedges, as well as with regard to the substitution of coniferous trees for our many fine deciduous park trees. But at the same time there can be little doubt that the promiscuous planting of too many trees in hedgerows is a great evil, as all know who happen to crop land in the vicinity of huge specimens of wide-spreading Ash, Elm, or even Oak trees. P. GRIEVE.

Bury St. Edmunds.

PLANTING EVERGREENS IN SUMMER.

WHILE agreeing with "J. C. C." (p. 42) as to the advantage of the previous preparation of large plants intended for removal and as to the probable advantage of effecting the removal at the time when such plants have finished their first growth and are about to commence the second, still I am inclined to think that July will generally be found to be a rather inconvenient month in which to perform extensive operations of this kind, and which might with equal success be performed as soon as the plants have finished their annual growth, say, the end of September or early in October, when the routine operations of the garden will be less pressing than in July, and when less attention will be necessary in the way

of watering. They will still have sufficient time to become established in the fresh soil before very severe weather sets in, which it seldom does before Christmas, and root action does not by any means cease simultaneously with the completion of the annual top growth. If, however, the transplanting of evergreens cannot be accomplished early in autumn, it is doubtless advisable to defer it until April, which many experienced planters consider to be the best of all seasons for transplanting evergreens of all kinds "J. C. C." says, "That a shrub or tree only recently removed is not in so good a condition to withstand the severity of a long winter as one that had not been disturbed. That may be the case, but an evergreen shrub or tree can hardly be in a worse condition to resist the effects of an extra severe winter than when its only partially ripened shoots are full of crude sap, as was the case during the terrible winter of 1860-61, when the preceding summer had been cold and ungenial with a minimum amount of sunshine and a rainfall greatly in excess of the average. I know a garden establishment where the only evergreens which escaped being killed down to the surface of the soil by the intense frost were a few which had been transplanted during the previous October. The sorts killed, or at least cut down to the ground, consisted of the usual kinds of evergreen Oaks of considerable dimensions, the common and Portugal Laurels, and green and variegated Hollies, &c. The recently-moved plants to which I have alluded probably owed their escape to the check given to them by removal, which may have withdrawn from their tissues a portion of the crude, indigested sap which the undisturbed plants retained. It is possible that a certain amount of root-pruning, or even the raising of a portion of the roots of such plants towards the end of the summer, might have communicated a check that would have been beneficial rather than otherwise, or might have gone far to have saved many of them from the wholesale destruction which overtook them. P. GRIEVE.

Goats and trees.—The destruction of trees and shrubs, and consequently bare, bleak, dry, unproductive and unhealthy present condition of the islands and districts of Greece and the regions around, once famous for their charms of shade, verdure, fertility and populousness, is charged to the browsing of goats. The new Government of Cyprus is considering how these animals can best be reduced or confined. Goats were introduced into another English island—St. Helena—within a century, and the trees and shrubberies suddenly and rapidly died off as soon as they began to be numerous. The same obstacle in a different and less degree is a rock of stumbling in our many attempts at forestry. A chief item of expense in many situations is that of fencing in the ground planted until the trees attain a size unattackable by cattle. For best results, close planting and entire exclusion of animals are preferable.

Magnolia macrophylla.—To those who may have seen this tree growing in conditions favourable to its well-being it will be a matter of great regret that our climate should, in a general way, not meet its requirements. More than once when on the Continent I have had the pleasure of seeing this Magnolia in perfect condition, and it would be difficult to imagine anything more beautiful, either as regards leafage or bloom. I well remember we used to employ the flowering shoots for room decoration, and with noble effect; but it was never without a twinge of remorse that I applied the knife to it, as to mutilate such a fine tree appeared to me little short of Vandalism. The largest and healthiest specimen I ever saw was in a garden in Normandy, where the natural soil was light loam on chalk. The situation was open to the south; but there was abundant and perfect shelter on the east and north, so that, whilst no cutting winds could injure the young growth in spring, the wood attained great solidity through full exposure to the sun during the summer

months. It would be interesting to learn the circumstances under which this *Magnolia* flourishes in this country and the dimensions of the best specimens; it is really one of the finest of flowering trees, but I expect that cold summers, often-times followed by severe winters, are the main causes for its non-flourishing condition with us. These obstacles we cannot overcome, but they might in a great degree be minimised, either by planting where natural advantages exist, or by creating them. Shelter, a light soil, and a sunny position are apparently the needful conditions.

Byfleet.

J. CORNHILL.

THE FLOWERING ASH.

(*ORNUS*.)

THE flowering Ash is by some placed under *Fraxinus*, while others regard it as belonging to a separate genus. Its inflorescence differs so greatly from that of the true Ashes, that from a garden point of view it is at least distinct, although the distinction is limited to the flowering season; in foliage and general appearance it greatly resembles some of the species of *Fraxinus*. The common Flowering or Manna Ash (*Ornus europæa*) is a handsome tree, especially when young and vigorous, as then the light, feathery masses of flowers are much finer and more freely produced than afterwards. Their colour, a kind of greenish white, is not so striking as the profusion in which they are borne, each shoot terminating in a cluster late in the spring. For planting in situations where moderate growing trees are desired it is well adapted, especially for single specimens; it is regular in outline, and is in no way particular as to soil provided it is not too dry. One thing that must be remembered in planting the Flowering Ash is that the roots, like those of the ordinary Ash, spread out horizontally for a considerable distance, completely exhausting the soil within reach of them; therefore a sharp outlook must be kept where it is in close proximity to choice and delicate subjects. A variety of the above (*rotundifolia*) has the leaflets much rounder than in the type. It is also

seems greatly to resemble the common kind. The Flowering Ash is easily increased either by grafting on the common kind or by means of seeds. Grafted plants are the most floriferous, although scarcely so free in growth as seedlings.

ALPHA.

EXPERIMENTAL GARDEN AT GIRTFORD.

A FEW days ago we were much interested in going over Mr. Laxton's experimental garden at Girtford, between Sandy and Blunham. The principal

been obtained by breeding between the latter variety and Beck's dwarf Gem. Runner Beans have also been taken in hand, and a very fertile and large-podded variety obtained by crossing the Champion Scarlet Runner with a large white Russian variety. The Potato is now also an object of Mr. Laxton's attention, with a view to raising varieties of higher quality and early maturity, and with stronger powers of resisting the attacks of the *Peronospora*, so destructive of late years to the Potato crop. For this purpose the Victoria, Myatt's Prolific Ashleaf, the Jersey Fluke, and



Ornus europæa.



Ornus rotundifolia.

work carried on there is the raising of new vegetables, fruits, and hardy flowers, the staple in each department consisting of Peas, Strawberries, and Roses, to the cross-breeding of which Mr. Laxton has for many years devoted considerable attention.

Vegetables.—As the raiser of the Peas William I., Supreme, Omega, Fillbasket, Marvel, and other varieties now largely grown for market Mr. Laxton's name is best known. This class of vegetable is still under his care with a view to improving the quality and appearance as well as increasing the hardiness and fertility of sorts suitable for market. The strains selected for working upon are William I., Dr. Hogg, Telephone, Marvel, John Bull, British Queen, and Ne Plus Ultra, which have all been intercrossed, and also crossed with various hardy and fertile varieties. The results are some new sorts of very handsome appearance, the pods being large, well filled, and of an attractive deep green colour. A new dwarf Pea named William Hurst, although not much exceeding 1 ft. in height, is very early, and the fine long pods almost conceal the rest of the plant. This is considered a great improvement upon Little Gem. Altogether there appear to be many hundreds of varieties to select from, the very best only being retained. Agricultural Peas have also been worked upon, and a new early Maple or Partridge Pea three weeks at least in advance of the old Maple variety has been obtained. There are also Peas with red, black, white, and striped pods, and crown or mummy Peas with almost all coloured flowers. In Broad Beans some fine long podded varieties, with the pods well filled and produced in abundance, have been secured by crossing the hardy Mazagan Bean with a long-podded, but somewhat tender sort of Mexican origin; and handsome dwarf sorts have

most of the useful market sorts have been crossed with the Scotch Champion, Magnum Bonum, and other woody-stemmed sorts generally more capable of withstanding the disease. A cross between the Victoria and the Champion is especially noticeable as bearing out the hoped-for results. The early ripening English market sorts have also been intercrossed with the best of the American varieties with a view to obtaining increased fertility combined with the better quality of the English sorts. A new early Vegetable Marrow of the bush type, called Early Orange, has been raised by crossing the Custard with Hibberd's Prolific. Rhubarb is being advanced by crossing the Monarch, Victoria, and other large late sorts with the small, but very early crimson sorts, so as to get more size combined with colour in the very early Rhubarb. Asparagus of the large French type, and of course, in Bedfordshire, the Onion, are not neglected by Mr. Laxton, who has some very fine strains of both these vegetables.

Fruits.—Large numbers of seedling Strawberries attest what Mr. Laxton is doing in the department of hardy fruits. These are mostly the offspring of crosses between Black Prince, Vicomtesse Héricart de Thury, President, Sir Jos. Paxton, Sir Charles Napier, and British Queen, some of them being also from crosses between these varieties and the best of the American and Continental sorts. Several seedlings, combining earliness with increased size, quality, and fertility, are shortly to be offered to the public. A variety called Pioneer, raised by Mr. Laxton, is now becoming much appreciated as a market Strawberry. The hardy American Vines are also being crossed with the best enduring English sorts and Continental vineyard Grapes, with the object in view of obtaining new varieties which it may be possible to ripen in the open air in higher latitudes and in colder

smaller in other respects, but, according to my experience, not so free flowering. The other species (*O. floribunda*), of which the annexed illustration is a representation, is a native of Nepal, whence it was introduced about 1820. Nevertheless, specimens of it met with are all still too small to show their distinctive characters, but when young it

seasons than has been attained of late years in England. Mr. Laxton, although somewhat disheartened by the recent cool and sunless seasons, is not altogether discouraged in the hope of yet being able to provide a Grape which may again give us vineyards in England. A very handsome and free bearing new Apple, named Schoolmaster, and one which recently received a first-class certificate from the fruit committee of the Royal Horticultural Society, will shortly be issued from the Girtford garden, and several distinct seedlings are being worked.

Roses.—As a raiser of new Roses, the name of Mr. Laxton has long been familiar to Rose growers. The varieties Annie Laxton, Charles Darwin, Mrs. Laxton, Empress of India, Emily Laxton, Marchioness of Exeter, Mrs. Harry Turner, and many others of his raising are much appreciated both as garden Roses and on the exhibition stands. Mr. H. B. Ellwanger, of Rochester, New York, in his recent carefully written work on the Rose, says that the Roses of this raiser are best adapted of all the English sorts to the American climate. All Mr. Laxton's Roses are bred in the open air, and consequently he has been able only to grow from the hardiest varieties. Although otherwise under a great disadvantage, especially during the many cold and wet summers we have recently passed through, rendering a good deal of labour in attempting to ripen seed futile, some fine seedlings containing the blood of that hardy variety, Gloire de Dijon, intercrossed with Roses of the dark Hybrid Perpetual race, will shortly be forthcoming. Many minor matters in flowers have not escaped Mr. Laxton's attention. Formerly the double zonal Pelargonium was within the scope of his labours, the well-known dwarf Jewel having, with many others, been raised by him. But latterly Mr. Laxton's object has been to condense his work, and to endeavour only to improve such horticultural plants as are of general and increasing utility, and such as are likely to make experimental gardening remunerative as well as interesting. In appreciation of Mr. Laxton's labours in cross-breeding, the late Mr. Charles Darwin was a contributor towards the establishment of the garden at Girtford.—*Bedfordshire Times*.

ROCKWORK.

WE all love rocks and like to imitate them in our gardens, but the materials at our disposal are very few and not easily managed. Brick burrs most of us have had a turn at, but, do what we will with them, we cannot somehow make them look like anything but what they are, so we cover them with plants as thickly and as quickly as we can. Then they are so heavy, we want quite a formidable foundation to support them; and if we want them for our conservatory floor, we must carefully examine our supports before we venture to apply the extra weight. Do what we will, they won't look like rocks. Rocks have few rectangular edges; rocks are not all 4½ ft. by 3 ft., melted together of a dirty yellow colour with black patches here and there; so brick burrs, having answered their purpose until structural alterations have become necessary, are smashed at last, mixed with mortar, and pitched in for foundations, for which they are excellently well suited.

Then cork had its season, and quite barky and rustic it looked; bundles of it might be seen going in all directions, being easily fixed, light, of capital colour and surface. All of us cried "Eureka!" and thought the problem solved at last. Well, after a bit we began to question in this fashion: "How is it," said we, "those seedlings are all eaten, and those young shoots all gone?" "Can't help it," was the reply; "shall never get anything to grow so long as that cork stays there." "Cork!" said we, "what's the matter with that?" "Just look here," says our attendant, pulling down a piece; "stand on one side, or you will be covered with insects." We do as desired, and to our astonishment see at the back of our beautiful cork dozens of creeping things running in all directions.

"Take it all down carefully," say we; "don't shake it, put it all in the fire, and give the place a good lime-washing."

We have heard of the Smithsonian system of rockwork, so we enquire about it. Nothing in Nature half so wonderful. Nature only makes a waterfall here and there, and peaks and ravines miles asunder; lakes and snow-clad mountains are scattered over the earth's surface, but by the Smithsonian system all the wonders of the world can be produced in a back garden 14 ft. by 10 ft. Then the cost—we are not all Mr. Mantalinis—we must consider that. The cost is our stumbling-block; so we must leave the Smithsonian system to our millionaire and see if we can't find something cheaper. What we want is something light, so as to be easily handled; porous, so as to hold water and mould, of an irregular shape, and capable of being adapted to any circumstances, and fixed by anyone, and not too expensive. Well, I have been studying the matter for some years, and I really think I have at last got the very thing, and I fancy the best way will be to produce it in blocks about 1 ft. across and one-half the height of an irregular conical shape. I have seven colours—black, brown, dull red, bright red, grey, dull yellow, and white.

W. H. LASCELLES.

*** [Mr. Lascelles makes excellent concrete, and is now colouring it admirably, but we hope he will let rocks alone. We have too much of the builder in the garden already, and the architect too. We might well pray to be delivered from both, and they need not regret this, considering the enormous amount of work they have to do to make our mostly wretched houses habitable, if not beautiful. Decent houses first, and cottages and farmhouses by all means. We all know what London and London suburbs are, and we have walked for days in country places without seeing a really sound and not ugly house or cottage. The houses of England will have to be rebuilt for the most part, and skilful as Mr. Lascelles is as a builder, we require all his efforts in this direction.—ED.]

NOTES FROM NORTH WALES.

LARGE bushes of Hydrangea are just now very fine, the blooms in the different stages of expansion being of various shades of colour. We have several large bushes bearing what seem to be imperfect flowers. [No doubt *H. japonica*.] The Escallonia macrantha is perpetual flowering here—we are seldom without a flower of it throughout the year—and what a fine foliaged shrub it is, and it thrives wonderfully well in most exposed places. The flower of Magnolia [*M. grandiflora*] which I send is from a grand specimen on an old terrace wall where it flowers well annually. Delphinium ranunculoides, although lumpy in the spike, is useful for cutting, single blooms being easily mounted; it is also valuable for the great length of time during which it continues in bloom. Owing to its height—7 ft. or 8 ft.—it has a fine appearance amongst Rhododendrons. The blooms of Rhododendron ponticum which I send are from very large plants removed last winter. We have had blooms on this useful evergreen shrub from the beginning of November to the end of July, a long season for one class of plant to last in flower without forcing. I also send sprigs of two useful plants for small ledges of rocks or such like places, viz., Andromeda axillaris and Fuchsia globosa; likewise Berberis Fortunei, which is so distinct as to be worth a place in some sheltered nook. I intended sending a leaf or two of Dimorphanthus mandschurica, but it was too large. It is a grand tree with a tropical aspect, very striking where it has ample room to fully develop itself and show off its grand habit.

JOHN ROBERTS.

Tan-y-Bwlch, North Wales.

Shading glasshouses.—Writing upon this subject in the *Bulletin d'Arboriculture*, M. Van Lierde suggests that in applying whitening

or any permanent shading to glass roofs a clear space of about 2 in. from the rafters should be left untouched. This I take to be a valuable hint, and its adoption to whitewashed roofs would much diminish what is unfortunately at times a necessary evil, as a considerable amount of clear light would be admitted without danger of scorching. M. Van Lierde strongly urges the use of the neat and durable lath blinds, but I much fear that until they can be sold at a cheaper rate than they now are, they will not come into common use in this country.—J. C.

GARDEN FLORA.

PLATE CCCXLVIII.

THE PHALÉNOPSIS.

(P. SCHILLERIANA AND P. STUARTIANA.*)

IN THE GARDEN for April 1, 1876 (Vol. IX., p. 312), many species of Moth Orchids are described, with notes on their culture. What I now propose is to give a synopsis of the genus and a table showing their geographical distribution.

Of the newer kinds, perhaps the finest of all is P. Stuartiana, which, whether considered as a distinct species or as a pale form of P. Schilleriana, is certainly one of the most lovely of all the kinds known. How it differs from P. Schilleriana is admirably shown in the accompanying plate. Of other recently introduced kinds mention may here be made of P. tetraspis, a fragrant species of considerable beauty. P. Marie is another pretty novelty, from a totally new habitat, which it was my good fortune to explore for the first time. P. Corningiana, so named in honour of a well known American amateur orchidist, was one of the unique novelties of the Edgware collection. In addition to these there are several other species known to exist in Malaysia and on the continent of India, which, although mentioned in the accompanying synopsis, are as yet unknown to cultivators. The appended table shows at a glance the geographical distribution of the species of this lovely genus.

Geographical distribution of the species and varieties of Phalenopsis.

Philippine Islands	Malaysia, Borneo, and Islands	India	Cochin-China
P. amabilis aphrodite intermedia Lobbi Schilleriana caeca Luddehmanniana pallens delicata ochracea pulchra cornu-cervi rosea equestris deliciosa	P. violacea Murtomiana sumatrana zebrina Gerseni Ilacina grandiflora Marie fuscata deVriesiana amethystina	P. Lowi Parishi pulchella Manni Wighti amethystina Hebe Stobartiana pantherina cornu-cervi Corningiana	P. Esmeralda

General synopsis of the genus.

I.—PETALS LARGER THAN THE SEPAL.

§ *Apex of the lip bicolorous; flower-spike perennial; leaves green.*

1. **P. grandiflora.**—Leaves light green above and below, generally broadly lanceolate; cirrhi white. Java.

a. VAR. AUREA (Ruckeri).—Petals very broad and rounded; anterior halves of the lateral lobes of the lip suffused with rich golden yellow; cirrhi golden speckled with red. Borneo.

b. VAR. FUSCATA.—Lip much suffused with orange-brown.

* Drawn from plants in Messrs. Hugh Low & Co.'s nursery, Clapton. The numbers on the plate are transposed, the upper one (1) being P. Schilleriana; the under one (2), P. Stuartiana nobilis.



c. VAR. GRACILLIMA.—Dark green leaves of *P. amabilis*; flowers *P. grandiflora*-like, very small, on a slender scape.

2. **P. amabilis**.—Leaves oblong, blunt at their apices, of a dark green colour suffused with purple beneath; lateral lobes of the lip streaked with purple.

a. VAR. ERUBESCENS.—Central lobe of the lip much suffused or pencilled with purplish brown at the base.

b. VAR. AMBIGUA.—Leaves light green, like those of *P. grandiflora*, with the flowers of *P. amabilis*.

3. **P. intermedia** (Lobbi).—Sepals and petals white, dotted at the base with rose; lip magenta-purple, shading into orange-red at the base, and streaked with about five magenta lines; cirrhi white.

a. VAR. PORTEANA.—Sepals and petals white, suffused at the base with rosy lilac; lip crimson-purple.

§ *Leaves green, spotted or marbled with grey.*

b. VAR. BRYMERIANA.—Sepals white, the lower dotted with purple at the base; petals entirely washed with lilac-purple; lateral lobes of the lips white, edged and blotched with crimson-violet, the central lobe being of a rich crimson-purple tint; cirrhi amethyst-purple. In colour this is the finest of all the varieties of *P. intermedia*.

4. **P. Veitchi**.—Habit of *P. amabilis* with faint *P. Schilleriana*-like markings on the broad leaves; roots flattish as in the last named species; sepals and petals bright rosy lilac; lip violet-purple, having two sharp straight teeth at its apex.

5. **P. Schilleriana**.—Lip having two flat recurved or sickle-like terminations to the central lobe; flower-spike annual.

a. VAR. STUARTIANA.—Sepals and petals white; the anterior portion of lower sepals and lip spotted with chocolate on a creamy yellow ground.

6. **P. leucorrhoda**.—Like *P. Schilleriana* in habit, apex of the lip having slender cirrhi as in *P. amabilis*.

7. **P. casta**.—Flowers of *P. amabilis*, the petals flushed at their bases with rosy lilac.

§ *Lip entire at its apex, having no cirrhi or dentate appendages; leaves green.*

8. **P. Lowi**.—Leaves deciduous, suffused and dotted with violet-purple; column and anthera prolonged like a bird's beak. A native of limestone rocks in Moulmein, this plant is naturally deciduous—a character not always kept up under the vicissitudes of cultivation.

II.—SEPAL AND PETALS EQUAL, OR PETALS SMALLER THAN THE SEPAL.

§ *Lip entire at the apex; central lobe concave; flower-spike annual.*

9. **P. rosea**.—Central lobe of the lip longer than it is broad, not crested.

a. VAR. DELICIOSA.—Flowers smaller and paler in colour than in the type.

10. **P. Parishii**.—Central lobe of the lip broader than it is long, crested.

a. VAR. LOBBI.—A pale coloured form, the lip rosy, not dark ruby colour, as is that of the type.

§ *Lip entire at the apex; central lobe concave.*

11. **P. Esmeralda**.—Plant distinctly caulescent, with light green dotted leaves. Originally discovered in Cochinchina by M. Godefroy-Lebeuf, and by him recently introduced in considerable abundance.

§ *Lip convex, having a central hairy or brush-like ridge on the central lobe. Flower-spike perennial.*

12. **P. Luddemanniana**.—Central lobe of the lip having a medial ridge of slender white filaments; sepals and petals yellowish white suffused at the base with amethyst and barred with brown;

flower-spike perennial; flowers persistent when fertilised, changing to a herbaceous colour and texture.

a. VAR. DELICATA.—Like the type, the brown bars being reduced to thin lines.

b. VAR. PULCHRA.—Like the type, the bars being scarcely discernible.

c. VAR. OCHRACEA.—Like the type; the ground colour yellow; a faint flush of rose takes the place of the amethystine tint at the base of the perianth segments.

d. VAR. PALLENS.—Like the type; the ground colour pale green, faintly barred with brown; lip pale rose.

13. **P. sumatrana**.—Flowers white, barred with red, central lobe of the lip having a dense shoe-brush-like apical ridge; anther bed or tip of the column being fringed as in the genus *Trichopilia*.

a. VAR. GERSENI.—Like the type, with violet bars or stripes.

b. VAR. LILACINA.—Like the type, with lilac stripes or bars, and a lilac base to the lip.

14. **P. Marie**.—Flowers white and lilac-carmine; anther bed not fringed; central lobe of the lip having sparse white filaments; not brush-like, as in the last species.

15. **P. violacea**.—Flowers greenish white with strong suffusion of violet-purple on the lower sepals; column and lip no spots or bars; sepals strongly keeled; flowers persistent when fertilised; scape flattish.

a. MURTONIANA.—A beautiful variety, introduced by Mr. Murton when superintendent of the Singapore Botanical Gardens.

16. **P. tetraspis**.—Similar to *P. violacea*, but pure white and sweetly scented.

§ *Central lobe of the lip convex, with a smooth medial ridge.*

17. **P. fuscata**.—Flowers yellow-barred or spotted with brown; flower-spike cylindrical; terminal lobe of the lip oval, glossy, with thickened margins. An interesting, but not showy species.

18. **P. sp.** (unnamed).—When in Singapore, in 1877, Dr. Little showed me an unnamed species from the mainland similar to the last, but yet distinct. It is not as yet introduced to cultivation.

§ *Flower-spike much flattened, with fleshy bracts.*

19. **P. cornu-cervi**.—Flowers yellow-barred or blotched with brown; terminal lobe of the lip cordate, smooth; flowers persistent, changing to green after fertilisation.

§ *Pigmy group. Lip obovate; the central lobe emarginate or bidentate.*

20. **P. Wightii**.—Leaves glaucous, oblong, with wavy margins; sepals and petals blunt, white, dotted with rose at the base; lateral lobes of the lip crenate, streaked with violet; apex of lip emarginate, with acute lobes; flower-spike perennial.

a. VAR. AMETHYSTINA.—Leaves undulate; flower-spike branched; the lip terminated by sharp lobes; colour white, dotted with rose.

b. VAR. STOBARTIANA.—Sepals and petals apple green, not white.

c. VAR. HEBE.—Smaller than the type with creamy-white flowers, the emarginate lip terminated by blunt or rounded lobes.

§ *Yellow flowered group, having the central lobe of the lip lunate or of a cheese-knife-like shape.*

21. **P. Manni** 22. **P. pantherina**. 23. **P. de Vriesiana**. 24. **P. antennifera**.—These four species I have not yet seen. F. W. B.

Cypripedium insigne Maulei.—Mr. Spyers is wrong as regards both my meaning and words about this plant. *Albo-marginatum* is given by "F. W. B." as a synonym of *Maulei*,

and is so regarded by others. There may be a variety like that mentioned by Mr. Spyers, who does not seem to make sufficient allowance for the variety found in this class of plants (Orchids), and which renders their nomenclature so difficult. Mr. Spyers' *albo-marginatum* must be only a form of the old *C. insigne*, in which, as most growers know, the white is not spotted, because it does not come down far enough. We have about a dozen large pots of this variety which has been frequently taken for *Maulei*. The only difficulty about Mr. Spyers' description of his *albo-marginatum* is the assertion that "it has proportionately more white" on its dorsal sepal "than any other variety." If this be so, the sepal must be nearly all white, for two-thirds or thereabout of the true *Maulei* is white. The spots, therefore, on Mr. Spyers' *albo-marginatum* must be exceedingly circumscribed in their area if they do not run into the white. Will Mr. Spyers state what proportion of the sepal of his *albo-marginatum* is white for purposes of comparison or be so good as to send me a flower of it in due season?—J. SIMPSON.

THE A B C OF ORCHID GROWING. (ANGULOEA CLOWESI.)

I HAVE read most of the papers on Orchids which have appeared of late in gardening periodicals, and I have gained much information from them. I have noticed for the most part that such papers are written for those who know the A B C, and even the grammar, of Orchid growing. But the fact is that many now-a-days begin to grow Orchids, as I did, without any previous knowledge of their peculiar habits, and for such no information can be too elementary. Experience is the best of teachers in practical gardening, but it is a very trying teacher, and one which makes a large demand on two things at least—time and patience. Almost every week thousands of Orchids are advertised to be sold by auction. What becomes of those thousands? There can be no doubt they perish by hundreds—the sad victims of crude and irregular attempts to grow them on the part of enthusiastic amateurs. But, after all, Orchid growing is comparatively easy, provided always that the cultivator possesses patience and perseverance, without which nothing that requires skill can be well done.

To begin, then, with an Orchid which can be grown almost as easily as a *Pelargonium*, I should say nothing could be better than *Anguloea Clowesi*. There is a certain amount of pleasure in growing plants which by their great, fat, luscious mode of growth seem to thank you for the care you take of them. Such a plant is this Orchid. Treat it with only tolerable deference to its wishes, and it will reward you with fine, large, beautiful leaves and gorgeous yellow flowers. When you get it, there should be four or five good-sized pseudo-bulbs, one of which, at all events, should have two large leaves on it, and the others, it may be, leafless, but fairly plump and dark green in colour. The largest pseudo-bulbs should be somewhat larger than a large hen's egg. I will suppose that you have no more accommodation for Orchid growing than I have, viz., an ordinary greenhouse kept at about 50° for a minimum in winter till the vinery is set to work, and an early vinery started in January. We will begin with this *Anguloea*, supposing that it arrives in January in the condition just mentioned. If it comes in a small pot, i.e., 4-in., put it at once into a 5-in. or 6-in. pot, and for this potting the advice to be found in innumerable articles and books about Orchids holds good without question. It is shortly this: Put broken sherds—large at the bottom, quite small at the top—mixed with some charcoal into the pot until it is three parts full. Then pack in the Orchid with lumps of fibry peat, growing Sphagnum Moss, charcoal and potsherds till it is firmly set on the top of the pot, the base of the pseudo-bulbs just resting on the surface level with the rim of the pot, but so placed as to make all quite firm. Let the material used be moderately tight; not actually wedged in, but pushed together with gentle pressure of the fingers.

The next thing to be considered is where to place the newly-potted Anguloa. I have found that for Orchids, which like a great deal of water when growing, it is a good plan to have a zinc trough, about 6 in. wide, 5 in. deep, and 2 ft. long, filled with water. Place this trough in the warmest part of theinery; then put in 5-in. pots (inverted) in the water, on which to stand the Orchids. Put the Anguloa Clowesi on one of these inverted pots, the base of the pot being just above the warm water in the trough. Syringe it well, so that the water flows over everything, and leave it till next day, when you may repeat the process of watering—certainly as far as regards the leaves, probably also as regards the material in the pot—but you must take care not to saturate this too much daily at first, and you must be careful that the water used is pleasantly warm to the finger.

Water carefully after this day by day, and you will soon see the pseudo-bulbs grow plumper, and smoother, and greener. Then you will notice at the base of the large pseudo-bulb the new growth begin to appear. Now dip the whole pot in warm water, let the water bubble through as long as it will, then replace the plant in the trough. This may be done once a week after you see the strong, white roots coming at the base of the new shoot. The syringing must be continued daily, or twice a day in dry, bright weather. The young growth should go on developing rapidly, and if the plant has been well treated the previous year, about the time the new shoot is from 4 in. to 6 in. long you will see the flower-buds appear, coming from its base. The plant may now be dipped twice a week, or even oftener if the weather is sunny. It must, moreover, be carefully shaded from sunshine by the usual method of whitening the glass.

Green fly, scale, and mealy bug are all enemies to this plant. The first must be looked for in the thick folds of the opening leaves, and be routed out; the second must be carefully rubbed off; and the third, if it appears, must be a signal for perpetual vigilance if you dare to permit the plant to stay any longer in theinery at all, for otherwise this well-known pest will ruin the Vines. The flowers of Anguloa Clowesi come singly on long stalks. Burbidge says they are like deformed Tulips, which to a certain extent is true, and sounds disappointing. But they are fine, waxy, glossy Tulips at all events, and last much longer than that well-known Dutch bulb. Besides, there is a dignity and grace and striking peculiarity about the whole family of Orchids which make them always interesting and generally beautiful; this Orchid is both.

The flowering over, you will see the new formed bulb beginning to show itself at the base of the shoot. Let it complete its full growth under the treatment above recommended, and then take the plant to a cooler and more airy situation, and afterwards move it into the greenhouse, and gradually give it more sunshine and keep it drier, till in November watering may entirely cease with the exception of a dash from the syringe now and then. The guide for watering at all henceforth must be the shrivelling of the pseudo-bulb. It may shrivel a little, but not too much. The great thing is to ripen the plant very thoroughly, for on this the flowering of Anguloa Clowesi the following year depends.

This Orchid, being such a vigorous grower, will take a good deal of manure water given cautiously, but generously. Guano water is best, not too strong, and given now and then, but only after the roots are seen to be well running in the moss and peat. A few bits of well dried cow manure may also be put in the potting material after a good year's growth has made the plant strong and vigorous.

J. L. S.

Horticultural exhibitions.—An exhibition principally devoted to fruits, but in which will figure flowering plants and market garden produce, will be held in the Champs Elysée from the 10th to the 15th of October next. At Ghent

an exhibition will also be held, devoted principally to market garden produce.—J. CORNHILL.

GARDEN IN THE HOUSE.

FLOWERS ON THE BREAKFAST TABLE.

WE hear a good deal about dinner-table decoration, but an earnest effort as regards flowers should be made also with the breakfast table. Things that look well by night are all very well in their way, but give us the things that bear the light of the morning on a nice table-cloth. The Briton will never really care about flowers till they come nearer to him—we mean the average creature, who has been trained so long with his few yellows, reds, blues, greys, &c., in lines and circles. People who love flowers will have them on their tables, of course, even if they have in London to buy the wretched samples in the shops; but, considering the opportunities for the growth of hardy and beautiful flowers, and for collecting such things in the hedgerows possessed by dwellers in the country, it is surprising they do not more often use them on their tables. Getting the fair forms of many strange and beautiful flowers near the eye is the best way to make converts. We have lately been thinking more of this subject, owing to certain white or cream-white flowers seeming peculiarly beautiful on the white ground of the table-cloth. The white Anemone coronaria we spoke of some time ago was quite a revelation in this respect; so, too, was Mr. Gray's pretty white Violet. The enemy in the way hitherto against plenty of cut flowers has, it must be confessed, been the gardener. But the poor fellow was confined in his cutting operations to a greenhouse or conservatory, which he naturally wished to have gay, and cutting flowers has been the bone of contention in many a place. Nowadays, when we have recognised the beauty of innumerable things that can be grown easily out-of-doors, there should be no more trouble in this respect. Every gardener should do his best to encourage the cutting of flowers in every way that he can, barring such few rarities or novelties as he wishes to keep for seed. A supply equal to that of twenty plant houses can be got from an open square in the kitchen garden or any other piece of healthy ground devoted to the culture of the finer hardy things best fitted for cutting only. We noticed a vigorous bed of Carnations last year flowering for nearly three months, while baskets of flowers were taken from it every week. For eight months of the year there is a procession of open-air flowers, which can be grown easily in sufficient quantity to allow of plenty of flowers for cutting for every want. A bed or a few lines of each favourite in such a spot as we mention would give a great number of flowers, and these, aided by the Roses and other bush and tree flowers about the garden, would give all the flowers that the largest house could require, and many more for those who have no garden, or for hospitals. The profusion of bloom of most things when established in good soil in the open air should clear away all doubts in this respect. The flower-cutting department might also to some extent be a nursery for some of the finer things we have to give away; but flowers grown for cutting should be carefully selected as regards their odours and forms. A good many plants, it must be confessed, have an unpleasant odour, and these should not be grown for this purpose. The gardener, we repeat, should be active to encourage an idea which would tend so much to enhance the importance and resources of his own art, and give people the highest pleasure in their homes and gardens. The smallest country place could afford a spot of ground to grow flowers for cutting. In large gardens it should be made a feature of, and we venture to say that it would be as much enjoyed for its beauty as even the best part of the flower garden. From this and the general open garden collections—the woods, hedgerows, and copses—every charm of flower life might be culled in abundance, from one end of the year to the other, for the embellishment of our homes and tables,

where flowers the most choice and elegant in form should be brought near the eye, not in coarse, unconsidered jumbles, but each thoughtfully placed where it would look best, and in such a quantity as best to show its form. The mere dab of flowers in a set place on the table is only the rude dawn of art in this direction; many things have to be placed in half a dozen different positions in a room before we know where they will look right. Many flowers deserve to be seen alone, and even a small bit of some, or two or three sprays will be best. By trying each beautiful species or form in different positions in the room in relation to different lights and backgrounds, we find how much we may enhance the beauty of the flower by studying the position or light in which it is seen to the best advantage.—*Field.*

NOTES FROM LANCASHIRE.

SOME of your readers will perhaps be interested to hear of a success, after previous failures, in establishing *Lilium auratum* in the open ground. My experience of this bulb is that the imported bulbs from Japan usually die out the third year. The first year most of them flower, the second year about half die, and the third year the rest die. Your late correspondent "Dunedin" said that he had detected by the microscope a fungus in the imported bulbs, which he considered to be owing to the bulbs, when dug up in Japan, being exposed to the air; and he considered that as each bulb contained in itself three generations, namely, the germ-bulb which would flower the following year, and another germ-bulb which would spring from the latter in the succeeding or third year; all three generations would be infected, and the bulb would most likely die out at the end of the third year. At least this is the purport, as I understood it, of his interesting letters. Be his explanation the correct one or not, my experience has been what I have above stated, and I do not believe that I have a single *Lilium auratum* remaining of the numerous imported bulbs I have bought. If it has been the same with others, we have the answer to the question that has been asked, What becomes of the thousands of bulbs that are yearly imported and sold? and how is it that the country is not full of the plant? As "Dunedin's" contributions to THE GARDEN carried conviction to my mind of the general soundness of his very novel views about Lily bulbs, I tried growing English-grown seedlings, and I think I can now say that my success has been complete, as those I obtained have this summer survived the critical three years, and appear thoroughly established. They have improved each year, and none have died. I have now some fifty or sixty flowers out, some bulbs having thrown up a stalk bearing from two or three to nine flowers. Three years ago I saw a large bed of seedlings, raised by Mr. Isaac Davies, of Ormskirk, in flower, and got some at once, which have succeeded as I have described. It may, therefore, be hoped that this splendid addition to English gardens may hereafter become as standard a naturalised foreigner as its beautiful relation, the white Madonna Lily (*L. candidum*). Indeed, *L. auratum* is, I believe, easier to grow, for with us the white Lily by no means succeeds in all gardens, but is somewhat capricious in its likings as to habitat. I have found *L. auratum* succeed best in pure peat lightened by sand only, without admixture of loam or any other ingredient. *L. pardalinum*, too, succeeds here admirably in peat, growing 8 ft. high, with large heads of numerous flowers; also *L. canadense*. *L. excelsum* is also a beautiful and

easily grown Lily in this garden, about 6 ft. high, and very striking with its buff-coloured flowers.

One or two new plants obtained from M. Froebel, of Zurich, have proved so desirable, that I hope to see them generally cultivated. One is *Campanula turbinate pelviformis*, equally hardy and floriferous with the typical forms, and more refined and beautiful than any of them both in form and in colour, which is a beautiful greyish tint of blue. *Linaria anticaria* is a charming and very free flowering plant. The flowers are larger than most of the dwarf Toadflaxes, of a soft French white colour, some without spots, and some with a pretty blue spot. *Astragalus adsurgens* is a great improvement on the previously known species of this genus, upright in growth, and with more conspicuous flowers of a dark blue colour. Some plants of *Cypripedium Calceolus* which they sent have established themselves well, flowering with the fruit season, and looking now as if they would flower better still next year, and in fact thoroughly established, though this plant is usually found difficult to establish. When grown in a good mass on raised ground, with plenty of limestone and stiff soil for the fibres to grow down with, but with 6 in. of leaf-mould at the top, it is a flower at once so interesting, and so beautiful, and so sweetly scented, too, that it is worth some effort to try to make it succeed. As a native English flower also it is interesting, though I fear the day is not distant when it will be extirpated by unscrupulous destroyers of the habitats of our rarer plants. The beautiful American companion plant, *Cypripedium spectabile*, is much easier to grow; but, in this neighbourhood at least, it must not be planted so deep as is usually recommended, nor in so shady a situation, nor must the subsoil be too wet or too shallow. A deep bed, well drained, and filled with peat, lightened with coarse sand or gravel, is its proper place, sheltered by low-growing evergreens, if possible, from the winds, which would injure the beautiful tender foliage. In fact, the edges of the same bed in which *Lilium auratum* succeeds will suit it. *Kalmia rubra*, the hardiest of its tribe, is an admirable shrub to give the required protection, and beautiful in itself as well as free flowering.

Another recently introduced plant, which, highly as it has been praised, cannot be over-praised, is *Chionodoxa Lucilæ*, and now is the time to order it. It seems to be more easily grown than its rival, *Scilla bifolia*, and, odious as are comparisons, especially to the disadvantage of so lovely and modest a flower, it surpasses it in brightness without being less delicate and refined.

Aighurth.

E. HARVEY.

HORTICULTURAL IMPOSTORS.

It is quite refreshing to read in last week's GARDEN about the blue Rose man and his habits in America. The narrative will touch a tender spot in many of your readers' memories. Last autumn he took a shop in a prominent thoroughfare in Leeds, and had some of the most wonderful productions which a bountiful Providence could bestow; and, so far as coloured figures could show, it was strange that such gorgeously and rudely beautiful monstrosities had so long remained hidden in "*La Persée*"—remained, in fact, till the hand of the elder Rose man had plucked them there. He could speak "non moshe Anglaish," and I know several knowing ones who, though doubting, could not resist the broken-French temptation, and kept settling in the shop like pigeons, and getting plucked perhaps over some *Rosa Remontant*. "She bloom all ze year in ze cold of ze

Persie montan." Perceiving no names on some bundles of Roses, and making an observation to that effect, "Oh, me connait ze name of zem chacun," said he, with a quiet smile and a shake of the head, and, picking up a dozen, begins, "Zis von, she is *Gloire de Lyons*;" and, examining the thorns of another, proceeds with his naming—Not good enough, I think; we'll pass on. "But, oh! what's this?" "*C'est Orchidée*," pointing to an illustration of gigantic tubers bearing Aster-like flowers. Finding the distinctive sepals and petals of Orchids wanting, he got contradicted, a circular double flower being too curious as an Orchid. However, he adhered with a pitying smile to his "*C'est un veritable Orchidée*." "Not good enough," again say we. Further on comes something in Flemish Pinks which is to astonish the natives, when, having resisted so long, I fell like the rest, and consider myself well let off by purchasing two Pinks at one shilling each. *Orchidée*, I may remark, turned out to be *Gentiana officinalis*.

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COTTAGE GARDENERS.

MAY I direct attention to a section of our brotherhood whose claims on the writers in THE GARDEN seem to have been for long forgotten or ignored? I mean the village horticulturist. He is really a very deserving fellow, though he be but small; in zeal and genuine love for his flowers he must be numbered with the greatest. The village parson will tell you that he wishes there were more of them, and every family had its half acre. To help him is to help the whole community. He does not indeed read THE GARDEN, nor is likely to do so, but he is not inaccessible. His well-wishers, at least, read your paper, and would gladly be go-betweens. Help "Hodge's masters" and you will help him. Tell him through this medium what to grow and how to grow it; tell him what not to grow. Tell him the points of flowers, of fruit, and vegetables that he may have the highest standard and act accordingly. Set before his masters an ideal village flower show. These are suggestions only, but I should be very glad to see them carried out.

A. T. D.

The Atkins' water-softening process.

—The water on our home estate of Greenlands is softened for all purposes, but in no department are its effects more visible and more beneficially felt than in the gardens here on the plants generally. What used to be a source of annoyance is now removed, *i.e.*, the limy deposit on the leaves of plants after hosing or syringing. When a good deal of London decoration has to be done, as is done here, and when the leaves of plants have to be in perfect health and clean, this process is found now to be, even in this item, of great value, for previously a good deal of labour had to be bestowed on them before transit in sponging and washing. But, apart from this, the genuine health of the whole growth of plant life is greatly improved. The tenderest leaf, such as that of a Vine or a Caladium, is as free from stain after watering as it was in its embryo state. Our water is softened from 21° to 5°, varying a degree or so according to the state of our river. I shall be most happy to show the process to any interested party on proper application. The laundry is another department in which this softening process is most beneficial.—HENRY KNIGHT, *Greenlands Henley-on-Thames*.

Cherry trees in Japan.—Among the flowers of spring it is to the Cherry bloom that the Japanese pay most attention. Among the sombre old Cryptomerias and Pines of Uyeno, its delicate white, or white gently tipped with pink, appears surpassing beautiful, especially on the drooping boughs. Mukojima, however, has the chief attractions. Here, along the east bank of the river Sumida, is an avenue, two miles in length, bordered with Cherry trees. Early in April fleets of pleasure boats glide up the stream, filled with gaily dressed people of all classes. In the avenue it is difficult

to make one's way, so dense is the throng. But at the side are little gardens, with tea houses where breathing space may be had, as well as refreshments, a speciality of the place and season being a drink flavoured with Cherry blossom. It is a merry sight, the endless vista of over-arching boughs as white as if laden with snowflakes, each breath of wind scattering a shower of delicate petals; the cheerful crowd of holiday-makers moving quietly, or sitting in rest houses, with their tasteful attire and winning manners; the peals of laughter and fugitive strains of music; the tidy pavilioned pleasure boats moored to stakes which support the sedgy river bank; one or two sails of barges making their way down or up stream; a glimpse of the upper reaches of the river. Cityward the pagoda and great roofs of Asakusa, and above the great city, with its grey roofs, sprinkling of white walls, and wooded bluffs. Have we reached the "land of perennial life" of which the poets of Japan have so often sung? It would almost seem so; the whole scene is so perfectly delightful, so suggestive of undisturbed peace and prosperity.

INDOOR GARDEN.

NEPENTHES AND THEIR CULTURE.

PLANTS which, in addition to the moisture given off by them in an ordinary way by evaporation, also secrete copious supplies of liquid in their pitchers, may naturally be expected to require a large supply of water, and such is the case with the *Nepenthes*. This being so, it is hardly necessary to add that success in their cultivation depends much on a free supply of water both in the atmosphere and at the root. Our stoves contain no genus of plants more interesting than the Pitcher plants. Their long arching leaves and beautifully marked pitchers never fail to arrest attention. Therefore, no collection of stove plants ought to be without at least one *Nepenthes*. Some plant growers appear to object to Pitcher plants on account of some supposed difficulty regarding their cultivation; and yet it may, with safety, be said that, when given the right treatment, no plants are less troublesome. A hundred, nay fifty, years ago when the only species of *Nepenthes* known was *N. distillatoria*, and when a high temperature along with a moist atmosphere was not easily obtainable, the cultivation of tropical moisture-loving plants must have taxed the skill of the most ingenious. We can therefore understand why Loudon should write of *Nepenthes* as being "extremely difficult" to cultivate, although he proceeds to say what the most successful cultivators of to-day would support, namely, that they "require a very damp atmosphere, much heat, and not too much light." This is exactly what they do require, and in these days of advanced horticulture these conditions are easily secured.

Soil.—Any moisture-retaining, sweet material in the way of soil will suit *Nepenthes*, the best mixture perhaps being equal parts of peat fibre and Sphagnum with a few lumps of charcoal and a little sand. I have grown some species tolerably well in an ordinary mixture of peat and loam, but I should hesitate to recommend it for general use. They may be placed either in pots or teak baskets, the latter being perhaps the best if the soil in them can be kept sufficiently moist. In the case of pots plenty of drainage should be given; they should, indeed, be half filled with clean crocks. In potting careful manipulation is necessary, as from the fineness and brittle character of the roots they are very easily injured. The soil should be pressed firmly into the pots or baskets, sufficient room being left for a good supply of water. They should be suspended from the roof or elevated on pots, so that the pitchers may have plenty of room to hang down. Water should be given every day and the syringe used as often as possible in summer, but the supply of water both at the root and overhead should be diminished during the colder months. They must, however, never be allowed to become dry at the root, or serious injury will be the result.

One frequently sees *Nepenthes* producing large, healthy leaves, but no pitchers. In such cases the plan to adopt is to cut them down to within an inch or two of the base and force them to break afresh. The young shoots thus induced to start will be found to form pitchers freely. In some species, such as *N. Rafflesiana*, *N. distillatoria*, and *N. phyllamphora*, long shoots may be encouraged and trained horizontally, which encourages them to develop robust pitchers, differing altogether in shape from those produced by small plants, these latter being broad at the base, while the former are gradually narrowed from the lid downwards to the thickness of the stalk at the bottom.

Cuttings. --

On the plants becoming leggy, they may be cut down low and the tops made into cuttings, a leaf and an eye being sufficient. Cuttings of this description, and also of larger size, strike in about six weeks in a warm propagating frame; and if the plunging material used be Cocoa-nut fibre, all that is necessary is to put the cuttings into the fibre and keep it moist until they are rooted, when they may be lifted and potted into the compost mentioned above. I have had tops 1 ft. long, with half-a-dozen pitchers on each of them, root under this treatment without suffering in the least. If a frame with bottom heat is not at hand, a flat pan filled with water and some 2½-in. pots may be used, the pots being inverted in the water, and the cutting placed through the hole at the bottom, but not allowed to touch water. Over the whole place a large bell-glass, and, thus circumstanced, if set in a high temperature, the cuttings will soon callus and emit roots. Thrips and scale sometimes infest *Nepenthes*, and for their destruction strong tobacco water is the best mixture that can be used. The skill of the hybridist has been brought to bear on these plants; but, although many distinct and beautiful kinds have been procured thereby, the result cannot be

said to have been wholly satisfactory, so many hybrids possessing no distinctive characters having been sent out as new and distinct kinds. The species deserving special attention are—

N. Rafflesiana.—This is one of the best of Pitcher plants, and one of the least difficult to manage. It is a robust grower, and has large

easily propagated, properties which unfortunately do not belong to some other kinds. It is a native of Borneo, Sumatra, &c.

N. Hookeriana is by some considered to be a variety of the foregoing, but horticulturally it is abundantly distinct, being of stiffer habit, and bearing pitchers quite different in form from those of *N. Rafflesiana*. A large plant of this kind produces fine pitchers which are of a darker hue, more rotund in form, and with a shorter hinge than in *N. Rafflesiana*. It is a native of Borneo, &c.

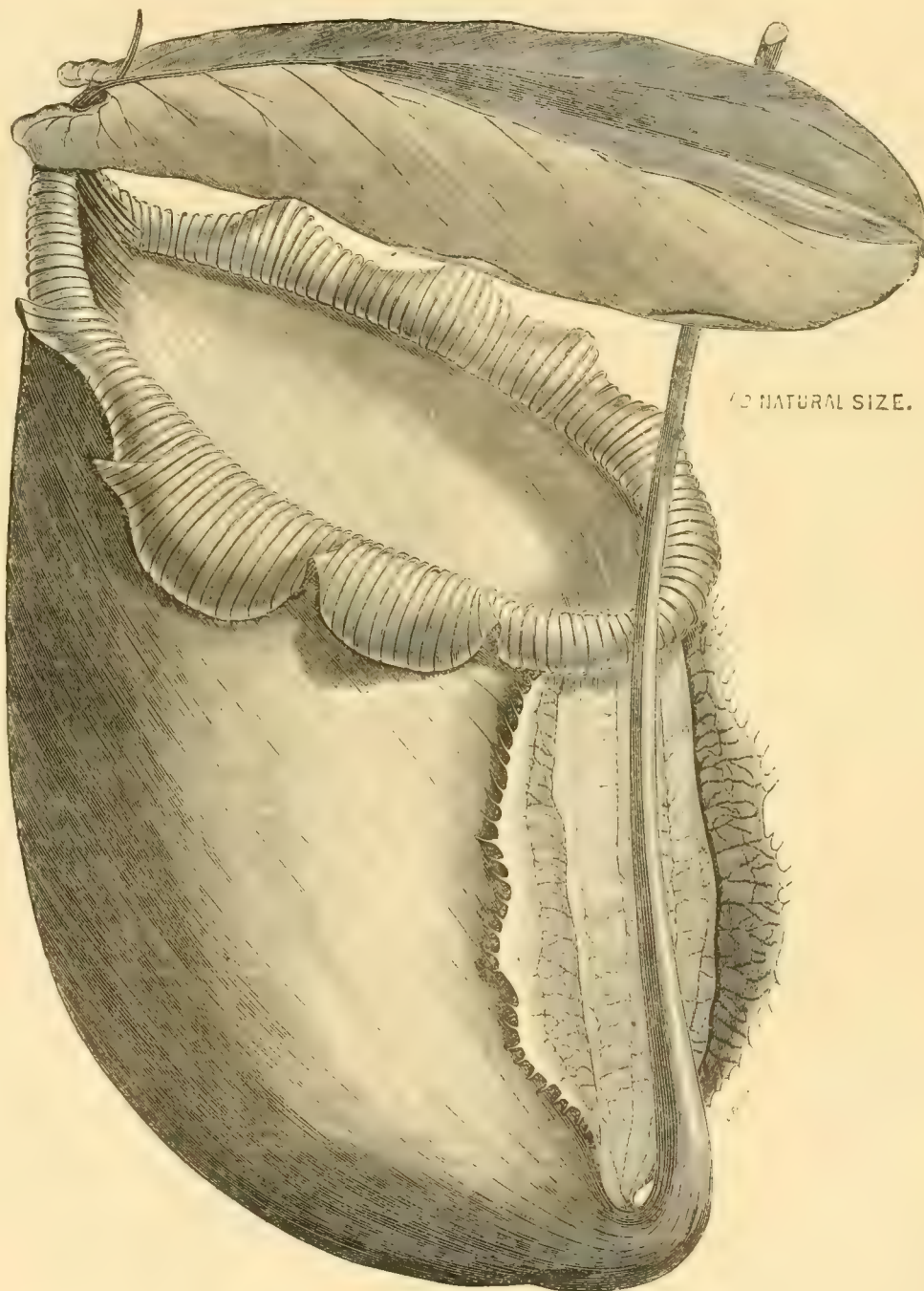
N. sanguinea is one of the rarest and most select of Pitcher plants, owing to the difficulty experienced in its propagation. It has triangular smooth stems and leathery leaves, which are sessile and stem-clasping. The pitchers are from 6 in. to 12 in. long, rather narrow, downy, and dark crimson in colour. This is a slow-growing species, and at present limited to a very few collections. It is a native of Malacca.

N. Veitchii is a distinct and beautiful plant, often confused with *N. lanata*, to which it bears a rather close resemblance. The leaves of this species are rather thick and leathery, and are covered on the under surface with rusty coloured hairs. The pitchers are about 6 in. long, about 4 in. broad, hairy, and have two rather broad wings. The rim round the mouth is broad and toothed, and is deep red coloured, reminding one of the gills of some fishes. It is a slow grower. Native of Borneo.

N. hirsuta, generally known as *N. zeylanica*

is a pretty little species with rather short leaves and long handsome green pitchers, blotched with reddish brown. *N. phyllamphora*, *N. gracilis*, *N. albo-marginata*, and *N. khasyana* are other handsome species amongst those introduced to gardens.

N. Rajah.—This, probably the grandest of all the species of *Nepenthes*, is thus described by Sir J. D. Hooker: "This wonderful plant is certainly



Nepenthes Rajah. (Native of Borneo.)

bright green leaves, the midrib of which lengthens out to a length of from 1 ft. to 3 ft., and bears at its extremity a large pitcher from 5 in. to 9 in. long, and about 4 in. in diameter. The wings are crested, and the mouth gradually narrowed to a raised hinge, on which the lid is placed. The surface of the pitcher is pale green, thickly spotted with deep purple. Under proper culture this species produces pitchers in abundance, and it is

one of the most striking vegetable productions hitherto discovered, and in this respect is worthy of taking place side by side with the *Rafflesia Arnoldi*; it hence bears the title of *Rajah Brooke*, of whose services in its native place it may be commemorative among botanists. The leaves are from 12 in. to 24 in. long, very coriaceous and glabrous with indistinct nerves. The broad ampullaceous pitcher is 6 in. in diameter and 12 in. long; it has two fimbriated wings in front, is covered with long rusty hairs above and studded with glands within. The margin is scalloped into bold undulations, and the lid is sub-orbicular 10 in. long and 8 in. broad. "N. *Rajah* is a native of Mount Kaina Balu, in Borneo, at a considerable altitude, where it was found by Mr. P. C. Veitch and Mr. Burbidge when collecting for Messrs. Veitch, who hold the entire stock of it, and by whom plants of it have been exhibited at various times. As yet no pitchers of the size which this species is known to bear have been produced in this country, although there is every reason to believe that we shall soon see some of these gigantic productions on cultivated plants. This plant was fully described in *THE GARDEN* recently; therefore further description here is unnecessary.

Hybrids.—Some of the best of these are N. Hookera, a free growing, handsome kind which first appeared at Kew—the same kind is being distributed under the name *Anerleyense*; N. Courti, a dark pitcher robust-growing hybrid, and one of the best to produce pitchers; and N. Williamsi, N. Dominiana, and N. intermedia, all good hybrids. A host of other named kinds, including some distinct species, might be mentioned here, but sufficient variety for ordinary purposes will be found among those already enumerated. N. *Northiana* is a very beautiful large-pitchered species, discovered by the lady after whom it has been named. It has been successfully imported by Messrs. Veitch, but as it does not appear to be in commerce further notice of it may be deferred.

C. Y.

SHORT NOTES.—INDOOR.

Petunias (*J. Scott*).—The flowers of *Petunia* you send represent a very fine variety, particularly if it be, as you state, dwarf and a free bloomer.

Tuberous-rooted Begonias.—All who may be looking for good double Begonias will find them in Davis and Davis *lutea*, kinds that can be strongly recommended.—J. C. F.

The white Musk Mallow.—This plant is most charming in a room, lasting a long time in flower. The white flowers with the little delicate pinky stamens are very good in form, and the foliage also is graceful. The scent is a most delicate musk.

Desfontainea spinosa.—I have had a plant of this in the greenhouse for several years; it is apparently quite healthy, but I cannot induce it to flower. What treatment should it have? I do not think it would be safe in this climate (Stirlingshire) to grow it in the open air.—S.

New Ivy-leaved Pelargoniums.—No class of Pelargoniums has shown such rapid strides within the last few years as the Ivy-leaved section, in which there now exists great diversity of colour in both the single and double kinds. For the whole of the following we are indebted to Continental growers: Eurydice has a free, vigorous habit, and large semi-double flowers of a bright rosy mauve colour shaded in the centre with violet. Except that the flower is altogether of a brighter tint, it resembles in general appearance that of the better known *Mme. Crousse*. Comte and Comtesse Horace de Choiseuil were both awarded certificates the other day by the Royal Horticultural Society. The flowers of the first are salmon-rose, with at times striped petals; those of the second are bright pink, shaded towards the outside with magenta. *Mme. Jules Menoreau* is a round double flower of a remarkably pleasing shade of deep rose, very distinct from any of the older kinds, but in intensity of coloring scarcely equal to *Mme. Lemoine*. The latter may be described as a truly magnificent variety, the habit

being free and vigorous, the trusses large, and the individual flowers very double. In this the brilliant rose colour is shaded with magenta. Robert Fortune is not new, but the colour is very distinct from that of the others. In this variety the flowers are more sparsely produced than is generally the case. The above are all double flowered kinds. Of new singles Multiflora is very beautiful. Its flowers are good in shape, and in colour very bright rose. Although a true Ivy-leaved kind, its blooms are nearly equal to the zonal varieties in form, and quite so in their beautiful tint. *Beauté de Lyon* is not new, but is still a desirable kind. It is of much stouter growth than any of the preceding, and looks as if it might have been a cross between the Ivy and the zonal sections; the flowers most resemble those of the last-named class, and the foliage that of the first. In colour the blossoms are bright scarlet, shaded with purple. There are also many other new varieties sent out this year, but, the plants being small, could not be fairly tested.—H. P.

FRUIT CROPS.

SUPPLEMENTARY ENGLISH.

Killerton, Exeter.—Of Peaches and Nectarines we have a very good crop. Apricots the best crop we have had for many years. The fruit on all the trees had to be well thinned. Plums good on walls, but very much blighted in foliage; pyramids and standards fair crop; Cherries very good; Figs scarce; Pears below the average, a few sorts very good, viz., Jargonelle, Glou Morceau, Louise Bonne of Jersey, Le Curé, and Chaumontel. Apples generally are very scarce; the best here are Hawthornden, Winter Hawthornden, Manks Codlin, Tom Putt, and King of the Pippins. Currants, Red, White, and Black, are abundant and very fine; Gooseberries an unusually heavy crop; Raspberries fair crop; Strawberries on the one and two-year-old plants have been a fine crop, although much injured by the continuous rain; plants three years old did badly; Walnuts scarce; Filberts plentiful.

Potatoes, all the early sorts, very much injured by disease; haulm entirely killed; the stalks of the late sorts are also much affected, viz.: Regents, Reading Hero, and Magnum Bonum; Scotch Champion is also affected, but less so than the other sorts.—JOHN GARLAND.

Marston, Frome.—But for two very important failures, viz., the Apple and Pear crops, we should have good cause to be jubilant as far as our crops are concerned, though the ripening is far from being satisfactory as yet. Apples and Pears bloomed abundantly, and heavy crops were anticipated. The destructive gale experienced on April 29, however, completely stripped all exposed trees, and all that are to be seen fruitful are in the most sheltered positions. We were somewhat favoured in this respect, and such useful sorts of Apples as Carlisle Codlin (a sure bearer), Lord Suffield, Hawthornden, Warner's King, Tower of Glamis, Duchess of Oldenburg, Stirling Castle, Cellini, Lemon Pippin, Winter Greening, and Sturmer Pippin are perfecting good average crops. These are all bush trees; I have not seen a good crop on a standard tree in this district. Nearly all the pyramid Pear trees again are without fruit, while on walls the only varieties carrying fair crops are Jargonelle, Williams' Bon Chrétien, Louise Bonne of Jersey, Beurré d'Amanlis, Beurré Diel, Doyenné du Comice, Glou Morceau, Ne Plus Meuris, Pitmaston Duchess, Beurré d'Esperen, Huyshe's Prince of Wales, and Beurré Clairgeau. Apricots are very plentiful. We are growing several varieties, and these in every instance are heavily cropped, but are only ripening properly under glass coping. The best are Early Moorpark, Moorpark, and Hemskirke. Peaches and Nectarines also are very abundant. The trees were at one time much affected by blister, but they have well recovered, and promise to finish off the fruit. Our trees of the newer varieties of the former are small, but I have seen Early Rivers, Early Albert, and Hale's Early in good condition; and of the older varieties I much like Early

Grosse Mignonne, Bellegarde, and Walburton Admirable. Nectarines Lord Napier, Downton, and Pitmaston are very promising this season. Peaches and Nectarines under glass have been and are particularly plentiful this season, and in spite of the absence of sunshine have coloured well and are excellent in quality. Plums are very thin in places and have been extremely dirty. The most prolific varieties are the Victoria, Early Rivers, Early Orleans, Orleans, Green Gage, Coe's Golden Drop, and Washington. Cherries have been abundant and of fair quality. May Duke, Early Red Bigarreau, Elton, and Black Tartarian were the most fruitful. Morellos and Kentish are rather below the average. Figs, where the trees were not injured during the winter of 1880-81, are very prolific, notably the Brown Turkey. Strawberries were very plentiful, but of inferior quality. Keen's Seedling, Vicomtesse Héricart de Thury, Sir J. Paxton, La Grosse Sucrée, Sir C. Napier, Dr. Hogg, British Queen, and Eleanor are popular hereabouts. Raspberries, Red and Black Currants, and Gooseberries were never more prolific; in fact, there are too many to be profitable. Walnuts and Filberts, where sheltered, are carrying heavy crops, but many large trees of the former are in a pitiable plight. The soil in this district varies considerably, but this does not appear to affect the crops to any extent. Ours is a heavy, clayey loam resting on a clay subsoil.—W. IGGULDEN.

Southgate.—Like most other parts of Middlesex that have come under my notice, the fruit crops in this locality vary much. Apples and Pears in many gardens are all but a failure, but bush fruits are plentiful. Gooseberries and Currants are abundant. Raspberries an average crop, except where much exposed to the terrible storm that occurred at the end of April, which severely cut those not sheltered. Strawberries have been plentiful, but generally deficient in flavour. Peaches, Nectarines, and Apricots are in most cases a fair average crop. Cherries moderate. Plums very thin. In orchards, and where the trees are unrestricted in growth, there is a greater scarcity of Apples and Pears than I ever recollect to have seen; but where the growth is restricted by root pruning or lifting the trees, they are mostly carrying a sufficient crop.—T. FAINES.

Londesborough Lodge, Kingston.—Apples here are a total failure, except Summer Thorne, which is bearing a good crop; Pears are mostly a good crop; Plums a total failure; Peaches and Apricots a good crop; Cherries a very heavy crop; Gooseberries the heaviest crop I ever remember; Currants a good crop, but very dirty, through swarms of green-fly; Raspberries a good crop; Strawberries rather a light crop; Nuts a fair crop, especially Cobnuts. Our gardens face the south-west, and are well sheltered from east and north. All fruit trees hereabouts are much injured by salt wind on April 29, some Pear trees only just recovering. Our soil is sandy clay.—WM. DENNING.

Holme Lacy.—The Apple crop in this part of Herefordshire is a failure; in the garden here we have none, except on trees on the Paradise stock, which are laden; we have had to thin them severely, not one kind in particular, but upwards of three dozen varieties, which speak well for the Paradise stock, although I advocate planting on the Crab principally for growing into good shaped trees that will bear good crops of fruit if kept root-pruned for a few years. The Blenheim and Ribston Pippins are the favourite Apples of Herefordshire, although Lord Suffield, Worcester Pearmain, Warner's King, and all the popular kinds do well. The soil in this neighbourhood is a deep clayey loam on the Dunstone rock. The Pear crop is under an average; those on west and south walls are far the best; on espaliers we have none, and the trees in the open are very much eaten by grubs. All bush fruits and Strawberries are heavy crops; Plums and Damsons are a failure; Peaches and Apricots good crops, and the trees are healthy; of Nuts we have a few, but the foliage is very much devoured. Herefordshire being a hilly country, there is naturally plenty of shelter. I may

mention that the cider orchards have a very forlorn appearance, being almost denuded of fruit and foliage, the latter eaten by grubs; several of the trees are past ever recovering.—A. YOUNG.

Strathfieldaye, Winchfield.—After passing through an almost unprecedentedly mild winter and a rather favourable spring, I was very hopeful of a fine fruit season, which, with the one exception of the Apple crop, has been fairly realised. I find it difficult to account for the Apple failure, as the trees were covered with fully developed blossoms apparently larger and stronger than in ordinary years. I have found that frost, when not exceeding 8° or 9° while Apples are in bloom, though it may destroy fruit, will leave enough for a crop. We had no such frost in April, or even in May, and I am driven to the conclusion that the fearful storm of April 29 so crushed and bruised the blossoms when fully open, that the result, as I have said, is almost absolute failure. Pears are plentiful, being mostly on low standards. Plums abundant. Cherries, especially Morellos, also plentiful. Peaches on open walls a fine crop, and the trees in capital health, protected with canvas coverings during cold nights, and a sharp look-out kept for the really first appearance of aphids. Apricots are a fair crop, though unfortunately branches continue to die. All small fruits have been abundant, though Strawberries have been deficient in both flavour and colour. Our soil is heavy clay on the Bagshot sands.—J. BELL.

Cobham Hall, Gravesend.—Apples are a very thin crop, except Keswick Codlin; Apricots are also thin. Gooseberries and Red and Black Currants are fair crops under standards. Strawberries are a heavy crop, but much damaged. Raspberries a fair crop, but much under average, owing to the canes made last year being small. Of Plums, Victoria and Prince of Wales are an average crop; most other sorts very thin. Peaches and Nectarines protected with fish netting good. The soil about here is gravelly, mixed with a certain amount of clay.

Potato crops are good, except but the disease has attacked the haulm very badly in the case of the early sorts. Late kinds are looking well.—F. DEUXBERRY.

Moor Park, Rickmansworth.—Apricots on all trees are a very heavy crop. Apples a partial crop; and that only on trees sheltered from the cold winds in March and April. Pears a medium crop; early varieties good. Peaches and Nectarines I never saw fruit set better or swell off to require such thinning as this year. Plums and Cherries plentiful, but trees much affected by aphides. Strawberries fine and a heavy crop, but much damaged by wet. Gooseberries, Currants, and Raspberries very heavy crop and very good. This is a fine year for Nuts, both under cultivation and in woods.

Potato disease, owing to the wet days and cold nights, has spread rapidly, especially on cold, heavy soils. On light, open soils the yield is good, and the tubers fine and clear, and free from disease.—J. C. MUNDELL.

Madresfield Court, Great Malvern. The continuation of cold, wet, and sunless weather during the present season has again been extremely prejudicial to hardy fruits, and this, combined with blight of an unusually severe character during the past three months, has been very injurious to Apple, Pear, and Plum crops. Apples here are very thin, but occasionally well laden trees may be met with, the latter being principally Keswick and other varieties of Codlins, such as Lord Suffield, Lord Grosvenor, and the old Codlin. Blenheim Orange is also bearing fairly well, but good dessert kinds are scarce. Pears on walls generally are good, on pyramid and bush trees very poor and thin. Of perry Pears of the more hardy kinds we have a moderate crop. Plums generally are very much blighted, many large plantations in the Vale of Evesham having little of either fruit or foliage; the best crops are to be found in roadside cottage gardens, the road dust having been beneficial in checking blight.

Apricots are generally abundant, but small, a remark which also applies to Peaches and Nectarines where kept clean. Figs on walls are abundant. Bush fruits, with the exception of Black Currants, very good; Strawberries have been abundant, and late kinds are still in good bearing, especially where the fruit has been tied up. Nuts abundant. Potato disease very prevalent amongst early kinds.—W. COX.

Hatfield House, Herts.—Apricots here are an average crop; Apples under the average—very few; Currants a good crop; Cherries under the average; Gooseberries good; Peaches and Nectarines over the average; Pears under the average; Raspberries and Strawberries average, good; Plums and Damsons under the average; Nuts average.—G. NORMAN.

Shardeloes, Amersham.—Peaches and Nectarines are a fine crop here, and the trees are looking well, as are also Apricots. Plums are a good crop on standards, but few on walls. For general purposes we find Victoria to be the best; it is a sure bearer and good all round. Apples are a very poor crop—scarcely any; Nuts abundant; Gooseberries, Currants, Raspberries, and Strawberries remarkably fine and abundant; Figs a very fine crop; Cherries good, both on walls and standards.—T. BAILEY.

Bloxholm Hall, Sleaford.—Fruit crops in this district are not encouraging. Small fruits of all kinds have been abundant, but Apples, Pears, Plums, and Cherries are deficient. Apples did not set. Pears partly set, but afterwards fell off, and so did Cherries and Plums. Apples are a very poor crop, the worst we have had for years, and the same may be said of Pears. Plums both on standards and bushes are poor; on walls a fair crop. Cherries of all sorts are a poor crop; they have suffered much from black-fly. Apricots on walls are a fair crop, but not so heavy as was at one time expected. Peaches on open walls are a fair crop. Gooseberries and Red and White Currants are abundant and excellent in quality. Strawberries have been excellent. Raspberries are plentiful and good. Black Currants not quite an average crop, but good in quality. Walnuts and Filberts will be a good crop.

Early Potatoes have done well and are clear of disease as yet. Late varieties in this neighbourhood are showing signs of disease and in its worst form, the wet, warm weather of late having encouraged the growth of the fungus.—DAVID LUMSDEN.

Shawdon, Northumberland.—Though both winter and spring were mild, they were succeeded by a cold, low temperature which has continued more or less even to the present time. The consequences are that Pears are all but an entire failure; a sprinkling may be seen upon Williams' Bon Chrétien and upon Louise Bonne of Jersey, varieties that do well in this district. Apricots never showed such an abundance of blossom, but the morning of the 16th of April proved disastrous to them, the thermometer here registering 6° of frost. Although the trees were covered with foliage and the fruit well advanced, the greater part of the crop was destroyed even in places where the trees were protected. In some localities a sprinkling of Cherries and Plums may be seen. As for Peaches, we have ceased to take note of them in this quarter as an outdoor fruit. Apples are again all but a failure; in some places a light crop may be seen, but that is not by any means a common occurrence, and the trees are in many places affected with blight. Amongst small fruits, Strawberries have been an abundant crop; Gooseberries are also plentiful in sheltered places, but Black Currants are a light crop in general. Raspberries and Red Currants are an average crop in this district. Fruit crops altogether in Northumberland are far from satisfactory, either as regards bulk or quality.—JAMES THOMSON.

Lenton Hall, Notts.—Our position is the same as the town of Nottingham as to elevation. Our orchard slopes towards the west and is on the Keuper clay. The kitchen garden lies to the north-east, and is well sheltered. Apples are a

fair crop, but rather queerly disposed; some trees full, whilst others of the same kind standing near are bare. Keswick Codlin, Lord Suffield, Minchal Crab, and the Greenings (Yorkshire and Northern) are the surest croppers. Pears are a poor crop; Jargonelle, Louise Bonne of Jersey, Bon Chrétien, and Glou Moreau are the best and most constant bearers. Plums are a middling crop; Victoria is the sort most to be depended on. Very few Damsons; a fair crop of Morello Cherries; Apricots in abundance; Peaches and Nectarines a few; Strawberries plenty, many rotten by reason of the wet. Black Prince, President, Sir Charles Napier, and James Veitch are sure croppers. Loxford Hall Seedling will not grow here. Gooseberries an overflowing crop; Currants all kinds plenty, but affected with honeydew; Raspberries a fair crop. Altogether we have nothing to complain of in the matter of fruit.—N. H. POWNALL.

Moreton, Dorchester.—Fruit crops in this district are not satisfactory, much damage having been done by the terrible storm of the 29th April. Standard Apples and Pears are a failure, and espalier and wall-trained trees are also bearing very poor crops. Plums where sheltered a little are pretty good. Peaches and Nectarines in orchard houses and under glass copings are very good. It is useless attempting to grow them without some kind of protection of this sort. Apricots are fairly good, but there are not many grown in the district. Figs are bearing a good crop, but unless we get sun and warmer weather soon they will, I fear, not ripen. Strawberries have been most abundant, but from want of sun lacking favour. Raspberries are good in some gardens, but a failure in others. Gooseberries very abundant, and Currants good.

Potatoes will, I fear, be very bad indeed; disease appeared amongst them very early this season.—D. UPHILL.

Warter Priory, Pocklington.—Apricots good; the variety mostly grown is Moorpark; Apples poor, with the exception of Lord Suffield, Keswick Codlin, King of the Pippins, and Lord Grosvenor—these varieties seldom fail here; Pears very poor; the varieties mostly grown are Beurré Capiaumont, Beurré Diel, Louise Bonne, Swan's Egg, and Williams' Bon Chrétien; Cherries an average crop; Plums good on walls, but thin on standards; the varieties mostly grown are Victoria, Jefferson, Washington, Magnum Bonum, Early Prolific, and Kirke's; Nuts almost none; Peaches, none grown outside here; bush fruits, including Red and Black Currants, Raspberries, and Gooseberries, good; Strawberries good, but half of them destroyed by the wet weather. We are situated in the coldest part of the East Riding with little shelter; the soil heavy loam on clay.—ALEXANDER ANGUS.

Cleveland.—In this district orchard fruit may be said to be a failure. The trees have not recovered from the blighting effects of the terrible winters of 1879-80 and 1880-81. Apple trees bloomed fairly, but after the fruit set the Apples began to fall, and have continued to fall up to this date. The Cockpit and Lord Suffield are the only varieties I have seen that show anything like a crop. Pears are a failure; the trees were thinly bloomed, and the fruit fell as soon as it set. Plums are nearly a failure; the blossom was most promising, but the blighting east winds and frosts of May made the leaves sere and wither up, leaving the fruit exposed. Apricots that used to be so successfully grown by every cottager in Cleveland are now only seen on paralysed fragments of trees, the only exception being one fruitful tree at Ingleby. This tree is on the end of the vicarage, and well protected by a broad projecting eave, the aspect south-west. It is bearing a full crop of fruit, and did so last year, and nothing could better show the value of protection to Apricot trees. Cherries are a fair crop, but not much grown in Cleveland. From close observation for some years, I am opinion that only a few varieties of fruit trees are worth planting in Cleveland for profit. Of Plums, Pears, and Apples not more than

a dozen varieties are really suitable. Small fruits are average crops. Gooseberries promised to be an extra crop, but the frosts in May greatly thinned the fruit. Black Currants are good; Ogden's Grape and Lee's Black are the best and ripen most equal. In pruning I cut much closer than is ordinarily practised, and find the crop increased thereby. Red Currants are a full crop, but in many cases much injured by honeydew. Raspberries are good, although the canes made but small growth owing to the drought last season. Filbasket, Carter's, and the old Red Antwerp are decidedly the best varieties here; *Semper Fidelis* is not worth planting in this district. Strawberries have been a good crop, but much of the fruit has been injured by the wet. President and Dr. Hogg are the finest fruit I have seen this season, and Comte de Zan the best to stand the wet, but it lacks colour for market purposes. Small fruits can be grown in Cleveland—not early, but to as high a standard for market value as anywhere in England, if suitable varieties are selected; but mixed and inferior varieties are widely grown, and when seen in the market with select varieties from the south and from the Continent the fruit looks poor, and the value greatly reduced.—CHARLES McDONALD.

Bearwood, Wokingham.—Our fruit crops this year are fairly good, except Apples, which are a thin crop; but Pears on walls and on standards are an excellent crop. Plums on walls are very good, on standards not so plentiful. Peaches and Nectarines are an average crop. Apricots thin. Cherries a good crop. Bush fruits are clean and good. Strawberries very fine and they lasted out well; British Queen did well here, and is a Strawberry still unsurpassed. Filberts are plentiful. Owing to the cold nights we have had this last fortnight mildew has made alarming progress on Vines, Peaches, and Nectarines.

Early Potatoes, too, are badly attacked by fungus, and the haulm is completely withered up; later kinds are holding out better.—JAMES TEGG.

Grimston Park, Tadcaster.—Apples are a very variable crop in this locality. In some few orchards well sheltered from the north-east there are good crops, especially on healthy standard trees. On pyramids and bushes the crops are very thin. Out of a fairly large collection of varieties growing in these gardens, Yellow Ingestrie, Claygate Pearmain, Beauty of Kent, and Irish Peach are the only varieties bearing anything like a crop. On standards, Warner's King, Keswick Codlin, and Cockpit are the best in all orchards which I have seen. Apricots are a good crop, and the trees have not suffered so much from branches dying off suddenly as they did last year. Moorpark, Hemskirke, and Kaisha are our best sorts. Pears are the lightest crop I have seen here for the past ten years; Citron des Carmes and Louise Bonne of Jersey are the only varieties with any fruit on them worth mentioning. Peaches and Nectarines are also a light crop as a rule, the exception being in gardens where the soil is light, and, as a consequence, owing to the trees not growing so strongly, the wood has got better ripened during the last two or three wet, sunless summers than it otherwise would have been. Early Beatrice, Early York, Royal George, and Late Admirable are usually our best varieties. Plums, too, are a very thin crop; even Victoria, which usually bears so well with us and all round here, has this year almost entirely failed. We have a nice scattering on some bush trees of Early Rivers. The trees have all suffered severely from repeated attacks of green fly. Cherries are variable; in some places there has been, and are, fair crops with us. Some large bush trees of Morellos are the only ones bearing a full crop. Small fruits on the whole are good. Strawberries have not been so heavily cropped as they were during the past three or four years; La Grosse Sucrée, Keen's Seedling, Vicomtesse Héricart de Thury, President, Newton Seedling, and Helena Gloede are our best varieties, and ripen in the order named. Newton Seedling was raised some years since in this locality, and on limestone soils like ours is a capital kind to grow for

preserving, being good in colour. Being a late-blooming variety, it to some extent escapes being damaged by late spring frosts. Raspberries have been an exceptionally good crop; the wet weather has suited them. Strawberries were but poorly flavoured with us from the same cause. Currant bushes have been much infested with a bluish green-fly; some plantations of Black Currants were rendered leafless from that cause. By watching the Red Currant trees, and cutting off the tops of the shoots most infested, we escaped much injury.

Potatoes in the gardens here are badly diseased. I have not seen much of it in the fields as yet; but if the wet, warm weather continues much longer, I fear it will soon attack them there also. Great quantities are grown within a few miles of us to supply the large towns in the north.—H. J. CLAYTON.

Mentmore, Bucks.—Apples as a rule are not half a crop. Small bush trees on the Paradise stock of the following varieties are, however, bearing good crops which promise to be of good average size, viz., Court of Wick, Emperor Napoleon, Early Nonpareil, Cobham, Irish Peach, Kerry Pippin, Oslin, Jefferson, and Worcester Pearmain. Amongst other varieties bearing good crops may be named Lane's Prince Albert, which has never failed to produce a good crop for eight years; although an autumn Apple it will keep good till March if gathered and stored with care. Pears are about half a crop; Williams' Bon Chrétien, and Louise Bonné of Jersey are bearing the best crops. Plums are thin as a rule; Rivers' Early Prolific and Victorias have the best crops. Prunes and Damsons are about half a crop. Cherries are a good average crop. Small fruits abundant and fine. Our best late Red Currants are Warner's Grape. Of Black Currants Lee's Prolific is the largest and a good cropper. Gooseberries on young bushes planted two years ago have been a fine crop, and have been clean and free from blight. The following have proved our best varieties: reds—Henson's Prolific, Keen's Seedling, and Warrington; green or yellow—Whitesmith, Tiger, Two to One, and Snowdrop. Strawberries have been a heavy crop, although not so high in flavour owing to so much rain. The following have been our best varieties this season, viz., Vicomtesse Héricart de Thury, President, Mr. Radcliffe, Duke of Edinburgh, Helena Gloedi, Loxford Hall Seedling, and Elton Pine, which is still our best late Strawberry. Our soil here is a strong loam with plenty of clay and chalk. All our orchards and kitchen gardens are fully exposed to the east and south winds.—J. SMITH.

Blenheim, Oxon.—Apricots here are a very heavy crop, and first-class in quality, especially Moorpark. This district being on limestone suits them admirably. Parham's system of protection is adopted here, and answers well. Peaches and Nectarines also protected are excellent crops. Hale's early is the most forward here. Cherries on walls are a fair crop, but in the open a slight one. They were much injured by frost and the ravages of black fly. Never have these insects been more troublesome than this season. Nicotine soap is the most effectual was for them. Plums on walls are a heavy crop; in the open partial only, and, like Cherries, much damaged with frosts and blight, and completely shredded through high winds when the foliage was in a young state. In the open many will eventually succumb to ravages of insects. Apples are a very partial crop—in many places none. Pears are also a light crop; on walls where they escaped the effects of frosts there are some, but in the open very few. They flowered most abundantly, but like Apples have been much infested with caterpillars, and had to be hand-picked. Strawberries are a heavy crop, especially Sir Joseph Paxton and President, fruit large, but slightly damaged by wet. Bush fruits very heavy crops, but the flavour much deteriorated through excessive wet. Cobs and Filberts excellent, also Wood Nuts. Walnuts are dropping their fruit very much. Damsons are a slight crop, and the trees are much infested with insects.—HENRY CLARK.

Rydens, Walton-on-Thames.—The fruit crop in this neighbourhood is on the whole good, with the exception of Apples, which are under the average, although we have a few trees of the Pippin kinds loaded; also, Hawthornden, Wellington, and red Quarrenden, all of which are carrying fair crops. This neighbourhood is very flat and well sheltered with noble Elms, which have saved us a good deal, but the slaughter among them was by no means small on the April 29. Of Pears we have an average crop, both on walls and in the open; Marie Louise, Williams' Bon Chrétien, and Autumn Bergamot are the best. Plums are very good, but at one time much infested with aphides, nevertheless, Victoria, Washington, Green Gage, Jefferson, and Coe's Golden Drops are bearing average crops. Cherries have been abundant, and Morellos very fine. Peaches are plentiful; they had no protection whatever, and with the exception of Early Louise and Early Beatrice, which had some old frame lights placed over them when in flower, but they were removed when set. I gathered one Peach of the first-named on June 30, and enough for two dishes three days later. Aspect south by south-east wall. Nectarines are an average crop. Apricots do not do well in this neighbourhood. They seem to go on all right for a time, then half the tree dies, or generally one branch at a time till we lose the whole tree; still there is a average crop. Gooseberries and Currants, black, red, and white, abundant. Red Currants were very much infested with blight the early part of the season, which made the fruits very black. Gooseberry caterpillar happily has been very scarce. Mulberries are very good. Of Raspberry there is an excellent crop. Strawberries have also been abundant. Figs are not much grown out of doors. Filberts are an average crop.

Potatoes excellent, but the disease is spreading very fast.—GEO. CARPENTER.

Warwick Castle.—Fruit crops in this neighbourhood suffered considerably from frosts while in bloom, and blight, especially Plums and Cherries, both on walls and standards, leaving very little in the way of fruit or leaves. Peaches, Nectarines, and Apricots are fair crops, where the precaution was taken to afford them the protection of a net, when in bloom. Apples and Pears, of which quantities are grown hereabouts in gardens and orchards, are much below the average except such sorts of Apples as the Codlins, Ribston and Wyken Pippins, Hanwell Souring, Northern Greening, and Lord Suffield, which generally do well, and which are bearing fair crops. Figs are a good crop, but not much grown here. Crops of small all fruits have been excellent, but much damaged by wet, especially Strawberries, great quantities of which were destroyed before ripening. Our soil ranges from light, sandy material in the valleys to a stiff clay on the higher ground.—A. D. CHRISTIE.

Petworth, Sussex.—We never had a better prospect of fruit than this spring; until that terrible storm on April 29th, every kind of fruit trees was covered with bloom buds or blossoms—what a change in a very few days they presented; not a leaf was left on many of the trees were fully exposed to the storm. My east and north walls escaped pretty well. I have an average crop of Pears and Plums there. Apricots are very fine and plentiful. Peaches and Nectarines abundant but small, we have had such a very cold and wet season. During the past week, however, everything has much improved, we have had some sunshine, warm nights, and no rain. Gooseberries, Currants, and Raspberries are very plentiful and fine. Cherries good where sheltered, but where exposed none. Trees very much blighted. Plums a very poor crop; none except where sheltered from the storm. Pears the same, and Apples scarcely any. The storm did not injure Apples so much as other trees; the were not so forward, but the weather was continually wet all the time. Apples were in bloom and they could not set—there are a few of the late flowering sorts. Strawberries were abundant but poor in favour, and great portions were spoiled by the wet weather. Filberts promised to be good

and plentiful, but Walnuts are scarce. Medlars are a crop.

Potatoes bad in quality and much diseased every where.—GEO. BREESE.

Kingscote Park, Gloucester.—Apples and Pears in this district are nearly a total failure. Plums quite under the average. Peaches and Nectarines a failure. Cherries a good crop, especially Morellos, which are very fine. Figs on walls a good crop. Red, White, and Black Currants very good. Gooseberries a good average crop. Strawberries very good. Raspberries very fine. Walnuts a failure. Quinces good.

Potatoes, both early and late, badly diseased.—SAMUEL WATHER.

Cossy Park, Norwich.—Apples hereabouts are very scarce. Blenheim Orange, Warner's King, Norfolk Beaufin, Norfolk Bearer, Keswick Codlin, and Kentish Pippin are the only sorts bearing with us. Pears are under the average. Peaches and Nectarines average. Apricots over the average. Plums on walls, consisting of Victoria, Green Gage, Orleans, Pond's Seedling, and Prince of Wales, good. Cherries abundant, as are also small fruits of all kinds. Filberts plentiful. Walnuts under the average. Medlars abundant.

Potatoes yielding good crops, but the disease is spreading rapidly, particularly amongst American Rose.—EDWIN BURBURY.

Abney Hall, Cheadle.—Altogether the fruit crops hereabouts this year are unsatisfactory.—Pears are a failure; Apples only a partial crop; Plums a failure. May Duke Cherries have been pretty good, but Morellos are the worst crop we have had for many years. Black Currants are a good crop, but the quality is injured through the effects of fly. Red Currants have been good, and the bushes have been very free from caterpillar. Raspberries have been an average crop. Gooseberries with us have been a very full crop. Strawberries, too, have been good but injured by the wet weather. Last winter it may be noted was very favourable winter for the Strawberry plant. We had a fine lot of fruit from plants just a year old. President and Myatt's Prolific are two kinds much grown in this neighbourhood.—ROBT. MCKELLER.

Canon Hill, Maidenhead.—Owing to cold winds and severe gales while in bloom, the Apple Pear, and Plum crop is almost ruined. Apples that are bearing best here are Lord Suffield, Cellini, Cox's Orange Pippin, and Small's Admirable; and of Pears, Marie Louise, Glou Morceau, Pittmaston Duchess, Williams' Bon Chrétien, and Huyshe's Bergamot. The few Plums there are on Rivers' Early, Kirke's, Jefferson's, Victorias, and a slight sprinkling of Green Gages. All Plum trees are much affected with blight. Apricots are a good crop and very fine, the best we have had for four years. Peaches and Nectarines outside are a fair crop, and the trees much cleaner and less curled in foliage than usual. We protect in spring with canvas blinds, and a temporary wooden coping is fixed to brackets on the walls. Under glass Peaches and Nectarines are very fine. Cherries are a light crop, excepting Morellos. In many of the Cherry orchards near here there are very few fruits indeed. They suffered severely when in bloom from cold winds and blight. Strawberries have been plentiful and fine, and suffered but little from the wet weather, our soil being light and shallow with a gravelly subsoil. All kinds of bush fruits are plentiful, but Raspberries are not at all good, and moreover a poor crop. Filberts are very plentiful.

The Potato disease around here has spread to an alarming extent; scarcely a green top can be seen any where. Early sorts, such as Myatt's, Rivers', and Veitch's Ashleafs have been good and free from disease until this past fortnight; since then it has spread rapidly among them, Magnum Bonum being this year affected in haulm as well as the rest of them. Some sorts lifted here last week have scarcely a good tuber amongst them. The worst of these are Woodstock Kidney, Lapstone, Rector of Woodstock, Porter's Excelsior, Radstock Beauty, Matchless, Feltham White, and Manhattan, all of which last year were exceptionally good.—H. E. GRIBBLE.

Appley Towers, Ryde, I.W.—I cannot say much in favour of the fruit crop here; our gardens are very much exposed, and the gale that did so much damage in the south of England destroyed nearly all outdoor fruit here. Our Pear trees, except in sheltered corners, were quite black, and every leaf dropped off. Apples, Plums, and Cherries lost nearly all their fruit, and what foliage was left was very much injured; the fruit, therefore, is worthless, except a few on an east wall. Strawberries, Raspberries, Gooseberries, and Currants were more than half blown off; and through the bushes receiving such a severe check everything is covered with blight, and the outlook for next year is not very promising. Apples are scarce nearly everywhere in this neighbourhood, but in sheltered places I believe there is an average crop. But everyone is complaining of blights of all kinds.—W. STANBURY.

Brynkinalt, North Wales.—Fruit crops here are good, especially Apples, the best being Lord Suffield, Keswick Codlin, Hawthornden, Cellini, Lord Derby, Sturmer Pippin, Lady Derby, American Mother, Ribston Pippin, Court Pendu Plat, Court of Wick, and others. Pears, such as Beurré d'Amanlis, Beurré Diel, Bergamotte d'Esperen, Beurré Rance, Eastern Beurré, Flemish Beauty, Louise Bonne of Jersey, Althorpe Crassane, Fondante d'Automne, Brockworth Park, Passe Colmar, White Doyenné, Beurré Mons, Forelle or Trout Pear, Citron des Carmes, Brown Beurré, Easter Beurré, and Urbaniste are grand crops. Apricots are also plentiful, and so are Peaches and Nectarines where slightly protected. Plums are rather scarce. Morello Cherries are an abundant and good crop. Bush fruits, such as Red and White Currants, also plentiful and good, Gooseberries and Raspberries being very fine indeed. Strawberries have been plentiful, but owing to the continuous rains they are deficient in flavour, and many fine fruits have been spoiled.

Early Potatoes are slightly diseased, but excellent crops. Late kinds, such as Magnum Bonum and Scotch Champion, are entirely free from disease at present, but fine weather is very much needed.—J. CLARKE.

Bodorgan, Anglesey.—Apples and Pears with us are, for the fourth or fifth season in succession, a very inferior crop. The show of bloom in the spring was very good, but was nearly all destroyed by a succession of south-west gales blowing with great force from St. George's Channel at intervals from the end of April and far on in May. Canker on Apple trees has been very bad for two or three seasons, whole limbs and, in some cases entire trees going off. I attribute this mainly to the severe frost of 1880-81 and previous winters, preceded and followed by cold, wet summers. Ribston and Cox's Pippins and some of the finer dessert kinds of Apples are especially liable to canker, though, on the whole, the two sorts mentioned are our finest dessert fruits. Of kitchen Apples, Small's Admirable, Keswick Codlin, Alfriston, Lord Clyde, Dumelow's Seedling, Hawthornden, and Lord Suffield (though this is liable to canker) are among our best sorts. Small fruits have been a fair average crop. Morellos good, Plums very few. Apricots, Peaches, and Nectarines will not succeed in this district except when protected by glass. The summers are rarely hot enough to ripen open-air Figs. There can be few worse districts than a great part of this island for the growth of such hardy fruits as Apples, Pears, and Plums; in all cases shelter from sea winds is essential.—J. E.

SCOTLAND.

Dalkeith Park.—Generally speaking the larger kinds of fruits hereabout are scarce. Apples are a thin crop; Pears still worse; Plums are a partial crop; a few trees are heavily laden, but the great majority have little or nothing upon them. Cherries are much the same as Plums; Apricots are a good crop, and promise to be large and fine; Peaches on open walls are very thin; in cool houses without fire-heat they are a fair crop. All kinds of small fruits are very abundant,

and generally large in size, but heavy, and continuous rain has reduced their quality. On the whole the fruit crops in this district are fully as good as could be looked for after such a bad season as 1881 for the ripening of wood and of fruit buds, and although large fruit is much under an average, small fruits are considerably over it.—M. DUNN.

Dalmeny Park.—Apricots here are a good crop; Cherries hardly any; Gooseberries average crop; Plums and Apples very fine; Currants average, except Black; Peaches scarcely any; Strawberries (early), average; late Strawberries rather poor.—JOHN MOYES.

Dunmore.—Standard Apples, Pears, and Plums are a failure; Gooseberries and Currants below the average; Strawberries an average crop; wall fruits of all sorts almost a failure. Soil, deep coarse land. Amongst Plums the Victoria seems to do best here; and amongst Apples, the Codlin and Lord Suffield.—MAURICE FITZGERALD.

Alloa Park.—Owing to unfavourable weather last autumn, fruit crops in this district are poor, especially Apples, Pears, and Plums. Peaches and Apricots are a total failure. Cherries, however, and small fruits are good average crops.—THOMAS ORMISTON.

Oxenford Castle.—Apricots are the only good fruit which we have on walls. Of Apples, Pears, Plums, and Cherries we have but a mere sprinkling, and they are not swelling kindly. Gooseberries and Currants are good, and the recent rains we have had seem to have brought them to a good size. Strawberries are heavy crops and of good size, especially on plants that were forced and planted out in the autumn. As regards Apples, Lord Suffield, Warner's King, and Yorkshire Greening have all borne crops in the order in which I have placed them, and as they are thin the fruit may come to a good size.—A. ANDERSON.

Tynningham.—Apricots are everywhere a large crop; Peaches where grown have also done well, but Plums, Pears, and Cherries are poor crops. Baking Pears, Victoria and Jefferson amongst Plums, and Morello amongst Cherries are the only kinds affording a crop. With the exception of standard kinds of Apples, such as Stirling Castle, Bedfordshire Foundling, Cellini, Echlinville, Warner's King, and a few other certain fruiting kinds, Apples may be said to be a failure. These results are traceable to the dry and cold weather at the blooming period, aggravated by a stinging frost in May. Of the smaller fruits, Gooseberries are generally a very small crop, though here we have an overflowing one. Strawberries are an extra large one everywhere; Red Currants plentiful; Black indifferent and scarce, as are also Raspberries. Blackberries now flowering look extra promising. At present the outlook is rather gloomy, as a daily continuance of thunderstorms for some weeks back keeps the ripening fruit wet, and much of it is being spoiled in consequence.—R. P. BROTHERTON.

Fyvie Castle.—Wall fruit, particularly Pears, are short in this district; Cherries moderate, and Plums scarce. Warner's King and Hawthornden Apples are about the only sorts bearing crops. Small fruit, such as Gooseberries and Red, Black, and White Currants are fair average crops with me, but I hear general complaints as regards Black Currants. Strawberries, consisting of Black Prince, Rivers' Eliza, Sir Joseph Paxton, and Myatt's Seedling (improved) are the sorts I grow, and are all I could wish, particularly the second named, which is a very heavy crop. Our soil is of a clayey character, and being low lying is particularly well sheltered by woods all round. The past winter was fine and open, but frosts continued long in spring, and up till recently there has been a good deal of heavy rain.

Potato disease has appeared slightly in the district.—R. FARQUHAR.

Balcarres, Fifeshire.—The fruit crop this year is a failure, with the exception of small

fruits, which are good, particularly Strawberries, Gooseberries, and Currants; of Raspberries we have about half a crop. There was a good show of blossom, but through the unripeness of the wood it came to nothing. Of Apples we have none, except on a few trees replanted two years ago on which there is a crop; Pears none on neither standards nor walls; Plums half a crop on Victorias, others none; Peaches none; Apricots half a crop in sheltered places; Cherries half a crop. Morellos were covered with blossom, but the crop is poor. Strawberries are a fine crop, and the fruit very fine. We grow Garibaldi, Elton Pine, James Veitch, Marshal McMahon, Duke of Edinburgh, and La Grosse Sucrée. Gooseberries are a heavy crop, especially on Whitesmith, Crown Bob, Warrington, Early Sulphur, Glington Green, and others. Filberts none.

The Potato crops are all looking well, and no disease heard of yet.—EDWARD TATE.

Drumlanrig.—Apples, Pears, and Plums are a complete failure, chiefly owing to the wet, cold, and sunless summer and autumn of last year. Strawberries, Gooseberries, and Red Currants are an average crop. Black Currants much below the average, and Raspberries were much injured by 12° of frost when in bloom or nearly so. There are no Peaches, Nectarines, or Apricots grown outdoors here, but the two former are bearing heavily in orchard houses.—D. THOMSON.

Marchmont, Dunse.—Of Strawberries we have a medium crop; they were injured by frost in June. Currants under half a crop. Gooseberries good in late situations, a failure in early places. Apples and Pears none; the bloom was scarce and it fell off without setting. Apricots plentiful where covered, none without. Plums very scarce everywhere. Peaches, none grown out-of-doors.—PETER LONEY.

Culzean, Ayrshire.—The fruit crop in this district is very poor indeed. Apples, Pears, and Plums both on walls and standards are almost a failure. Bush fruits, such as Gooseberries, Raspberries, and Red Currants, an average crop; but Black Currants are quite a failure, and the bushes at present look very unhealthy from want of sufficient foliage; they suffered very much from cold winds and green-fly in May. Strawberries are a fair crop. The following varieties bear well here as a rule: Apples—Lord Suffield, Cellini, Lord Grosvenor, Stirling Castle, King of the Pippins, Oslin, Warner's King, Keswick Codlin, Cox's Pomona, McLean's Favourite, and Ganges Apple, that never misses a crop in this garden and keeps fresh till April. Of Pears, the best are Williams' Bon Chrétien, Jargonelle, Marie Louise, and Beurré Superfin. Plums—Victoria, Kirke's, Jefferson, Goliath, Prince of Wales, and Rivers' Early Prolific.—DAVID MURRAY.

Kilmory, Lochgilphead.—As to the state of the fruit crop hereabout, there is only one cry—"no fruit." This year the only Apple we have is Stirling Castle. I do not think that there are half a dozen Pears in one garden. Gooseberries, Currants, and Strawberries are ordinary crops. Our soil is stiff clay. I was three weeks ago in a neighbour's garden where there is a fine lot of fruit trees, and the gardener told me that there was not two dozen Apples in the whole garden, while last year there were about two tons. The soil there is light and dry on a sandbank, and south aspect.—A. BROWN.

Dunrobin Castle.—Wall fruit here is very scarce, with the exception of Apples and Cherries, of which there is on some trees a fair sprinkling. Plums and Pears are almost a total blank. Apples on standard trees are quite a failure. Small fruits are fairly satisfactory. Gooseberries and Raspberries will be plentiful and good. Strawberries average, as are also Currants. During the past few seasons Pears and Plums have been a very precarious crop out-of-doors—certainly not worth the labour bestowed upon them. On the other hand, such fruits as Strawberries, Raspberries, Gooseberries, and Cherries have scarcely ever failed during the worst of seasons. The Strawberries which serve us best here are the Elton

Pine and Garibaldi. The surest cropping Apples with us are Stirling Castle, Keswick Codlin, and Lord Suffield. We are sheltered by woods and rising ground to the north and north-west; open to the sea on the south and east. East winds are troublesome in spring. Our soil is light, deep, rich and black, and rests on sand.—D. MELVILLE.

Dupplin Castle.—Crops on our walls this season are very thin indeed. Apples and Pears are almost a total failure; amongst the former, Lord Suffield and Cellini are the only sorts bearing half a crop. Apricots are under the average; Moorpark is bearing better than any sort grown here. All sorts of Plums grown here are very thin, Victoria being the only sort with half a crop. We had an excellent Plum blossom, but it appeared to me to be very weak, and did not set. Gooseberries are an enormous crop, and Strawberries, Raspberries, and Currants are all bearing heavy crops. Slugs have been very destructive to Strawberries this year, and during the past week we have had continued heavy rains which have destroyed the fruit badly. Gooseberries are also splitting, through so much wet.—JOHN BROWNING.

IRELAND.

Tempiepatrick, Antrim.—The Apple and Pear crops here and around this district generally are almost *nil*. The trees have been more objects of beauty than usefulness, inasmuch as we have had bloom on the Pear as early as February and up to the present time, and Apples too have never been out of bloom since they commenced; the only sorts carrying anything like half a crop are Lemon Pippin on a west wall, and a few Ribstons on a southern aspect; on standards, Oslin and King of the Pippins are carrying a very few. On Northern Greening, from which we get our main late supply, and which I never saw failing so much before, there are only to be seen a fruit here and there. Of Pears the only few to be seen are a sprinkling on the Hessel. During the blooming season (*i.e.*, the proper season) fruit prospects looked bright. I may say all trees flowered freely and strong, much more so than I expected, as the autumn of last year must have been adverse to the plumping up of fruit buds, as with us it was nearly always dull and wet. Nevertheless, I think we must look to the spring of this year for the primary cause. In the month of April we had the unusual amount of 110° of frost; on the 10th, 11th, 16th, and 30th we had the coldest nights, with 14°, 13°, 14°, and 12° of frost respectively. In May we had 76° of frost, the coldest nights being 5th, 12th, and 13th, showing 11°, 8°, and 11° respectively, but we had more or less up to the 18th, when it lessened to 4°. We are not favoured here with a good Apple-growing soil; our trees are planted round the quarters of the kitchen garden, the top soil being somewhat loose and the subsoil naturally heavy and damp. Therefore we have a too free growth of Moss and Lichen, which we remedy by means of washings with hot lime. Our surest fruiting sorts are Northern Greening, Keswick Codlin, King of the Pippins, and Oslin. Ribston on walls does very well, but useless as a standard or bush; other good kinds are Emperor Alexander, Lord Suffield, and Hawthornden; the latter is somewhat uncertain, as it only carries a full crop biennially or triennially. Black Currants are a total failure; in their case, too, bloom was most abundant, but whilst in bloom and partially set we had a terrific hail shower on the 28th of April, which all but stripped them of bloom, young fruit, and leaves, and they afterwards appeared as if they had been smitten by some disease. This storm also undoubtedly did a vast amount of harm to the Apple bloom. Other sorts of Currants are plentiful; Gooseberries are a very full crop, making the third year in succession in which this fruit has carried a full crop. Raspberries somewhat poor; Strawberries excellent, particularly Garibaldi, President, Keen's Seedling, and Elton Pine, the former carrying double and treble the quantity that each plant could bring forward. Plums are also nearly a failure; some trees on a

south wall are carrying a few; no Apricots; Nectarines died out; but a few Peaches, particularly on Royal George; and lastly, Cherries are partial; Archduke carried a full supply; we have a sprinkling on Mayduke, and a few on some others, and a good supply on White Heart. Could any correspondent give a remedy or a prevention for the cracking of this most excellent Cherry? every year it is the same. Of Morellos we have none.

Potatoes are good and free from disease so far; those planted secondly were fit for use before the earlier put in ones; the latter were cut down with frost, although they were protected with Spruce branches, &c. We had no frost to speak of throughout the winter months, but the spring was cold and backward.—S. KEVAN.

Carton, Maynooth.—Strawberries, Gooseberries, and Currants are heavy crops. Amongst Strawberries I find Keen's Seedling, hitherto much grown here, a very indifferent variety, and for forcing very bad. Vicomtesse Héricart de Thury, President, Bothwell Prolific (which appears to be identical with President, ripening here at the same time), and James Veitch do remarkably well. Of Apples we have a fair sprinkling; Pears a few on walls; Apricots none; and of Cherries very few.

The Potato blight is showing itself badly here and in this neighbourhood.—E. KNOWLDIN.

Curraghmore, Portlaw.—Fruit crops here are far from satisfactory. Strawberries are quite a failure, through the wet rotting them before they were ripe. Pears also a failure, though we had plenty of bloom in spring. Apples nearly as bad. Peaches are a fair crop. Cherries, consisting of May Duke and Morello, good crop. Figs a fair crop. Raspberries, Gooseberries, and Currants are all very fine crops. The gardens, which slope to the south, are all walled in, the walls being 12 ft. high and protected with plantations. The soil is cold, shaly marl of the worst description. Crops in general in this district are much worse than last year.—R. FAIRBAIRN.

Kylemore Castle, Galway.—My position here, on the verge of the Atlantic, west coast of Ireland, is not a very enviable one in any season for the culture of outdoor fruit, but during 16 years I have not had any season's crop so bad as that of this year. The weather was mild all through January and a portion of February, and several varieties of Pears set, but when a change came it was almost continuous storm, heavy hail showers and much rain. Late blooming Pears and Apples had not a chance. Raspberries are a complete failure, as well as all bush fruit and Strawberries. Cherries the same. On some varieties of Plums there is about half a crop. Peaches, Nectarines, and Apricots will not grow at all out-of-doors here. I tried them for some years, but had to give up the attempt. The kinds of fruit which I find to do the best here in an ordinary good season are, of Pears—Beurre d'Amanlis, Marie Louise, Louise Bonne of Jersey, Knight's Monarch, Josephine de Malines, Moorfowl Egg, Thompson's, and for the kitchen Uvedale's St. Germain, but it does not attain its full size. Of Apples—Blenheim Orange, Cellini, Dumelow's Seedling, Lord Suffield, Keswick Codlin, Ribston Pippin, and Stirling Castle. Plums—Victoria, Cox's Emperor, Diamond, Green Gage, Jefferson, Kirke's, Magnum Bonum (red and white), Rivers' Early Prolific. Cherries—The Morello, May Duke, and Elton. In good season all the varieties of Gooseberries and Currants do very well, and a great number of Pears and Apples in addition to those I have mentioned, but the above are nearly at all times sure.—JAS. GARNIER.

Woodstock Park, Inistioge.—Owing to the unprecedented cold, wet season, the fruit crop in this district is altogether very poor, the only exception being Gooseberries, which are abundant and fairly good both in size and quality. Strawberries were a fair crop, but much damaged through rain. Vicomtesse Héricart de Thury, Sir Joseph Paxton, President, and Loxford Hall Seedling are the varieties most approved of here. Apples, Pears, and Plums are a partial failure. We have a few Peach trees out-of-doors bearing a fair

crop, but they were well protected with old sashes during the flowering period.—WM. GRAY.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J., SURREY.

FLOWER-SPIKES of *Bocconia cordata*, cut long and well clothed with foliage, form the ground-work for an important bouquet of white flowers; semi-double Opium Poppies rise among the *Bocconia* flowers with *Lilium longiflorum* below; a long spray of white Everlasting Pea, with foliage, flowers, and buds, winds between the Poppy stems. A glass bowl holds a mass of Clove Carnations, dark scarlet-crimson, with a few bright scarlet, and tufts of leaves. A bowl of blue china is filled with Mignonette; the whole centre growths of early flowers cut a good length look better than single sprays, and their cutting relieves the plants and throws more vigour into the side growths for later use. A tall vase of Oriental porcelain, whose ground colour is a deep dusky blue, holds large pieces of berried *Berberis Aquifolium*. Clematis Jackmani and another variety of a darker purple are grouped with the grey foliage of *Cinncra maritima*—a combination much to be recommended.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Sedums.—All the hardy varieties of *Sedums* are usually classed as rockwork plants, a purpose for which they are admirably adapted, and perhaps so treated they are more at home than when used in any other way, but a few of them are so well suited for the parterre, and their use saves so much time and space that would otherwise be required in the propagation and wintering of tender plants, that we have come to regard certain varieties as indispensable in summer bedding arrangements. The dwarf section are invaluable as edging and carpeting plants; the best kinds are *S. acre*, green; *acre elegans*, cream coloured; *corsicum* and *glaucum*, bluish grey; and *Lydiun*, deep green. The best of the tall and trailing growers are *altissimum*, *spectabile*, *Sieboldi variegatum*, and *telephoides*; these varieties look well planted in lines or clumps, and continue in flower a long time, rain or wind doing but little injury to the flowers. All the kinds are readily propagated by division, early spring being the best time for splitting up the plants.

Hardy flowers.—If we were certain that our summer seasons were always to be so cold and gloomy as up to the present this has been, there would be but little difficulty in persuading everyone to give up summer bedding and keep strictly to hardy flowers, which, notwithstanding all the wind, rain, and frosty nights through the greater part of June, are now in such glorious bloom that, even from my point of view, and as an advocate of the bedding-out system for the formal parterre, I must this season give them the place of honour, and confess to having a growing affection for them, which, however, is mingled with regret, that most of them are so unsuitable for the geometrical laid-out garden that I am expected to have in full gaiety from now to October. *Achilleas*, *Columbines*, *Delphiniums*, *Potentillas*, *Spiræas*, and *Phloxes* are a few of the most conspicuous of those now in bloom. They need an occasional tie to support them, and require to have the bad flowers removed. Annuals in the same borders also need support, and to be thinned out. Sweet Peas will continue flowering the whole season if not allowed to seed, and a good way of securing a succession of flowers is to pinch out the tops, a plan which conduces to lateral growth, on which flowers equal to those of the main stem are produced. Two sowings of Sweet Peas—January and March—are all that we ever make, and yet by this plan we always have an abundance of flowers till sharp frost cuts them down. Scarlet Runners and the Canary Creepers are amenable to exactly the same treatment, and the results are similar.

Sub-tropical and other bedding plants.—Quick growing kinds of sub-tropical plants should be looked over every week, to see that they are properly staked and tied. Peg down the undergrowth and keep the beds free from weeds; should the weather be dry, they will require abundance of water to keep them in vigorous growth. The regular removal of decayed and seedling flowers will also greatly tend to retention of vigour. The common kinds of bedding plants also require frequent looking over with the view of removing bad flowers and foliage, and regulating their growth by pegging down and pinching. *Verbenas*, *Petunias*, *Calceolarias*, and *Pelargoniums* can only be kept in presentable condition, especially during showery weather, by oft-repeated picking over. Keep the lines and edgings of foliage beds in trim condition and well defined. *Sedums* and *Saxifrages* only need a little manipulation with the fingers; other plants may need clipping. *Escheverias* may require to have the flowers removed, and the same remark applies to tricolor *Pelargoniums*. *Alternantheras* have done badly with us, and to fill out the space *Herniaria glabra* and several kinds of *Sedums* are now being dabbled in between the plants, labour that will be well repaid both as regards summer and winter effect.

General work.—Weeds on walks and roads have this season been very troublesome. In the case of some gravels—those that do not bind down hard, hoeing may be had recourse to; in that of hard gravel hand-weeding only should be practised. For moss-grown spots under trees, &c., a winter dressing of salt is desirable; it kills the moss, and adds brightness to the gravel. Now that they have completed their growth shrubs and branches of trees overhanging walks should be trimmed up. Portugal and common Laurels, Yews, and *Rhododendrons* are some of the kinds that now need cutting back. Shrubbery weeding and hoeing constitute another important item of labour at this season, and if, as is frequently the case, time cannot be spared to go through them thoroughly, an effort should at all events be made to prevent the weeds seeding by going through them with a rip-hook.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Eucharis amazonica.—Where there is any considerable demand for cut flowers this plant ought to be grown in quantity. By growing and resting some at different periods, where there is sufficient stock, it may be had in bloom all the year. Examples that flowered early and since then have made sufficient growth, ought to be put to rest, and should have no water until the leaves flag slightly, when a little may be applied, but not so much as to induce the plants to begin growing again. Place them in a lower temperature for five or six weeks and give no more water than is just sufficient to prevent the leaves from being injured. They will soon bloom again when placed in heat.

Anthurium Scherzerianum.—Any large specimens of this brilliant flowered Aroid in want of more root-space cannot receive it at a better time than now. Its best growth is made in the winter; consequently if potted at this season the full benefit of the new soil will be reaped. There is no necessity to give it a great depth of material, as it is a surface-rooter, but plenty of drainage is of the first importance. It is not advisable to allow young examples that it is desirable to grow on without delay into large specimens to seed, their growth being much retarded thereby. Immediately the flowers commence to fade they ought to be removed, unless the intention is to raise young stock from seeds. Though the different forms of this *Anthurium* do not reproduce themselves true from seed, still it is not well to raise seedlings from any but the best flowered sorts. The seeds are not fully matured for eight or nine months from the time when the flowers first open; wash them out of the pulpy mass that encloses them before sowing. They succeed best in very open porous material; fine chopped Sphagnum, to

which has been added sand in the proportion of one-fourth its bulk, will be found to answer well. Take a good-sized ordinary seed-pan, half fill it with drainage, over which lay as much of the Sphagnum and sand mixture as will come up to the level of the rim; press this firmly down and give a good watering to settle the surface, again pressing it quite smooth to keep the seeds from getting washed down by subsequent watering, for any that get below the surface do not come up freely. Scatter them on the material and put the pan in a house that is kept about 60° by night; shade from direct sunshine, and keep them damp. The young seedlings will begin to show themselves in a few weeks, and should then have more light, but they should not be exposed to the full sun. They ought to be pricked off when large enough to handle into pans drained similarly to those in which the seeds were sown, adding to the Sphagnum and sand one-half chopped fibrous peat. Let them be kept on growing, and as soon as large enough put them singly in little pots, using the same sort of soil as that last described. Particular care ought to be taken of the strongest plants, for it will be found that those which take the lead will continue to be the best growers, and will also bear the finest flowers.

Hard-wooded greenhouse plants.—No time should now be lost in putting outside such plants as require a few weeks' exposure, including those that fail to set bloom freely if kept indoors all the year round, and those that are liable to be attacked by mildew. *Eriostemons*, *Hedaras*, *Correas*, *Acacias*, *Aphelexis*, *Boronias*, *Pimeleas*, *Pleromas*, *Adenandras*, *Leschenaultias*, *Mirbelias*, *Tremandras*, *Pulteneas*, &c., should all be treated in this way. It is a good plan to put them for a few days where they will not be under the full influence of the sun, particularly in the middle of the day; in a week's time they may be placed in the full sun, taking care that the pots on the side nearest it are shaded from its direct rays. If this is not done injury will result to the roots that are in contact with the inner surface. The ground on which the plants are placed ought to have a layer of ashes spread over it, not less than 4 in. thick, to keep out worms. If we have very bright weather it will be a great assistance if the ashes are damped every evening, and the plants, well syringed in the afternoons, being careful that the water gets to the undersides of the leaves as well as the upper. So far the season has not been favourable to red spider; still before putting the plants out each ought to be examined to see if this troublesome insect exists on them, as it spreads very fast out of doors when the weather is bright and soon does a great deal of damage. Any that are found to be affected ought to be laid on their sides and syringed with weak Gishurst compound (two ounces to the gallon of water is quite strong enough for this purpose, but the dressing to be effectual must be thorough); let it remain on for about an hour and then wash with clean water. All plants which the insect has attacked should, so long as there is enough warmth for it to live, be examined regularly, as a fresh lot may come to life, and before they are noticed do a deal of injury to the foliage. Whilst the plants are out it will be necessary to be very careful in the matter of watering, examining each at least once a day, as the drying influences of sun and wind are greater outdoors than under glass. It is neither necessary nor advisable to submit *Dracophyllum gracile*, *Acrophyllum venosum*, *Phanocoma prolifera*, *Statice*, *Witsenia corymbosa*, *Roella ciliata*, and *Gompholobium* to this open-air treatment, more particularly the *Acrophyllum*, as its leaves are not able to bear being fully exposed to the sun. Indeed, it succeeds best in a house that does not admit so much light in the summer-time as most things want. The roots of the *Gompholobium* and *Dracophyllum* are so delicate, that they are better not trusted outside.

Heaths.—The varieties that bloom in the autumn, such as *Turnbulli*, *Jacksoni*, *retorta major*, *Austiniiana*, *Marnockiana*, and *Irbyana* are extremely useful. If there is a desire to retard them

either for decorative purposes or for exhibition, this may be done by placing them in a north house. They must, however, have plenty of light. Where there is no house of this description some lights can be temporarily fixed at the north side of a wall in an open situation. Retarding can be better done now than when the flowers are further advanced, and there is also less danger of injuring the plants. Spring blooming varieties that after flowering have made their growth may, if wanted to come in early next year, say in March or April, be set out-of-doors immediately, but if not required until May, it will be well to delay their full exposure a little while, as the sooner they are turned out the sooner they will flower.

Rochea falcata.—This is a serviceable plant in autumn; it is most useful when grown in 6-in. or 8-in. pots. Examples wanted to be in flower next year will be benefited by being exposed in the open air to the full sun for a few weeks; the growth by this means gets better matured and solidified than if kept altogether indoors. Those now pushing up their dower-stems will require plenty of air and light to prevent their being drawn up weakly. If there is not sufficient stock, leaf cuttings may now be taken off and put in sandy soil round the sides of pots. They will form roots and push out shoots, but must only have as much water as will keep the soil from getting dust dry, or they will rot; the same mishap will also occur if they are kept too close. As soon as they have begun to grow fairly, move them singly into small pots, using sandy porous soil, and giving them more water.

Ardisia crenulata.—Plants of this that are swelling their berries should have a light position and sufficient warmth to enable them to grow freely; they will also need syringing to keep them clean. If the pots in which they are grown are small compared with the size of the plants, it will be requisite to give them weak liquid manure every ten days or fortnight; by so doing their leaves will possess that bright dark green colour that is so desirable. However well berried they may be, if deficient in this respect they lose half their interest.

Æschynanthuses.—Few plants are more effective than these when grown in baskets; where autumn-blooming kinds, of which *Æ. grandiflorus* may be named, are so managed, they must be well attended to in the matter of water; if this is not done their flowers will fall off without opening. From the position they occupy basket plants are more likely to suffer in this way occasionally than those which are in the body of the house.

Clorodendron Kæmpferi and C. fallax.—These are of more use for decorative purposes in a small state than when large. There is no better way of propagating them than by means of seed. Examples that bloomed early and were allowed to mature seeds will have ripened them by this time, which can be readily seen, as they turn quite black, and fall from the capsules on the slightest touch. Sow immediately in small pots, using sandy loam, put them in heat, and keep a little moist. Treated in this way they will not be long before they vegetate; directly that takes place let them have a position close to the glass to keep them from becoming drawn. During autumn they will need shifting into 5-in. pots; keep them growing slowly through the winter, and they will form good blooming plants for next summer, *i.e.*, if they receive a shift into 9-in. or 10-in. pots about February.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Pines.—In ordinary seasons Pines in all stages about this time commence making rapid growth without the aid of much fire heat, but the months of June and July having been unusually cold and sunless, the potting of the different sections has been delayed, and as a natural consequence Queens intended for early starting are not so well advanced as one could wish, but much may still be done by keeping them well plunged

in a bottom heat of 90°, by feeding with gentle stimulants at every watering, and by closing in time for the house or pit to run up to 90°, with solar heat and moisture. If nights continue cold, turn on fire heat to catch the minimum at 70°, damp down the floors and fill the evaporating pans with liquid, and give a little air very early on bright mornings to favour the escape of condensed moisture before the sun catches the points of the leaves. If the second batch of plants which generally make a growth before they start in the spring are in a separate compartment, the air temperature may range a few degrees lower, as they may be kept growing later in the autumn, but the bottom-heat must be kept up until the pots are filled with roots, and the general system of feeding and early closing may be precisely the same as that recommended for the first set of plants. Give plenty of air to Pines that are ripening, and remove the plants bodily to a cooler and drier house if the fruit is wanted to keep for any length of time after it is fit for use. Rothschilds, Cayennes, and Jamaicas now throwing up or going out of flower will require a sharp bottom-heat to help them on, and plenty of stimulating liquid and guano water alternately to swell the fruit. Avoid wetting the pips when they are in flower, but when this stage is over, syringe lightly overhead and well into the axils of the leaves at closing time, and economise fuel by running up to 90° or 95° for a short time with solar heat alone. Avoid the too common practice of crowding the plants in succession pits. Keep them near the glass to insure a firm, stocky growth. Give diluted liquid or weak guano water at every watering, and close about 4 p.m., with sun-heat and plenty of atmospheric moisture. Pot up suckers as they are taken off fruiting plants, plunge in a sharp bottom-heat from fermenting materials in a pit or frame, and water sparingly until they begin to make roots.

Hardy fruits.—Stop all strong growths on Peaches and Nectarines, and keep the shoots neatly trained to let in sun and air. The heavy rains we had in June and July having thoroughly soaked the borders, the trees are healthy, vigorous, and free from insects, and promise to ripen up a crop of fine fruit; but, owing to the lateness of the season, Walburton Late Admirable, Barrington, and other late kinds will need timely attention to every point in the detailed management to get the fruit forward and the wood perfectly ripened before bad weather sets in. To this end early afternoon syringing with water at a temperature of 80° will do good service, and an occasional surface watering with tepid water will tell upon the size and quality of the fruit. Complete the thinning of Pears and stop all lateral growths, as every ray of sun and light will be needed by the fruit, and even then many of the choice kinds will be found deficient in flavour. Cut away the old canes as soon as Raspberries have done bearing, and thin out all the weakest shoots of the current year to let in light and air. Tie up those left to prevent them from being injured by the wind, and keep the beds free from weeds. Trim off all damaged leaves, also the runners when the Strawberry crop is over. Mulch with rotten manure or good rich loam and give the beds a thorough soaking with the hose. See former directions with regard to the formation of new beds, and get the plants in without delay. If ground intended for new plantations is still occupied by other crops, turn the newly rooted runners out of the pots into nursery beds where they can be regularly watered and defer planting until spring. At the present time we are gathering very good Oxonians from plants treated in this way, and although growing on a north border the fruit is superior to that produced by older plants which have made too much foliage.

Vines.—Early houses in which the wood is getting ripe may now have free ventilation by night and by day, and more mulching may be spread over the inside borders to keep the roots moist and actively working in the surface dressing. Syringe well every evening to preserve the foliage as long as possible, and while gradually shortening back all strong laterals to strengthen

and plump up the fruit-bearing buds, allow weaker growths to have full play until the main leaves begin to ripen. If any of the Grapes have not finished well, the roots should be lifted and relaid in fresh soil, or a portion of the old compost may be taken away and replaced with rich loam before this month is out. The mode of procedure having so often been described in these columns, it is only necessary to advise dispatch in the performance of the operation.

Mid-season houses.—With every prospect of a change to brighter and better weather, it may be well to remark that black Grapes now ripe will keep best where the foliage is dense, but, lacking this, some light shading may be thrown over the roof until the fruit is cut. On the other hand, white varieties colour and keep well, and Muscats lay on the finest amber where sun-heat and light can play freely through the foliage on and around the bunches. Should our hopes of brighter days be realised, fire heat will only be needed to prevent moisture from condensing on the berries, and to admit of a free circulation of dry, warm air through the night. Keep the foliage clean by putting in a syringe of clean, soft water whenever it can be applied without damaging the Grapes. Damp the floors well on fine days and see that the inside roots are kept in a moist, healthy state by the application of warm water whenever needful. Muscats and late Grapes now colouring will stand a high day temperature with plenty of air and sufficient moisture to keep the foliage fresh and healthy. If the main foliage in the Muscat house is clean and good, the laterals may be well shortened back to let sun heat and light into the wood and fruit; but Lady Downes and other black kinds will colour best under a thick canopy of foliage, provided the primary leaves are not crowded or injured by an unreasonable quantity of lateral growth. When colouring becomes general another heavy watering with warm liquid will greatly benefit the Vines by producing conditions unfavourable to spider, while its stimulating effects will produce a depth of colour and bloom which the fruit on half-starved Vines never attains.

Pot Vines intended for forcing, and now getting hard and brown, may receive the treatment recommended for early houses from which the fruit has been cut. Remove the laterals from the base of the Vine upwards to the pruning bud; carefully preserve all the old leaves by daily syringing and the application of as much pure water as will keep the roots fresh, and avoid the too common practice of turning the Vines out of doors to be battered by rough winds and prematurely ripened by checks and chills. Spring-struck Vines intended for cutting back or planting may be placed out of doors to ripen in preference to keeping them too much crowded under glass. The best situation is a south or west wall, as they can then be secured with shreds and nails, and some kind of non-conducting material placed about the pots will economise watering and keep the roots in a healthy state.

Cherries.—Let early forced trees have full exposure to the elements by the removal of the roof-lights to the paint room, where they can be properly overhauled and painted if needful before they are again wanted to ward off heavy autumnal rains. See that spider is kept off the foliage by occasional washings with the engine, and dip the points of the shoots in Tobacco water to free them from black fly. Look well to internal borders, and while guarding against forcing a second growth by giving too much water, see that the roots do not suffer from drought. If the lights cannot be taken off, ventilate to the fullest extent, mulch inside borders to keep the surface roots cool, and give a moderate watering occasionally. Attend to pot trees now in the open air, and syringe well after bright days. Mulch the tops of the pots with rotten manure; cover up the sides with Fern or litter, and give just enough water to keep the roots progressing in the new compost.

Plums.—Remove early kinds to the open air as the fruit is gathered, and treat as Cherrie s

always bearing in mind that cleanliness from this time until the leaves fall must be insisted upon if the trees are to start fresh and free from insects in the spring. Give later kinds more room in the house, and continue the syringing with pure soft water until the fruit begins to change for ripening. It is hardly necessary for me to say an easily excited tree like the Plum cannot have too much air at this season, and that pots now full of hungry roots cannot have too much water. Late kinds may be set out-of-doors for a time, but under good management this is not necessary.

KITCHEN GARDEN.

R. GILBERT, BURGHLEY.

Now is a good time to sow spring Cabbages, winter Lettuces—that is, Lettuce for cutting through the winter—and Tripoli Onions, and as soon as you see the young seedlings appear protect with netting, or the wind will ruin your crop. To make Cabbage crops pay the plants should have plenty of room, and when planted after Onions without any digging they should be strong and of one size. General work will consist in hoeing, cultivating, and cleaning among all growing crops. Have a good breadth of Parsley for the winter supply. Cut all herbs that are in flower, spreading them out to dry, but not bunching them green, which spoils their flavour. Plant out the latest batch of Celery and earth up the early rows now growing vigorously. Begin now to get the manure together for the October Mushrooms, water it with manure water, and sprinkle with it a little salt.

SOCIETIES.

WEST OF SCOTLAND PANSY.

THE third annual exhibition of this society was held in the City Hall, Glasgow, on the 26th ult. There was a grand display of show and fancy Pansies, Pinks, Roses, and herbaceous flowers, the blooms shown being of excellent quality. In the nurserymen's competition for Pansies, Messrs. W. Paul and Son, Paisley, were first in both classes, with large, handsome flowers, while the same firm won the first prize in the nurserymen's class for 24 Pinks, with large, double flowers, beautifully laced. The first prizes for Roses in the nurserymen's class for 48 and 24 blooms were secured by Mr. Hugh Dickson, Belfast, and Messrs. A. Dickson and Sons, Newtownards, with large, well-finished blooms. There was a large competition among amateurs and gardeners for the 12 herbaceous flowers, Mr. Peter Sinclair, Campsie, gaining the first place.

Pansies.—Amongst these the best were D. Malcolm, Artemis, Peter Lyle, James Clelland, and W. Shearer, dark selfs; Mrs. Galloway and Mrs. Dobbie, white selfs; Golden Queen, yellow self; R. Pollock, D. Robertson, Bailie Cochran, Robert Donaldson and Fry Me T.O., yellow grounds; Fair Maid, Mrs. D. Wallace, Mrs. Muir, Mrs. J. G. Paul, Tickler, Jeannie Grieve, Sweetness, white, ground. Amongst fancy varieties the best were: H. L. Blacklaw, Mrs. H. Hunter, James Gardner, Catherine Agnes, Thalia, Livadia, Wm. Windle, Sir P. K. Murray, R. Goodwin, Tom McComb, Mrs. Jamieson, John Taylor, Mrs. Russell, Earl Beaconsfield, Schoolmaster, Hecla, Sultana, R. K. Mitchell, and Wm. Stewart.

Pinks.—Large and perfectly laced flowers of the following were shown, viz., William Murray, David Saunders, Premier, W. Bruce, Dr. Masters, Henry Cannell, Captain Holmes, Emmeline, Bertram, Egeria, Nelly, Modesty, Emily, Captivation, and W. Kilyour.

Roses.—Of these large, well grown specimens were exhibited of Paul Neyron, Marguerite de St. Amand, Oxonian, Madame E. Verdier, Sultan of Zanzibar, Elie Morel, Constantin Fretiakoff, Albert Paye, Madame C. Wood, Comtesse de Sereyne, Duchess of Bedford, Princess Mary of Cambridge, C. de Rambaud, Madame Nachury, Alfred Colomb, La France, Etienne Levet, Prince

of Wales, Mrs. Harry Turner, Lælia, Marie Baumann, Captain Christy, Charles Darwin, Madame Montet, Auguste Rigotard, Mdlle. E. Verdier, Duke of Teck, Baroness Rothschild, A. K. Williams, Reine Blanche, Auguste Buchner, Lady Sheffield, Senateur Vaisse, Madame Marie Verdier, Duke of Edinburgh, Pride of Waltham, Marquise de Castellane, Countess of Oxford, Madame Vidot, Madame C. Crapplet, Souvenir d'un Ami, General Jacqueminot, Belle Lyonnaise, Louis Van Houtte, Mdlle. C. Soupert, Horace Vernet, Peach Blossom, and Duc de Rohan. Tea, or Noisette Roses, consisted of superb flowers of C. Mermet, Marie Guillot, Triomphe de Rennes, Souvenir d'un Ami, Cheshunt Hybrid, Gloire de Dijon, Madame C. Kuster, Marie Van Houtte, Rubens, Comtesse Nadaillac, Madame Lambard and Alba rosea.

Hardy herbaceous flowers consisted of Campanula coronata, Linaria purpurea, Actæa spicata, Stenactis speciosa, Achillea serrata, Alstroemeria aurea, Potentilla, W. Rollisson, Coreopsis lanceolata, Lychnis chalconica fl.-pl., Gaillardia Admiration, Mimulus cardinalis, and Lychnis dioica alba fl.-pl.

SPECIAL PRIZES.

ON Thursday at South Kensington, the prizes offered by Messrs. Sutton & Sons, Reading, for Melons and Cucumbers, and by Messrs. Carter, High Holborn, for Tomatoes were competed for. Messrs. Suttons' five prizes, amounting to 11½ guineas, were for two kinds of Melons, to include Hero of Lockinge, one brace of each, and two kinds of Cucumbers, to include Duke of Connaught, one brace of each. There were three collections shown, the best coming from Mr. Goldsmith, Hollenden, Tonbridge, who had a fine brace of Hero of Bath, and equally fine fruits of Hero of Lockinge Melon. Both are round fruits and handsomely netted. The first is a scarlet fleshed, the other a white fleshed variety, the flavour of both is all that could be desired. Mr. Goldsmith's Cucumbers comprised the Duke of Connaught and Marquis of Lorne varieties; both braces were excellent; one of the fruits of Marquis of Lorne measured 23 in. in length, and the other was but a trifle shorter, while the brace of fruits of the Duke of Connaught variety were 21 in. The second best collection from Mr. G. Steggle, Faulkner's House, Hadlow, comprised excellent fruits of Victory of Bristol and Hero of Lockinge Melon, and fair examples of Duke of Connaught and Improved Telegraph, but neither was so fine as the first lot. The Melons in this collection were particularly fine being even better than Mr. Goldsmith's. The other collection was very inferior, and ought not to have been sent for competition; indeed two of the Melons were not fit to eat, being in fact rotten. The same exhibitor's Cucumbers were fair, but not what exhibition fruits should be.

The prizes offered by Messrs. Carter, amounting to 5½ guineas were for the best six pots of Tomatoes, selected from the varieties named below: Carter's Green Gage, Holborn Ruby, Golden Drop, Dedham Favourite, Grapeshot, Red Currant, President Garfield, Vick's Criterion, but there was no competition. Messrs. Carter, however, showed a good group numbering about thirty plants, representing all the varieties mentioned above, besides others to the number of thirty. In such a numerous collection as this it was interesting to observe how nearly alike several of the kinds were, differing apparently only in name. Such established favourites as Trophy, Large Red, Acme, Stamfordian, Excelsior, and Criterion were well represented, as were several new claimants to public favour such as Dedham Favourite, a good smooth-fruited variety, said to be very prolific; Essex Hybrid seems to be very similar; Abundance, very large, but much resembling the old red Trentham Fillbasket, remarkable for its extreme fruitfulness, of which we had evidence at Trentham last year, where it is the chief variety grown. It is specially adapted for growing for market, being of moderate size, handsome, and, as we have just remarked, extremely prolific. Green Gage is a very distinct variety, but more orange

than green when ripe, and the fruits are of medium size and smooth. Those named Powell's Early Scarlet and Early Paris Red seem to differ but little from the Large Red. Among the smaller-fruited varieties were Hundred Days, Mammoth Cluster, and Little Gem, all, however, very much alike. The smallest of all is the Red Currant, a very ornamental variety with long racemes of fruits not much larger than Currants. A variety of the same character, but with fruits as large as Cherries, is called Royal Cluster, another called Grape Shot is much the same. Burghley Pet and Ne Plus Ultra both have medium-sized, round fruits, produced abundantly in long clusters. Nisbett's Victoria and Queen of Tomatoes have Pear-shaped fruits, the first rather the largest; both are very prolific and extremely ornamental as pot plants. Other varieties shown were Earley's Defiance, Hayes' Early Prolific, Glamorgan, Golden Drop, De Laye, Holborn Ruby, and President Garfield, which, however, was fruitless. It was stated to have been cultivated with the others but has shown no signs of fruit.

Flower Clock.—Lately someone asked in THE GARDEN where to find the Flower Clock. It is given in Neil's "Rays from the Realms of Nature."—A. KINGSMILL.

Weeds on walks (R. A.).—Sulphuric acid, diluted with fifteen or twenty times its weight of water, will kill weeds on walks. Apply it when the weather is dry.

Books.—We observe that "Garden Receipts," by C. Quin, "Grafting and Budding," by C. Baltet, and "Cottage Gardening," by E. Hobday, are now published by Crosby Lockwood & Co., Stationer's Hall Court, Ludgate Hill.

Seamless seed bags.—Samples of these have been sent to us by Mr. Anderson, Commercial Street, Shore-ditch. They have no seam in them whatever, and are therefore adapted for holding fine seed. Bags of this description will obviate all complaints as to imperfect sowing, and the price is not more than that for ordinary sewed bags.

Bohemia.—I propose to spend some weeks at Marienbad, from the last week in August next, and will be much obliged to any reader of THE GARDEN who would kindly give me any information as to desirable hardy plants I might find in the neighbourhood and any gardens worth seeing. I would be near the Bohmerwald and the Erz Gebirge, and within reach of Prague.—R. G. L.

Rating nurserymen's glasshouses.—As to whether a nurseryman is liable to pay rates for greenhouses erected to carry on his trade or not depends on the terms of the lease, or if on his own property. If on his own property he is liable, or if erected on land rented for a term, and if at the expiration of the term the houses are to be left on the premises, he is liable; but if erected with the understanding that he may remove them at any time, they are not rateable, as that which forms a part or parcel of the freehold can only be rated.—W. ROSSITER, Paignton.

Medicinal plants.—Where can I obtain the following plants, all required for medicinal purposes? viz., Orris, Storax, Red Clove Gilliflower, Yellow Saunders, Knotted Marjoram, Balm of Gilead, Angelica.—F. [Try Butler and McCulloch, Covent Garden Market. Orris is the root of the German and Florentine Irises; Storax, the resin of Styrax officinale; Knotted Marjoram, Origanum Majorana; Angelica, A. Archangelica; Balm of Gilead, uncertain, but thought to be the Lentisk (Pistacia Lentiscus), a tree too tender for outdoor culture in this country. It grows in the temperate house at Kew.]

Names of plants.—*G. T.*—1, Spiræa Douglassi; 2, Deutzia scabra fl.-pl.—*M. A.*—1, Spiræa Lindleyana; 2, Origanum vulgare (Marjoram); 3, Satureja hortensis (Savoury); 4, Calendula officinalis (common pot Marigold).—*M. S.*—Athyrium Filix-femina var. irriguum.—*G. Nisbet*.—Nothochlæna sulphurea.—*M. D.*—Mesquit Bean (Prosopis juliflora).—*Mac.*—Gnaphalium margaritaceum; 2, Galega persica.—*Alpha.*—Biota orientalis aurea.

LA SEMAINE FRANCAISE, a Weekly Newspaper and Review in French for the United Kingdom—Politics, Literature, Science, Art, Society, Theatre, Music, Education, Varieties, the best Novels. For all who read or study French, or who wish to preserve their knowledge of it through the best French of the day, LA SEMAINE FRANCAISE is a complete résumé of the literary, political, and artistic world on the Continent. "Will be highly valued in households where French is cultivated."—*Queen.* Price 3d.

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

BLACK WALNUT A USEFUL TIMBER TREE.

SINCE the extract of a letter on this subject from a London timber merchant was published in THE GARDEN (p. 83) he has kindly forwarded to me a specimen of wood from an English-grown Black Walnut. I am pleased to be able to say that I am favourably impressed with its appearance, and I must add that it quite bears out every word that the timber merchant in question said in its favour. It is of good colour, being dark brown with alternate streaks of reddish and palish brown running through the grain, which give a distinct character and feature to it. Moreover, it is exactly what the timber merchant stated, viz., hard, heavy, easy to work, and will take on a smooth face and good polish, with the great advantage of a rich quiet distinct colour, quite free from any yellow or gaudy tinge so common to many woods when newly converted.

With reference to the market value of the Black Walnut, I have ascertained from a firm in Bristol, who are large importers of foreign timber, the comparative prices of a few woods that are in good request for cabinet work. The quotations are as follows:—

Black Walnut (American), 4s. per ft. in Bristol	
" (Canadian), 5s. "	" "
English Walnut, 3s. to 4s. "	" "
American Maple, 1s. 10d. to 2s. "	" "
" Birch, 1s. 2d. to 1s. 8d. "	" "
English-grown Black Walnut: No supply.	

It appears from the above quotation that Canadian-grown Black Walnut is worth 1s. per ft. more than that grown in the States; this, I think, is strong evidence in favour of the theory of the timber merchant that the quality of the wood of the Black Walnut will prove better and more valuable when grown in our soil and climate than when produced in its native land. Doubtless the cooler climate of Canada has a good deal to do with the production of wood of a better quality than that of the States; hence the difference in price of 1s. per ft. in our market. It is a conclusive fact that Black Walnut of good quality is worth 5s. per ft., as the timber merchant stated; this proves the demand. It is also a fact that the tree is very hardy, a quick grower, and suitable in every way for planting extensively as a timber tree in England for future commerce. The advice and suggestion given by the timber merchant are, I think, very valuable, and deserve to be acted upon without delay.

GEORGE BERRY.

Longleat.

SUMMER NOTES ON HARDY PLANTS.

THE Campanulas have been, and still are, the most interesting of our garden plants. From the giant sorts, such as *latifolia*, *Trachelium*, and *pyramidalis*, down to the tiny *Zoysi*, they are all lovely. A bouquet is now on my table, consisting of a single spray from each kind, and it has a charming effect, quite a symphony in blue and white. I was surprised to find, on counting over my stock, that we have about sixty-seven varieties. A good many names will probably be duplicates of the same; for instance, *C. tenella* is frequently supplied as *C. azurea*, but still there is a great variety, and all have distinctive differences. Let us begin with the smallest, *C. Zoysi*, which

comes from the highest zone of the Austrian Alps, a true alpine. It has small obovate leaves, forming a dense cushion, from which rise scores of tiny stalks, 2 in. high, with beautiful small blue bell flowers $\frac{1}{2}$ in. long, of exquisite shape, the petals closing to an apex, which, looked at in front, forms a star of five points. The flowers do not seem to open fully, but possibly when sunshine comes again they may be further developed. Another dwarf Campanula, *C. hederacea*, is also exceedingly pretty, with tiny Ivy-shaped leaves and pale blue bells on stalks about 4 in. high. *C. spicata* is another pretty dwarf Campanula with white flowers. Of the medium class one of the best is *C. celidifolia*, a beautiful blue, and its two other varieties *alba* and *pallida*. This Campanula has a tall and stiff stalk bearing a large cluster of lovely bells atop. *C. Rapunculus* and its larger variety, *C. rapunculoides*, are also great favourites here, although they sow their seeds everywhere and have to be weeded out by hundreds. *C. Hendersoni* is another excellent sort of the medium class, having stems 1 ft. or 2 ft. in height, carrying clusters of deep blue bells not unlike the dwarf *C. turbinata*. *C. pumila* and its larger cousin, *C. pusilla*, form dense carpets of blue and white bloom on the rockeries. The double white variety of *C. persicifolia* is a most valuable plant both for out-doors and for the cool greenhouse. The best flowers are almost as pure as Camellias.

Another lovely blue rockery plant now in bloom is *Convolvulus mauritanicus*, which hangs its sprays of flowers over the rockwork with charming effect. Of the alpine *Potentillas* I have most admired *P. nitida*, which has silvery foliage and white flowers with pink centres. The *Agrostemmas* are now very beautiful, and the variety *bicolor* is a curiosity having white flowers with pink centres. Several of our early spring flowers are now blooming vigorously for the second time, viz., *Iberis gibraltarica* and *g. hybrida*, *Androsace lanuginosa* and *lactea*, *Arnebia echioides*, *Primula rosea* and *cortusoides*, and *Onosma tauricum*.

Trachelium coeruleum is one of our most beautiful border and cool greenhouse flowers at this season. When in bloom it is like a cloud of pale mauve-purple, made up of hundreds of tiny flowers, like small Campanulas, to which, indeed, it is allied. *Verbascum Blattaria album* is also a grand border plant of a very different sort.

Many of the Sedums, Saxifrages, and *Sempervivums* are now in flower, and form interesting subjects; some of them appear to die away after blooming, as if altogether exhausted by the effort. I believe this is frequently but too true with some of the choicest, such as *Saxifraga longifolia vera*, which we can never save after blooming. But there are others which behave differently. *Sedum amplexicaule*, for example, seems to wither off at the roots, and each individual joint or branch assumes a chrysalis-like appearance. If all these bits be taken off and planted afresh, each will make a good plant, and in this way it appears to be propagated. It is the same with others of the Saxifrages, and especially with *S. Wallacei*. It will be worth while, therefore, for growers of these interesting plants to look over their stocks with reference to this matter.

There is very little variety in the flowers of the *Sempervivums*, although they bear so many names and vary so much in their leaf rosettes. They nearly all send up a tall, blooming stalk, which carries a cluster of dull red star-like flowers atop, and the rosette which carries it dies away. With the Sedums it is very different, and many of them are exceedingly pretty at this season, clothing the rockwork with their dense carpet-like patterns of white, pink, and yellow.

The *Galegas*, *officinalis* and *alba*, and another of Mr. Cannell's favourites, *Malva moschata alba*, are just now grand border plants. *Galega alba* makes a splendid clump if allowed to grow on for a few years. The yellow *Oxalis Valdiviana* has the power of dispersing its seeds in a remarkable degree. My friend Mr. Leo Grindon brought me a plant of it in full flower last summer, and said I should find it spread all over the place. I observed it accordingly, and this year it abounds everywhere within a circuit of about 20 ft. from the original plant, so that the seeds must have been scattered with considerable force both up hill and down upon the rockery. It is a charming little plant, having a similar leaf and flower, except in colour, to our English *Oxalis*, but growing to thrice its height. *Corydalis lutea* is another tender looking plant which spreads far and wide by its seedlings. *Acœna microphylla*, that curious New Zealand rock plant with small red burr-like flower-heads, is now in flower, and it is very interesting to observe the way in which its seeds get diapeded. When ripe these burrs get detached from the plant, and are bowled along by the wind until they find a resting-place; here they fall to pieces in a few days, and if the situation be a congenial one you will probably find a little plant there next year.

The most curious plant we have now in bloom is *Primula longiflora*, which comes from the Austrian Alps. It resembles our own *P. farinosa* in colour, leaf, and flower, only that the corolla and tube are more than an inch long, giving the flower-scape a great width of spread. Another curiously beautiful plant just now in flower is *Eryngium alpinum*, which has glaucous, Thistle-like foliage, with the well-known Teasel heads of the richest blue. We have had a grand Rose season, and the *Phloxes* are just coming into bloom, but the excessive wet has made everything overgrown and untidy.

Didsbury.

BROCKHURST.

FIVE NEW FRENCH HYBRID GLADIOLI.

MONSIEUR VICTOR LEMOINE, of Nancy, the well-known nurseryman and hybridist, has this year sent out five more of the interesting results of his careful fertilisation of *G. purpureo-auratus* with one of the varieties of *G. gandavensis*, in addition to the two varieties so well figured in Volume XVII. of THE GARDEN, Plate 226, and as these are now blooming nicely with me, I think that some brief description of them may be acceptable to your readers. They are named as follows: 1, Rochambeau; 2, Lafayette; 3, John Thorpe; 4, L'Abbé Grégoire; and 5, Cavaignac. The first named opened its first bloom about the middle of July, and is of medium size, of a pleasing shade of salmon, heavily and distinctly marked on the lower divisions with deep purple. The second named came into bloom about a week later, and is a much larger flower, of very fine proportions, and opening well; it is of rather a paler shade of ground colour and somewhat less heavily marked, but must be considered a very fine variety, and a decided acquisition. John Thorpe is the tallest growing of all the set, fully grown specimens being said by the raiser to attain the height of 4½ ft.; its flowers are also of a much deeper shade of ground colour than the two first-named varieties, being of a fine cherry-red shaded with white, and with a distinct maroon blotch in the centre, lower petals surrounded by a broad white margin; altogether a distinct and beautiful variety. L'Abbé Grégoire has medium sized flowers of a dull washy reddish brown shade of colour, the lower petals washed with greenish yellow, surrounding a maroon blotch; a poor and inferior variety. Cavaignac has larger flowers than the last-named variety, but they are unfortunately of almost the same dull washy ground colour, with a similar maroon blotch on the lower petals, but without the greenish yellow surrounding; altogether a dull coloured and in-

ferior variety. Both this and the last-named variety, being distinctly inferior in beauty to either Lemoinei or Marie Lemoine of last year, had better not be sent out, but should have remained unnamed in the seed bed.

W. E. G.

INDOOR GARDEN.

BOMAREAS.

In the succulent house at Kew several interesting and beautiful species of this fine genus are in flower, amongst them being a plant of the new *B. frondea*, recently introduced by Messrs. Shuttleworth & Co. As, however, the plant is small, the inflorescence is not so fine as it appears to be on strong, healthy plants. *B. Carderi*, *B. oligantha*, *B. edulis*, and *B. Caldasiana* are also now in flower, or soon will be, while the handsome species *B. conferta* is so strong and healthy, that its fine flowers may soon be expected. Another new species represented here by a small plant is the very distinct *B. Shuttleworthi*, the habit and foliage of which very nearly resemble that of the *Lapageria*. Has anyone experimented on these plants with a view to proving whether they are hardy or not in this country? Dean Herbert, who cultivated and described a considerable number of species of *Bomarea*, writing of their requirements says, "The greater part of these beautiful plants are natives of elevated situations, and dislike a high temperature. They will be found to thrive best out-of-doors in this country in summer time, and will survive the winter if planted pretty deep in light soil and covered with leaves in the cold season, especially if anything be laid on to throw off the wet." Several species are mentioned as having thriven under this treatment, among them being *B. acutifolia*.

The value of such plants for covering verandahs, arches, or the sides of houses, &c., cannot be over estimated; should they prove capable of withstanding the cold and wet of our winters, the quickness of their growth, the graceful deep green foliage so thickly produced on the twining stems are valuable characters for out-of-door work, while the large umbels of *Lilium* or *Lapageria*-like flowers which last so long are unsurpassed by any climber out-of-door or greenhouse. It is not at all unlikely that the many collectors who are searching for Orchids in the lands where *Bomareas* are said to abound may think it worth their while to introduce some of those species, which, according to Herbert's descriptions and the specimens in herbaria, are at least equal to if they do not surpass in beauty those kinds already introduced. A few capsules of seeds or a strong root or two would soon yield a plentiful supply of plants whose commercial value would be perhaps quite as high as that of some Orchids. Some of the finest un-introduced kinds are *B. pardina*, a magnificent species closely related to *B. conferta*, but with still larger flowers, their length being 3 in., whilst the colours are—sepals red, petals carmine, spotted with purple. These flowers are borne in a dense, drooping, simple umbel like a large truss of *Rhododendron* flowers. A variety *Sprucei* has red sepals with white petals, spotted with purple. Perhaps the largest flowers of all are those of *B. formosissima*, which belongs to the same set as *B. Carderi*, whose flowers, both in size and colour, it apparently surpasses. This magnificent plant is said to produce an umbel of from thirty-six to eighty flowers of a purplish red and yellow colour, the petals being richly spotted. The stem grows to a length of 12 ft., and the foliage is about 4 in. long by 1 in. wide. This fine plant is a native of Bogota, which fact may be marked down in Mr. Shuttleworth's note-book as worthy of his consideration. There is another species, *B. Jacquesiana*, which appears to have been introduced, and is now frequently to be seen under the name of *B. Carderi*, which indeed it resembles in colour of flowers, but in everything else it is certainly greatly inferior. *B. Carderi* has broad, almost rotundate leaves and dense large umbels of flowers, these umbels measuring sometimes 2 ft. or 2½ ft. across; whereas *B. Jacquesiana* is a

smaller plant with slender shoots, narrow leaves, and thin umbels of flowers, which individually are smaller than those of *B. Carderi*. The true *Carderi* is to be seen at Kew, also at Messrs. Henderson's and Sir G. Macleay's. *B. macrocarpa*, a Peruvian species, is a very pretty plant, with short flowers in dense umbels, the colours being yellow and red. Another fine Peruvian species is *B. superba*, with smooth, shining green leaves, and crowded umbels of red and orange flowers, each flower measuring about 3 in. in length. The above mentioned kinds, along with others which may yet remain undiscovered, are certainly deserving of the attention of plant collectors and importers.

The requirements of these plants under glass have already been fully treated on in these pages. For the guidance of those who may be unacquainted with the nature of these plants it may be as well to state that, like *Liliums* and many similar plants, no lateral eyes are developed on the stems, so that to remove the points of the shoots under the impression that more branches would follow would be simply sacrificing the shoot altogether. The whole of those known in gardens grow very rapidly, producing their stems from the collar of the plant in great abundance. It is always the best plan to plant them out, or should that not be convenient, the pots in which they are grown should be plunged in a bed of soil or ashes up to the rim.

B.

HELIAMPHORA NUTANS.

THIS interesting and beautiful Pitcher plant was discovered by Schomburgk during a botanising tour through British Guiana in 1848, and was shortly afterwards figured and described by Mr. Bentham in the Linnean Society's journal. Unfortunately Schomburgk did not succeed in introducing living plants or seeds of it, nor has any of the many collectors who have since visited the neighbourhood in which the *Heliamphora* grows ever been lucky enough to find it. Our knowledge of it is from Schomburgk's "Botanical Reminiscences," and the specimen in the Kew herbarium, which is supposed to be the only one that exists, even in herbaria. After describing the grandeur of the scenery of the Roraima Mountain, and the many beautiful plants discovered at every step, Schomburgk goes on to say: "Here spread before us lay a small marshy plain, on which Flora had assembled her most beautiful children, where the charm of flowers had culminated. The whole plain was covered with the dark blue *Utricularia Humboldtii*, the most beautiful species of the genus, with red-tinted flower-stalks from 3 ft. to 4 ft. high, from which three or four of the curious flowers are suspended. While the amazed eye was looking upon this charming carpet of flowers it was especially attracted by the interesting and beautiful *Heliamphora nutans*, with light green, red-ribbed leaves, and bearing slender, drooping spikes of white, and sometimes red-tinged flowers." Many other plants of interest and beauty were met with on this richly clothed mountain, so that there is a certain and rich harvest for the enterprising collector who visits it, and it is from a hope that some one of the many collectors who now overrun the Tropics of South America in search of new and rare plants may succeed in introducing living plants of the *Heliamphora* into this country that these remarks are made.

The general appearance of the *Heliamphora* is that of some of the *Sarracenias*, to which it is indeed closely related, these, along with the *Darlingtonia*, constituting the Order *Sarraceniaceae*. The structure of the apex of the pitchers and the almost total absence of a lid, together with the Anemone-like flowers, are, however, quite different from what we get in the *Sarracenias*. The value of the *Heliamphora*, in a horticultural point of view, lies in the beautifully marked pitchers and the large delicate flowers, character which the hybridist may yet work into the *Sarracenias*. As it is possible that this plant may be found in other places besides that in which Schomburgk discovered it, it may be as well to remind collectors that *Sarracenias*—for which the *Heliamphora*

might be mistaken and neglected as valueless—are found wild only in North America, so that any *Sarracenia*-like plant found lower down may be collected as being something new, if not the *Heliamphora* itself.—W. W.

PLANTS FOR HANGING BASKETS.

MANY plants show themselves off to advantage when grown in baskets and suspended from the roofs of lofty conservatories and other structures. It is not necessary, nor is it in most cases advisable, to turn them out of their pots into the baskets, although that may, if desired, be done. Generally speaking, however, they should be grown in pots or pans, in soil or compost known to be suitable for them, and these should be placed inside the baskets, and surrounded and concealed by *Sphagnum Moss*, which will tend to keep the soil from becoming too dry, which is not unlikely to occur when such pots are exposed to direct solar influences. Nearly all epiphytal Orchids may be, and generally are, grown in this manner, and it is undoubtedly the most effective way in which to grow many of the finest Ferns, such as the *Adiantums*, *Davallias*, *Nephrolepis*, *Woodwardias*, &c.; while the prettiest of the *Selaginellas* will grow freely upon the *Sphagnum Moss* with which the baskets are filled. Such species as *S. denticulata* will suit baskets intended for the greenhouse or cool conservatory, and *S. caesia*, *S. delicatissima*, and *S. albo-spica* baskets likely to be suspended in warmer structures. All the varieties of *Achimenes* succeed well suspended, and the various *Æschynanthuses* never appear so much at home as when hung from the roof of the structure containing them—a remark which also applies to *Coccocypselum discolor*, *Hoya bella*, *H. Paxtoni*, the various Pitcher plants, *Oxalises*, *Russelia juncea*, and *Torenia asiatica* and *T. Fournieri*. Of the two *Torenia*s the last named is the most beautiful, although an annual; it should be sown in heat early in February. Many other species of what are known as stove plants are likewise found suitable for suspending, together with various hardier species suited for the greenhouse or cool conservatory, such as some of the now numerous varieties of tuberous-rooted *Begonias*, *Convolvulus mauritanicus*, *Cantua dependens*, *Lophospermums*, *Maurandias*, *Rhodochiton volubilis*, and the different varieties of the double as well as the single flowered Ivy-leaved *Pelargoniums*. Some of the many fine varieties of *Phlox Drummondii*, when grown under glass in this manner, produce a remarkably fine effect; as does also the blue *Nemophila insignis*, which produces in early spring flowers nearly double the size of those produced in the open air at a later period of the year. Many of the *Saxifrages*, &c., are also exceedingly useful for this purpose. Large baskets filled with plants are, as has been stated, very effective when suspended in lofty conservatories.

P. G.

Culture of Allamandas.—I observe that Mr. Bardney charges me with plagiarism in reference to my article on this subject. Allow me to inform him that I simply recorded my own experience; and if he disbelieves me, let him come here and see for himself. The plants are still in perfection. He will be able to see a plant of *Wardleana* carrying upwards of 3000 fully expanded blossoms, and there are hundreds more to expand. It will, therefore, continue blooming to the latter end of November, when rest will have to be forced upon it. I may here add that enforced rest is not a new thing in *Allamanda* culture. I have seen it practised for these last ten years by one of our best plant growers and prize-takers, a man second to none in these respects. I only gave an account of what I have myself done and am now doing daily.—D. DOWDESWELL (foreman), *Nash Court, Faversham, Kent*.

Bonapartea juncea.—This is coming into bloom at Otlands Park. The juncea stalk is 8 ft. high or more.—J. CORNHILL.

EDITOR'S TABLE.

RUDBECKIA HIRTA.—This plant is capital at night, and so indeed it is at all times. Colonel Stuart Wortley sends us some of it from seed gathered in Colorado, but it is rather a common plant in English gardens.

LILIUM LEICHTLINI.—Among the many Lilies now in our gardens this is distinct on account of its soft, good colour and delicate spotting. Mr. Kingsmill grows it well and finds it very useful in his "hardy garden."

ACIS AUTUMNALIS.—A delicate little thing like an attenuated Snowdrop. It is probably very slow, even on the warmest soils in our country. It was grown some years ago successfully in Dicksons' nursery at Edinburgh, and now comes from Mr. Kingsmill, who got it in Algeria.

EVERLASTING PEAS.—These come to us in pretty variety from the Tunbridge Wells Nurseries. Of their use we have so often spoken, that we need scarcely do so again, but we have lately noticed that they are used with very good effect when cut, especially the white form of the common Everlasting Pea.

WHITE CLOVE GLOIRE DE NANCY.—A good white Clove with a fine odour. Mr. Ware says, "I am able to say everything in its favour. The white is very pure, and the scent that of a true Clove; its grass and habit are identical with those of the old Clove, and it has every appearance of growing equally free. I know of no variety so well suited for outdoor growth, and feel sure it will be as popular as the old Clove."

PYROLA ROTUNDIFOLIA.—Pretty spikes of ivory open bells and pearls, charming on the table, while out-of-doors now the plant is the queen of the rock garden. We wish many could see a spreading colony of it, with the Lily of the Valley-like spikes rising from the evergreen leaves. The English name is Winter Green, no doubt from the glossy evergreen character of the foliage in winter. It flowers in the warm summer days, but the blossoms have the grace of those of spring and its fragrance too.

ORCHIDS.

ORCHIDS AT WOOLTON WOOD, NEAR LIVERPOOL.

In an incredibly short space of time Mr. Holbrook Gaskell has succeeded in getting together a very important and select collection of Orchids; so rapidly indeed has it been increased, that already the existing spacious houses are quite filled with them, and fresh house accommodation has just been provided and plans laid for several other new structures on the most approved principles. Let us notice first an unfinished building as it seems one needed in many places, viz., a place in which blooming Orchids may be put so that visitors may see them without having to go into moist houses. This house, which is lofty, spacious, and ornamental, has a bold massive rockery on one side and end, with a winding walk over a bridge, and another rockery walk at the top, from which a splendid series of views of the surrounding country can be obtained. When the rockery is planted with Ferns, and the ornamental side stages filled with Orchids in bloom with the cascade and fountain dripping, few pleasanter places will be found in which to pass a few hours. In such a structure the Orchids will last twice as long in bloom as they would in their growing houses, and feel their blooming less. Most of the houses are span-roofed, only just high enough for anyone to walk through in comfort, and each house is built so that a walk runs between it and its neighbour; this allows plenty of side bottom ventilation from the outer air, a matter of importance, as plants never thrive so well in houses ventilated from one to the other.

In the first large cool house are some very fine plants of *Odontoglossum vexillarium*, one of them bearing twelve spikes and over sixty-five flowers, and another fine white variety has thirty-seven

blossoms on it. Associated with these are a large tuft of the pretty white-flowered *Masdevallia towarensis* and many other fine *Masdevallias* and *Odontoglossums*. Mr. Davis (Mr. Gaskell's gardener), who grows these things well, says there are three things to take particular notice of in their culture. The first is to avoid getting them dry, the second to give a free current of air, and the third to see that the bright sunlight does not get at them, and in these points I agree with him, and would only add as a fourth condition that insects of all kinds should be well looked after. In the first cool house also is the pretty *Epidendrum Wallisi*, which has been in bloom for six months and seems likely to continue another six; also some fine varieties of *Mesospidium vulcanicum*, a curious yellow form of *Disa grandiflora*, and many other good things. In the second cool house is a lovely panful of the oft-condemned *Odontoglossum Dawsonianum* with forty-five spikes on it, really a pretty sight; also a fine form of *Anguloa Ruckeri sanguinea*, some grand masses of *Odontoglossum Pescatorei*, a new *Maxillaria*, some fine forms of *Odontoglossum citrosum*, the now not plentiful *Miltonia Moreliana*, and a very complete collection of rare and hybrid *Odontoglossums*, such as *O. mulus*, *O. prænites*, *O. polysanthum*, *O. Ruckerianum*, *O. Edithæ*, and that most profuse flowering and pretty kind, *O. Sanderianum*. The third large house, an intermediate one, contains chiefly the rarer kinds of *Cattleya*, such as *C. exoniensis*, *C. Sanderiana*, *C. Trianae pulcherrima*, *C. Trianae Dodgsoni*, and a general collection of *Cattleyas* and *Lælias*, *L. anceps Dawsoni* and *L. anceps alba* being specially fine. These are altogether in fine condition and bearing more flower-sheaths than I ever recollect seeing on a like quantity of plants before. In this house also are a fine plant of the elegant *Dendrochilum filiforme* with over sixty spikes; some fine examples of *Vanda cœrulea* and the rare *Epidendrum Pseud-epidendrum*, with its growth like *E. Wallisi*, and large flowers with orange-vermilion lip. The small-growing *Cattleyas*, such as *C. dolosa*, *C. Walkeriana*, and many of the small-growing *Lælias* and *Oncidiums*, are here in a thrifty state, and their good condition is attributed to their being mounted on Tree Fern slabs, which hold the moisture well and do not decay. These I have also found very good, but they must be well attended to with water.

Passing through another house filled with healthy plants not in flower we come to the East Indian house, where one's attention is soon attracted by a very healthy lot of *Phalenopsis* of all varieties, *Stuartiana* and most of the other newcomers being there and doing well. Many of their leaves are nearly 18 in. long, and as thick as those of *Echeveria metallica*, masses of *P. Schilleriana* often producing over 200 flowers each. As these plants are just now perhaps the worst managed generally, some account of the treatment which they receive here may not be out of place. They are mounted on the tops of tall logs, and set on the close, damp staging at the warmest end of the house; the end of the house is nearly all brick, which retains the moisture, and keeps the temperature more equal than a glass end would do, thus preserving the plants from draughts or sudden falls in the temperature, which are always hurtful to them. It is not so much a high temperature that *Phalenopsis* require (although they should have a little artificial heat all summer) as a still and moist, but pure atmosphere. In winter they are kept in a temperature of from 65° to 70°, and with this treatment they are certainly doing very satisfactorily. In the same house are some fine plants of *Cattleya Spicerianum* of Sander's importation, which came with seed pods on them, and the seedlings are now coming up thickly all around, and will prove very interesting. Mr. Davis has also some good *Zygopetalum* crosses. I always like to see seedling Orchids and small scraps thriving, a circumstance which augurs well for the health of the large plants. In the other compartment are some fine specimens of *Saccolabiums*, a magnificent plant of our old friend *Peristeria elata* finely in bloom, and a good lot of healthy *Vandas* and *Aerides*.

The next house is a dryish temperate one devoted to *Lælias*, *Trichopilias*, *Oncidiums*, &c., plants of *A. Veitchianum* and *A. Schroderi* being particularly fine, and then comes a fine large span-roofed structure in which the *Dendrobates* are grown. Many fine specimens are here, notably some large plants of *D. nobile* about 4 ft. across, some fine specimens of *D. Wardianum* with very thick growths, and a huge well budded plant of *D. chrysanthum*, bearing as many as twenty flower-spikes on a growth. That lovely cross of Messrs. Veitch's *D. Rhodostoma*, also was in great beauty: its parent, *D. sanguinolentum*, has infused into it a very uncommon and effective colour. When it has acquired the size of specimens for exhibition it will be a telling plant. *Calanthes* are very fine at Woolton Wood; they are grown in quantity and well, some of the *C. Veitchi* bulbs being 18 in. in length, a size which we should have considered impossible a few years ago. Such perfection is brought about by potting in turfy loam, growing in a moist house near the glass, and watering frequently with weak liquid manure.

This estate is situated on high ground, and is approached by a long drive through the wood with its dell and caves, clumps of tall Foxgloves, patches of Bracken and carpeting of moss, all beautiful and tranquil at the time of my visit, notwithstanding that the horticultural builders were busy at work. JAMES O'BRIEN.

Harrow-on-the-Hill.

Habenaria ciliaris, one of the most beautiful of the North American terrestrial Orchids, is now flowering in the Hale Farm Nursery, Tottenham.

Odontoglossum bictonense album.—A plant of this, a white-lipped variety of a well known species, was shown by Messrs. Veitch at South Kensington on Tuesday last. It differs in no way from the type except that the heart-shaped labellum is pure white instead of pinkish purple, while the sepals are of a deep chocolate-brown. It is a handsome and distinct variety.

Ionopsis utricularioides is a gem among Orchids, but very similar, if not identical with *I. paniculata*. It is of small growth, and from the little bulbs proceed long branching flower-stems profusely covered with tiny blossoms, which seem to be all lips. The colour is a delicate mauve, exquisitely pencilled with hues of a deeper hue, and with a dark purple spot at the base of the labellum. A plant of it is now attractively in flower at Kew in the cooler division of the Orchid house.

Orchids in flower at Chatsworth include the following noteworthy kinds, viz., *Vanda Batemanni*, a very fine variety, the spike of which measures 5 ft. in length, and carries thirty-seven flowers, several of which are expanded; *Epidendrum vitellinum*, with two flower-spikes 15 inches high, one bearing nineteen, the other thirteen blossoms; *Renanthera coccinea*, with two spikes each about 3 ft. in length and a yard in width. On the largest there are 115 blossoms, thirty-three of which are expanded; there are four old spikes, still remaining on the plant. The height of this fine specimen is 14 ft. 8 in., and it bears eighty-one healthy leaves. The height of the stem from the base of the leaf-bearing part to the top is 6 ft. Of *Disa grandiflora*, there is a plant with a stout stem 2 ft. in height, terminated by eight brilliantly coloured blossoms.

Mormodes lentiginosa.—Of this strange, yet handsome Orchid, a very fine spike measuring 1 ft. in length and carrying about two dozen blossoms, is sent us by Mr. Dunn from Col. Gascoigne's garden, at Portlington, Leeds. The flowers resemble those of the better-known *M. pardina*, but are much larger, the outspread flowers being quite 4 in. across; the long pointed sepals, as well as the labellum, have a tendency to infold. The ground colour of the flower is a soft yellow, the lip of a brighter shade, and the whole flower is profusely spotted with chocolate-red, which is very handsome. The spike is one-sided, that is, the flowers all look one way; therefore

they are seen to advantage. Not the least remarkable is the delicious aromatic fragrance of this Orchid, which is so powerful as to be diffused throughout the room. Though belonging strictly to the curious type of Orchids, it is decidedly worthy of culture.

Masdevallia Davisi is one of the most beautiful of cool house Orchids now in flower, and strikingly dissimilar to the ordinary run of August flowering Orchids. The flowers, about the size of *M. Lindeni*, are of a clear canary yellow, a colour seen in very few Orchids, and the graceful way the flowers are borne, on slender stalks overtopping the healthy green foliage, adds to the plant's attractiveness. It is certainly one of the Orchids that have been underestimated, though, perhaps, its unpopularity is in some measure due to its shy flowering tendency. The best flowering specimens we have seen this season were in Messrs. Shuttleworth & Carder's nursery at Clapham, where the plants are grown in company with other *Masdevallias* of a similar nature in a cool, moist, but unshaded house. Among other species in flower at this nursery we observed a splendid form of *M. Harryana* with flowers not far short of 3 in. across, and of a colour but slightly less brilliant than the Bull's blood variety. Of the *Chimæroid* type there are likewise several in bloom, notably several plants of the rare *M. Backhousiana*, a near relative of *M. Chimæra*. It is, however, very handsome and curious, and produces several flowers simultaneously on each plant. Judging from the importations we saw here, there is little likelihood of such species as *M. trochilus*, *Chimæra*, *Shuttleworthi* and others ever becoming such rarities as they have been hitherto.—W. G.

PLANTS IN FLOWER.

THE SCARLET GEUM.—This fine flower keeps us company nearly all the year round; it is good in form and colour, very vigorous, and much better than most of the *Potentillas*.

DOUBLE RAGGED ROBIN.—Of this plant (*Lychnis flos-cuculi* fl.-pl.) Miss Owens sends us some flowers, also the white flowered form of it. They are pretty looking, more like tassels of fringe than petals. It appears to be very uncommon.

ANTHURIUM ANDREANUM.—Of this gorgeous new tropical Aroid there is an exceptionally fine specimen now in bloom at Chatsworth. One of the flower stems, 30 in. high, is terminated by a brilliant scarlet spathe, 6½ in. long, and nearly as much in width.

CAMPANULA FRAGILIS.—A very well known old plant in cottage windows, but not so often grown out of doors. It is, however, very admirable planted out in spring as a tuft or edging plant. Mr. Kingsmill brings us some of it from broad masses of it which he has in the open air.

EVENING PRIMROSES.—Few hardy plants are more effective at this season than *Oenothera macrocarpa*. Those raised from seed in spring last year now rise nearly 6 ft. high, throwing out branches right and left, high and low, clothed with blooms of the softest primrose tint. Nothing can be more suitable for back borders and wild gardens. At a short distance off they look not unlike yellow Roses. Like Mr. Wolley Dod, I have vivid associations connected with many flowers which doubly enhance their value.—A. G.

GESNERA TUBIFLORA is among what are called old-fashioned stove plants, yet it is very beautiful, and surpassed by few of its class. Its tall slender flower-stems, elegantly hung with long tubular flowers as white as snow and deliciously scented, make it distinct from most other plants, and moreover it is of easy culture. A good specimen of it from Mr. Kingsmill, of Eastcott, shows how finely it may be grown in a small greenhouse among a host of other plants.

ACHILLEA FILIPENDULINA is one of the handsomest of plants in flower in the herbaceous ground at Kew, and is distinct from any other flower there. It is a yard or more high, has ele-

gantly cut foliage, and bears on tall stout stems huge flat clusters of bright yellow blossoms. A curious point is that all the flower clusters, and they number a dozen or more on one plant, are on about the same level, which adds to the striking aspect of the plant. Unlike most of the *Milfoils*, it is not "rubbish," but a decidedly handsome and stately border plant that no one would despise.

THE OLD SCARLET LYCHNIS.—We have been accustomed to undervalue this very old and once popular plant. It does poorly on clay soils, but on the warm soils in Surrey and Sussex it is splendid. Large, well-grown young plants of it fix the eye at once, no matter how fine the border is in other respects. As a midsummer scarlet we know nothing equal to it among plants that grow from 3 ft. to 4 ft. high. We now speak of plants well grown in good, warm soil.

PENTSTEMONS.—A beautiful gathering of these has been sent to us by Messrs. Cannell from their nursery at Swanley. They are as fine as *Pentstemons* can possibly be, some of the flowers measuring fully 2 in. across and well formed. There is a great diversity of colour among them, ranging from white, faintly tinged with pink, through bright roses and scarlets to the deepest crimsons, while others again are of the richest purples. The perfection to which the *Pentstemon* has been brought is well shown by this series of varieties, the majority of which have received distinctive names.

GLADIOLUS CARDINALIS AND CLEMATIS LANUGINOSA.—Each flower-stem of my *Gladiolus cardinalis* is between 3 ft. and 4 ft. high, with side branches of blossom, two of which I send you. The habit is somewhat drooping, which helped to preserve the flowers uninjured in rainy weather. It has been for some time in blossom. If this *Gladiolus* and *Clematis lanuginosa* were to become as common as even the Golden Feather itself, it would be hardly possible to get tired of them. *C. lanuginosa* against a dark background of *Cotoneaster* blossoms well on the house, facing the east, with some shade to the south, the flowers probably keeping their colour better than when exposed to the afternoon sun. It seems to do best in a rather mild climate, but though cut down to within 2 ft. or 3 ft. of the ground the winter before last, it appeared to flower with renewed vigour, as if its frost-pruning had suited it. It evidently likes rich culture. I also send a leaf of *Pulmonaria saccharata*, as besides being so good a spring plant when in blossom, it has some merit, has it not, as a fine foliaged plant in summer?—C. M. OWEN, *Knockmullen, Gorey*.

[The *Gladiolus* sent is the true old *G. cardinalis*, introduced to this country from Holland about a century ago, and figured in the "Botanical Magazine" in 1790. It is a native of the Cape of Good Hope.]

NEW BOMAREAS 'IN FLOWER.—A short time since we alluded to the new *B. conferta* being in flower at Messrs. Shuttleworth & Carder's nursery at Park Road, Clapham. There are now two others in bloom for the first time in cultivation; indeed they are quite new to science, having only lately been named. They are *B. Shuttleworthi* and *B. frondea*, both beautiful plants, and good additions to greenhouse twiners. *B. frondea* has long slender stems furnished with narrow foliage, much resembling that of some of the Bamboos; indeed, Mr. Shuttleworth informs us that it bears a strong resemblance to what is known in South America as the Grass Bamboo, which often grows 40 ft. or 50 ft. high. The flowers are borne in dense clusters, terminating the stems, and depend in an elegant manner. About a score of flowers are in the head now expanded, each blossom being about 1½ in. long, and of a beautiful bright yellow, spotted on the interior with small crimson dots. The flower-stalks are very slender, hence the blossoms droop naturally. As many as half-a-hundred are produced in each cluster in a wild state. *B. Shuttleworthi* has broader foliage, of a brighter green, and more glossy. The flower clusters are different, being a spreading umbel, and what gardeners term

"open shouldered;" consequently they are much larger. The flowers are about the same length as those of *B. frondea*, but are stouter and open wider. The colour of the three sepals is a bright orange-scarlet, that of the sepals pure yellow, profusely spotted with purplish crimson. Both are apparently of easy culture in an ordinary greenhouse, for the adorning of which there are few more suitable plants, and it is satisfactory to see that such beautiful plants have been largely imported; therefore we may soon see them adorning every garden.

NOTES FROM FRANCE.

Clanthus Dampieri.—All who have had anything to do with this Glory Pea know that it is one of the most difficult of flowering plants to grow satisfactorily, but M. Michel, Messrs. Vilmorin's foreman, appears to have thoroughly mastered the secret of its culture, healthy, well-flowered specimens of it in comparatively small pots exhibited at a recent meeting of the French National Horticultural Society proving that in the case of this plant, as in that of many others of reputed difficult culture, it is merely a question of supplying the conditions natural to them. M. Michel's method is as follows: The seeds are sown singly in small pots the first week in January on a hotbed, free growth being maintained by means of fresh linings; and should this not be sufficient, a new bed is made up for them, the great point being to keep them growing quickly without a check. When the seedlings have attained a height of 6 in. they are shifted into larger pots, which are plunged quite to their rims in the fermenting materials, turning the pots now and then to prevent the roots entering them. The compost found most suitable is loam, peat, and thoroughly decomposed manure in equal proportions. M. Michel's success is probably due to the steady moist heat generated by the fermenting materials employed as well as to the sowing of the seed singly, many failures being caused through having to disturb the roots in separating the plants.

The Hemlock Spruce.—A report by M. Pissot, Conservator of the Bois de Boulogne, on the damage wrought there by the severe winter of 1880-81, will probably have the effect of causing this conifer to be more extensively planted in France than has hitherto been the case. Of the many hardy evergreens which have found a home in the Bois a bare half-dozen came through without injury, whilst the Hemlock not only did not suffer, but, M. Pissot states, actually appeared to rejoice in the abnormally low temperature, becoming greener as the cold intensified. It is a question if we recognise as we should do the exceptional merits of this Spruce. Its complete hardness and graceful growth are features which raise it far above the ordinary level of tree growth, and, whether used as single specimens or grouped, it is always beautiful and never out of place.

Tree Pæonies.—These appear to be objects of much attention in France just now, collections embracing some fifty named kinds being staged at a late meeting of the French National Horticultural Society. Conspicuous amongst them was a new variety exhibited by M. Lévêque, nurseryman at Ivry, named by him Gaston Lévêque. One feels surprised at not seeing this fine race of hardy flowers more largely represented in our gardens than they are, but I find that with many they bear the reputation of being tender, a character they scarcely merit, as not long since I saw in a nursery some large specimens which for many years had never failed to bloom. They appear, however, to be impatient of removal, and to appreciate them they should be suitably placed and left alone. They also appear to need some shelter from easterly winds in spring.

Oranges in small pots.—As far as I am aware no market grower in this country has ever made a speciality of the Orange; even in nurseries with one or two notable exceptions the culture of this fine fruiting evergreen is much neglected, and yet we annually import considerable quan-

titles of small specimens from France, which find a ready sale in this country. M. Gerard, of Paris, in his time the best as well as the largest Orange tree grower in France, informed me that the English were his best customers, a fact which shows how great is the demand in this country for plants of what might be termed marketable size. It is simply a question of doing as the French market gardeners do, viz., grow them rapidly, so as to be able to sell cheaply. The system as followed by French culturists at the present time consists in raising the stock early in the year, the Citron being preferred, as possessing the greatest vigour, but the Lemon being also used. The pips are sown on strong bottom heat, and the following year are whip-grafted; they are then laid in thickly in light soil on a gentle hotbed until the scions have taken, when they are potted. In the summer the pots are plunged to their rims on raised beds in the open air, the best practice consisting in supplying them with gentle bottom heat at that time.

Byfleet.

J. CORNHILL.

BOOKS.

A DICTIONARY OF POPULAR NAMES OF ECONOMIC PLANTS.*

IN these days when a knowledge of botany is becoming so widely spread among all classes, and when so many are earning their daily bread by teaching the science, it follows that there must be a large army of authors and compilers to supply the multitudinous teachers and pupils with text books. Such books are now being constantly issued, many of them being of very doubtful value. In consequence of this extension of botanical knowledge, the question seems to force itself to one's mind whether scientific names and terms can ever become so well known as those which our forefathers knew best and loved so well. There is something delightfully simple and even poetic in the names of some of our common British wild flowers which no Latin name could ever so thoroughly impress on the minds of many, to say nothing of early associations. It is therefore well, even with the advance of science as a fact before us, to jealously preserve the popular names of our plants, not only native, but also those that are cultivated. We agree with Mr. Smith that many of the popular names are "undignified and derogatory to the useful, pretty, and curious plants which they designate." On the other hand, Mr. Smith points out that "in many cases the scientific names of plants have also become familiar," and instances Geranium, Pelargonium, Hydrangea, Calceolaria, Chrysanthemum, Amarantus, Rhododendron, Azalea, Fuchsia, &c.

These remarks are made from our own, i.e., a gardening point of view, but commerce and trade go hand-in-hand with us. It is the common or popular name of the plant yielding any trade product that the commercial man is specially acquainted with; and with regard to any new product, such never comes into the market without a name by which it may be known, its botanical identity being a matter to be settled afterwards. We do not write this for the purpose of disparaging scientific nomenclature, for in its proper place it is most important; for instance, in the matter just referred to, that of new products generally, it is most useful to know the botanical affinities of the plant under consideration, for from this knowledge the fact may at once be known whether the plant is likely to furnish oleaginous seeds; and if so, whether likely to prove useful for medicine, illuminating, or lubricating purposes. What we have said will show that popular names are by no means to be despised or even lost sight of. A dictionary such as that before us is, therefore, a useful book, even if it contained only a list of such names, because such books are by no means numerous; and the dic-

tionary in question contains a great deal of matter—facts and anecdotes—connected with plants known only to the veteran author, selections, in fact, from the storehouse of a mind still active, the remembrances of a faithful service in the Royal Gardens, Kew, of over forty years.

The plan of this, Mr. Smith's latest work, is alphabetical, the popular names in black type being of course placed first; then follow the scientific name, its native country, a popular description of the plant and its uses, if any, as well as any interesting points connected with it. The following extract will serve as an illustration:—

"Hedgehog Thistle.—The common name of a considerable number of species forming the section or genus *Echinocactus* of the Cactus family (Cactaceæ). The greater number are natives of Mexico. Their stems consist of round or oblong masses of succulent matter with numerous ridges, on which are produced many clusters of straight or crooked spines of various sizes. In 1846 two plants were received at Kew from St. Luis Potosi, in Mexico, one measuring 4½ ft. in height and 2½ ft. in diameter, weighing 713 lbs.; the other 9 ft. in height, rather more than 3 ft. in diameter, and weighing about one ton. This species has received the name of *E. visnaga*, on account of its stiff spines having been used as toothpicks. It is calculated that the number of spines on the smaller plant was 17,600, and on the larger 51,000. An allied species is *E. stainesii*, of which plants were received at Kew 4 ft. to 5 ft. high. In the high plains of Mexico, where water is scarce, the *Echinocactus* supply drink to herds of cattle. Although the juice is slimy, it is nevertheless valued for its cooling, antifebrile qualities by the Indians. Cattle, especially mules, are very clever in breaking up the Cacti with their hoofs and sucking the juice."

The book is essentially a reference book, and is written specially for the non-scientific worker. A good index of genera, however, is given, which makes the book also valuable for scientific readers. It is well printed, and the names, being in heavy type, readily catch the eye.

GARDEN DESIGN.

WALKS.

WALKS for convenience should, as a rule, take the shortest route to a given point; if not, a footpath will speedily be formed, which is not only unsightly, but a reproach to the original maker of the walk. Had that taken the shortest and most direct cut between any two or more given points, the footpath would never have been made. But it is a mistake to apply this hard and fast rule to walks in pleasure grounds or landscapes. In such the walk itself may become no mean feature, while its main object is to lead, on the most pleasant lines and by means of the easiest gradients, to all the main features of the landscape. This is mostly accomplished by a series of easy and graceful curves. But herein lies a danger, on which many walks have had beauty and utility alike wrecked. No curve should be introduced capriciously, nor be repeated too often. It seems frequently to be forgotten in choosing the line of a walk that a series of meaningless curves are more monotonous, if less stiff, than a series of straight lines. In each curve their ought to be an obvious meaning, real or apparent, and it often taxes the highest skill to succeed in this point in small places in which long walks are wanted. Again, the same curve should never be so often repeated that two or more are visible from the same point. Some also err in considering every divergence from the straight line a line of beauty. No line is less beautiful than a curve without either meaning or grace. Curves should above all things be flowing and easy; and never, unless in the case of sharp turns, which are sometimes unavoidable, should they be abrupt. It is distressing to meet at times with mere zigzag walks led hither and thither, without taste or design of any kind; and yet, because they are not straight, they

are assumed to be beautiful. Where belts of plantation or grounds are so narrow as to render impossible the flowing grace of a curve, it is better not to attempt it, but to choose a straight walk.

Next to the line of walk its width is the most important point. Thousands of walks are ruined by their narrowness. Three-foot walks, unless in the smallest places, must needs look mean. Five feet should be the minimum width, and 6 ft. is far better and more effective than 5 ft. In large places 9 ft., or even 12 ft., may be needful. But the relation of width of walk to size of demesne needs to be nicely adjusted. A 9-ft. walk in a small garden is even more ridiculous than a 3-ft. one in a pleasure ground of 10 acres or 20 acres. Wide walks give an air of grandeur and a feeling of abundant space to large gardens that hardly anything else can impart. They are also most useful for exercise, and make walking so much more enjoyable by enabling several to walk abreast without overcrowding.

To many, however, the quality of the walk is more important than either its line or breadth. Garden walks ought to be dry, smooth, hard, slightly elastic, bright, and clean. A wet walk is a perpetual source of discomfort. To have a walk thoroughly dry, the earth on which it rests must be made so first. The use of porous or even impervious materials will not insure a dry walk, unless it rests on a dry basis of earth. As is the foundation so in the end will be the walk. Therefore mere under-drainage is not enough; the earth must be drained, and a free outlet provided for the water, if the walk itself is to become and remain always dry. A slight elasticity gives a great charm to a garden walk. It may be readily provided by placing a layer of brushwood or furze over the stratum of rough drainage. The stones or rough gravel may then be laid over this, and the wood will impart a charming elasticity for ten, twenty, or more years. Smoothness of surface is readily attained by the choice of suitable materials. The larger stones with a mixture of chalk should be placed on the bottom; then a second layer of fine stones or coarse gravel; and finally a thin coating of fine gravel. These, thoroughly rolled down and consolidated by time, will form a walk almost as hard as a rock and as smooth as granite. Brightness may be secured by the choice of reddish gravel for a finish. Some prefer a white surface, and there gravels of many colours and some that wash almost white. But a ruddy colour on the whole is best for walks; it contrasts well with the masses of green shrubs and trees and wide expanses of grass. Such prominent factors, too, as walks are in the landscape, ought always to be clean. Weeds and Moss on walks are like cobwebs and dust on pictures. They are set as an offence beyond endurance in the very eye of vision, and ought to be instantly removed.

D. T. F.

RED SPIDER.

IN *Land and Water* was published last week a statement respecting red spider that can hardly be allowed to go unchallenged. The statement in question is that "a cold and wet season, so far as outdoor fruit is concerned, and an atmosphere charged with moisture in hothouses is more conducive to the appearance, increase, and destructive properties of spider than a hot, dry summer, and a minimum as to moisture for fruit and plant forcing." There are many questions rising out of this, upon which, did space permit, I should like to touch, notably upon the proper degree of moisture it is necessary to maintain, and the means by which it may be secured. I will, however, pass on to the main point, and most emphatically maintain that the weather which brings the greatest amount of butterflies to play upon our Cabbages and wasps to devour our fruit must also, in a great measure, be responsible for the myriads of red-coats who damage the foliage of our trees, asserting at the same time that a fair amount of moisture in a nice growing temperature, coupled with a judicious use of the syringe, are the best preventives, and the only remedy if the enemy be established. It has fallen to my lot on one or two

* "A Dictionary of Popular Names of Economic Plants," by John Smith, A.L.S., author of "Historia Filicum," "History of Bible Plants," &c. London: Macmillan & Co. 1882.

occasions to have to deal with houses where such a lodging had been effected, and it would be very difficult to find an enemy that held to its post more tenaciously. Sulphur in any way applied is practically useless in such a case. You may destroy all your foliage, and nearly suffocate yourself with its fumes, before you destroy the patriarchs of the family. The same remark (anent the older members) holds good so far as another remedy is concerned, that of shutting your house up close and charging the atmosphere with moisture, allowing the thermometer to run up to 120° or 130°. Once more I must say that for a diminution in the ranks of the enemy, and a consequent break of healthy foliage, a moist atmosphere must be persisted in. If the writer of this note in your contemporary ever has to deal with houses where spider has gained a footing, and pursues the hot-and-dry theory, he will have in a week not a single sound leaf in his houses.

E. BURRELL.

Claremont.

KITCHEN GARDEN.

Chou de Burghley.—This is unquestionably the best new vegetable we have, and must speedily become one of the most popular. It is so delicate in flavour, and so hardy, that Mr. Gilbert ought to be proud of it.—J. WORTHINGTON, *Glyn-y-mel, Fishguard*

The best Potatoes.—I planted on April 1 twenty sorts of Potatoes, and dug them up on August 1; they were all manured alike with seaweed and sea-sand. Webb's Early Ashleaf was the best crop and quite free from disease; Early Bird, a kidney, was the next best, and Uxbridge Kidney the third best.—J. WORTHINGTON.

Potatoes in Northumberland.—I have seen no disease amongst Potatoes yet, although nearly all our early kinds have been lifted. They are, however, very inferior in size, which is quite the reverse of last year, but the quality is first-rate. Strange to say, while complaints respecting wet weather are rife in the south, the season with us has been too dry for this crop; last year it was too wet. But the largest Potatoes of the sorts I ever saw were from Snowflake and Climax, which were cut to the ground by frost on June 10.—R. STEVENS, *Paston*.

Tomatoes too coarse.—Referring to "Peregrine's" remark last week, I have been making experiments on some Tomatoes, and must say that the so-called improvement in these is going backwards. There is a large coarse kind with a tough and useless centre, like a stewed Walnut, and large pulpy smooth ones which are too soft, and without the genuine flavour of the old medium-sized Tomato, which I think was the best. We get nothing; we, indeed, lose by a large coarse Tomato. I am not sure that smooth round ones are a real gain, for I do not always find in them the pleasant flavour which a good firm fruit of the old red had. Let lovers of the Tomato watch that the so-called "improvements" do not mean the spoiling of the race.—J. H.

Mummy Pea.—Doubting if my stock of this Pea was the true kind, and knowing that the Rev. Mr. Ellacombe, of Clyst St. George, Topsham, grows it, I wrote to him respecting it, and the following is his reply: "If your Mummy Peas are only 6 ft., I don't think you have them true. I have grown several generations, always 10 ft., and this year rather more. It is by far the best Pea, but difficult to keep from birds." I cannot say if mine are true or not. They are the same as what I took charge of when I came here. One thing I do know. They do not grow 10 ft. in height, nor should I want them to do so. I wonder how Mr. Ellacombe gathers the crop.—GEO. CARPENTER, *Rydens, Walton-on-Thames*.

Turnips.—We find the Early Munich Purple-top to be excellent as regards earliness and to be of good flavour. Jersey Lily, also a good flavoured Turnip, forms a succession to it. Uncooked it is sweeter than some Melons. Two good kinds for a general crop are Cattell's Silver Ball and Veitch's Red Globe. These four varieties well grown are not easily surpassed.—J. R., *Tany-bulch, N. Wales*.

Spinach for autumn, winter, and spring.—Spinach is not nearly so much grown as it deserves to be considering the number of dishes that may be obtained from a comparatively small piece of ground. The summer Spinach very often disappoints, because it so soon runs to seed when the soil becomes hot. But there are substitutes, such as the New Zealand Spinach, Spinach Beet, Good King Henry (*Chenopodium Bonus-Henricus*), and the Mountain Spinach, or Orach. These substitutes do not possess in a full degree the flavour of the real Spinach, but they are all more or less useful, and are easy of cultivation, and possess that durability in hot weather which is lacking in the true Spinach. For autumn use I sow about the end of July, usually on the land from which the early Potatoes have been taken which is rich enough generally; but if any help is required, a dressing of soot and salt with a little guano or some other artificial manure supplies it. If the weather is dry, the manures mentioned are best given in the shape of liquid and poured along the drills just before sowing the seeds. This adds immensely to the strength of the young plants and pushes them forward rapidly. The drills are drawn 1 ft. apart and 1 in. deep, and the young plants thinned a little where thick before they begin to crowd each other. For winter use we sow about the middle of August, thinning the plants to 6 in. apart, and for spring a fortnight later, the latter sowing being made on a dry border. Spinach to stand the winter is best sown on firm ground, well drained, without fresh manure. It follows early Potatoes very well, early Turnips, or Horn Carrots. Though not generally done, Spinach will transplant very well. I have occasionally transplanted the thinnings, and I have once or twice sent baskets of plants to my friends when they have been short, and they have always succeeded as well as those plants that have not been moved. When the Spinach begins to run in spring (as sooner or later it will), if cut down close a new growth will spring up which is exceedingly tender and juicy, far superior to the spring raised produce. The Prickly is the kind usually sown from the end of July onwards, as it is considered harder than the Round-seeded, though the latter will stand the winter.—E. HOBDAV.

Seed-sowing in dry weather.—To obtain successions of many things it is necessary to sow frequently. Though spring is the season for sowing the bulk of the main crops, yet in well-managed gardens, where every yard of land is made the most of, seed-sowing must be a constant business; and if during a severe time of drought the seeds cannot be got in, or if they do not germinate, there is a break in the supply of that particular article. Take the case of any common vegetable in daily use, such as Turnips or Lettuces. The seeds will not grow in a dry dusty soil at this season; and yet it is important that both these crops should be sown now, more or less in proportion to the demand. The same thing occurs in the case of late Peas. The season will soon be past for them, and in dry situations the seed may sometimes be in the land for days without making a move, simply because there is not sufficient moisture in the soil to induce germination. Ours is a porous soil, and at this season, even if there are flying showers, as there are now, we always like to well soak with liquid manure the drills for Peas, French Beans, Turnips, Radishes, Endive, Lettuces, and other things, and draw the drills slightly deeper than would be necessary early in the season. Where there is no liquid manure tank, put a pound of guano, or two or three pounds of superphosphate, into a barrel of water, and a couple of pounds of salt. Stir the water well with an old birch broom, and well soak the drills; sow the seeds immediately, and cover with the dry soil drawn out of the drills. So treated, the young plants come up strong and vigorous, and get away from insect pests at once by their rapid growth. In some cases shade may be employed with great advantage. I found the simple expedient of hanging nets over a bed of Turnips of great value in a twofold sense during the dry seasons we had ten or a dozen years ago;

and these dry times will very likely come back again.—E. H.

AIX-LES-BAINS, SAVOIE.

HAVING passed a few weeks this spring at Aix-les-Bains, I made excursions on the mountains in the neighbourhood in search of alpine plants, and venture to send the following list, which, although very incomplete, may interest your readers. I was too late for the Anemones, Primulas, and Violas with one or two exceptions, but I hope to be more successful another time. Included in the list are a few of the plants I had previously found in the autumn of 1879.

<i>Thalictrum aquilegifolium</i>	<i>Cerinth alpinum</i>
<i>Anemone alpina</i>	<i>Lithospermum purpureo-ceruleum</i>
<i>Ranunculus platanifolius</i>	<i>Digitalis grandiflora</i> (D. ambigua)
<i>Ranunculus montanus</i>	<i>Digitalis lutea</i>
<i>Ranunculus Thora</i>	<i>Antirrhinum latifolium</i>
<i>Trollius europaeus</i>	<i>Melampyrum cristatum</i>
<i>Helleborus foetidus</i>	<i>Tozzia alpina</i>
<i>Aquilegia vulgaris</i>	<i>Veronica montana</i>
<i>Aconitum Anthora</i>	<i>Veronica spicata</i>
<i>Berberis vulgaris</i>	<i>Orobanch minor</i> and two other species
<i>Nymphaea alba</i>	<i>Salvia glutinosa</i>
<i>Nymphaea lutea</i>	<i>Calamintha alpina</i>
<i>Nymphaea pumila</i>	<i>Melittis Melissophyllum</i>
<i>Cheiranthus Cheiri</i>	<i>Primula alba</i>
<i>Arabis pumila</i>	<i>Ajuga reptans</i>
<i>Arabis alpina</i>	<i>Pinguicula vulgaris</i>
<i>Arabis serpyllifolia</i>	<i>Pinguicula alpina</i>
<i>Arabis Turrita</i>	<i>Primula elatior</i>
<i>Dentaria pinnata</i>	<i>Globularia vulgaris</i>
<i>Draba aizoides</i>	<i>Globularia cordifolia</i>
<i>Draba verna</i>	<i>Daphne Laureola</i>
<i>Thlaspi alpinum</i>	<i>Daphne alpina</i>
<i>Hutchinsia alpina</i>	<i>Crocus vernus</i>
<i>Helianthemum vulgare</i>	<i>Crocus albiflorus</i> (Bennett)
<i>Viola tricolor</i>	<i>Narcissus poeticus</i>
<i>Reseda lutea</i>	<i>Narcissus poeticus</i> var. <i>decolorans</i>
<i>Parnassia palustris</i>	<i>Polygonatum vulgare</i>
<i>Polygala vulgaris</i>	<i>Polygonatum multiflorum</i>
<i>Polygala Chamæbuxus</i>	<i>Polygonatum verticillatum</i>
<i>Dianthus Armeria</i>	<i>Convallaria majalis</i>
<i>Dianthus monspessulanus</i>	<i>Maianthemum bifolium</i>
<i>Gypsophila repens</i>	<i>Paris quadrifolia</i>
<i>Saponaria ocyroides</i>	<i>Orchis Morio</i>
<i>Silene rupestris</i>	<i>Orchis purpurea</i>
<i>Silene nutans</i>	<i>Orchis globosa</i>
<i>Mehringia muscosa</i>	<i>Orchis laxiflora</i>
<i>Stellaria nemorum</i> (?)	<i>Orchis latifolia</i>
<i>Linum tenuifolium</i>	<i>Orchis maculata</i>
<i>Linum alpinum</i>	<i>Orchis ustulata</i>
<i>Geranium nodosum</i>	<i>Orchis pyramidalis</i>
<i>Genista tinctoria</i>	<i>Gymnadenia odoratissima</i>
<i>Genista pilosa</i>	<i>Gymnadenia conopsea</i>
<i>Cytisus Laburnum</i>	<i>Habenaria bifolia</i>
<i>Cytisus alpinus</i>	<i>Ophrys aranifera</i>
<i>Trifolium alpinum</i>	<i>Ophrys apifera</i>
<i>Trifolium montanum</i>	<i>Ophrys muscifera</i>
<i>Oxytropis campestris</i>	<i>Nigritella angustifolia</i>
<i>Oxytropis montana</i>	<i>Limodorum abortivum</i>
<i>Spiraea Aruncus</i>	<i>Cephalanthera ensifolia</i>
<i>Geum montanum</i>	<i>Cephalanthera rubra</i>
<i>Potentilla aurea</i>	<i>Epipactis latifolia</i>
<i>Potentilla verna</i>	<i>Listera ovata</i>
<i>Rosa spinosissima</i>	<i>Spiranthes autumnalis</i>
<i>Rosa alpina</i>	<i>Cypripedium Calceolus</i>
<i>Rosa tomentosa</i>	<i>Tulipa sylvestris</i> (a very small variety)
<i>Rosa canina</i> and several other species	<i>Lilium Martagon</i>
<i>Epilobium spicatum</i>	<i>Lilium bulbiferum</i>
<i>Epilobium rosmarinifolium</i>	<i>Ornithogalum umbellatum</i>
<i>Epilobium hirsutum</i>	<i>Muscari comosum</i>
<i>Sedum album</i>	<i>Allium vineale</i>
<i>Sedum acre</i>	<i>Allium spheroccephalum</i>
<i>Sedum ochroleucum</i>	<i>Phalangium Liliago</i>
<i>Sedum Telephium</i>	<i>Liliastrium album</i>
<i>Sempervivum triste</i> (?)	<i>Colchicum autumnale</i>
<i>Saxifraga rotundifolia</i>	<i>Veratrum album</i>
<i>Saxifraga aizoon</i>	<i>Aphyllanthes monspeliensis</i>
<i>Saxifraga granulata</i>	<i>Carex baldensis</i>
<i>Astrantia major</i>	<i>Carex atrata</i>
<i>Lonicera alpigena</i>	<i>Phleum alpinum</i>
<i>Adenostyles alpina</i>	<i>Polypodium vulgare</i>
<i>Homogyne alpina</i>	<i>Polypodium Phaeopteris</i>
<i>Aster Amellus</i>	<i>Polypodium Dryopteris</i>
<i>Bellidistrium Micheli</i>	<i>Polystichum Lonchitis</i>
<i>Gnaphalium dioicum</i>	<i>Polystichum aculeatum</i>
<i>Senecio aquaticus</i>	<i>Cystopteris fragilis</i>
<i>Centaurea montana</i>	<i>Asplenium Adiantum-nigrum</i>
<i>Lactuca perennis</i>	<i>Asplenium Trichomanes</i>
<i>Specularia perfoliata</i>	<i>Asplenium viride</i>
<i>Phyteuma hispanicum</i>	<i>Asplenium Ruta-muraria</i>
<i>Pyrola rotundifolia</i>	<i>Asplenium septentrionale</i>
<i>Gentiana lutea</i>	<i>Scolopendrium vulgare</i>
<i>Gentiana punctata</i>	<i>Ceterach officinarum</i>
<i>Gentiana asclepiadea</i>	<i>Botrychium Lunaria</i>
<i>Gentiana acaulis</i>	
<i>Gentiana verna</i>	
<i>Cuscuta Epithymum</i>	

For botanists and those who care for mountain scenery Aix-les-Bains is a charming locality. Happily, the genus "tourist" has not invaded it, and hitherto the English who frequented it were

mostly invalids, but the new additions to the Casino and the Villa des Fleurs are already attracting a different class of visitors. New hotels and lodging-houses are springing up in all directions, and the prices are increasing accordingly. Should a guide be required for any of the mountain excursions, I can recommend Charmant, who lives at the Petit Port. He has always accompanied me, and is intelligent, civil, and obliging. The books of reference which I have found of great assistance are "Alpine Plants," drawn from Nature by J. Seboth, edited by A. W. Bennett, M.A., three vols. as yet only published; "Flore des Alpes de la Suisse et de la Savoie," par le Dr. Louis Bouvier; "Die Alpen Pflanzen Deutschlands und der Schweiz," von J. C. Weber; "Flora von Bayern," by the same author; and "Flore illustrée de Nice et des Alpes Maritimes; Iconographie des Orchidées," par J. B. Barla.

M. S. L.

FOREIGN FRUITS AND VEGETABLES.

THE remarks which you have made on this subject have led me into a chain of thought, and as I have some considerable knowledge of the French, or rather the Parisian, market gardens, and also of the requirements of the London market, I may perhaps be excused if I run a little counter to the stream of opinion and advice which has been given on the subject. We are told over and over again, somewhat in this strain: you see what immense quantities of fruit and vegetables are imported from France, and how much money is made by these articles; you see also the difficulties which farmers and occupiers of land have to submit to on account of foreign competition. Why do not you take a leaf out of their books? why do you not cultivate the same things? why not go in for fruit and vegetables, and drive them out of the market, and put into your own pocket that which now goes into the foreigner's? This is all very well in theory; the advice sounds well, but it leaves out of consideration a few not unimportant particulars which ought to be put into the other scale. Then, again, we are told sometimes that the market gardeners around Paris are so much in advance of ours, that they make more of their ground and cultivate better than we do, and this I entirely deny. I have gone through a large number of the market gardens around Paris, and while I greatly admire their ingenuity, and in many respects their neatness, I am yet forced to say that they do not do "these things better in France." I am sure that there is as careful and successful gardening in the fields about Deptford (now rapidly disappearing) or Fulham as I have ever seen about Paris, and I am quite convinced also that if we could get rid of "mud salad" market, and have a central market like the Halles Centrales in Paris, we could make a display far exceeding in quantity and excellence that which so captivates English visitors. But now to the point. There are unquestionably certain times when foreign produce holds the sway in Covent Garden, but they are times when I believe it is impossible for the English grower to compete with them. They are those seasons of the year when we cannot, do what we will, bring into market the same articles. Take, for example, the early spring. We see Lettuces, Peas, Asparagus coming in before ours. We see again in early summer Cherries, Apricots, Potatoes, &c.; and again in autumn Pears, Green Gages, and a few other fruits; but there is one factor in this which is too much left out of sight—the difference in climate and temperature. Paris is not France; it stretches down to Italy, to the sunny slopes of the Mediterranean, and to Algiers. There is rapid railway communication from all parts of the country, from sunny Touraine, from the smiling valleys of Languedoc, from the Vine-clad hills of the Gironde, the produce finds its way to the great centre of every Frenchman's aspiration. But even about Paris there is a difference in temperature which is easily recognisable. Go into the market gardens now and you will see large quantities of the Cantaloupe Melons ripening in the sunny atmosphere. How impossible it would be to do that about London, we know. Tomatoes,

too, are showing their ripening fruits, and the Chasselas at Fontainebleau are maturing their berries. Now we cannot alter our climate. Our summer temperature in London may not be many degrees below that of Paris, but the greater sunshine makes all the difference. By the time, then, that our Peas are ready the price has gone down, so that if sent to market there is but little profit. A relative of my own was once impressed with the idea that Peas could be grown profitably. He lived not three miles from the city; his Peas grew famously; he sent in a load to the salesman; in return he got back old sacks instead of the new ones he sent them in, and no assets. They only paid expenses of sending in. This may have been an extreme case. Lettuces are a favourite subject with those who are ever speaking of the way in which foreigners take the wind out of our sails, but we must remember that a salad is not the necessity of an English dinner that it is of a French one; and although it is possible that with hand-lights, &c., we might get ours in at the same time, yet the market will not readily bear more than it at present receives.

Another consideration that is left out of sight is the great difference in labour, both in its price and quality. It is no unusual thing for a French market gardener to work 18 hours a day in the summer season, while the cost of his labour, although it has much increased of late years, is not anything like that of the English labourer; so before any idea of profit from the cultivation of vegetables or fruit which would involve extra labour in obtaining it can be entertained this must be taken into consideration. I think, then, that great caution is needful before we persuade holders of land to go in for market gardening or orchard planting. Orchards! Look at them this year; acres upon acres, and not an Apple or Pear to be seen; and then when they are plentiful, as they were two years ago, we are told that they were not worth the gathering. Then Apples were selling at 1s. per bushel; now they are 1s. 2d. a gallon; and I fear to many a grower this year will indeed be a calamitous one; but, however this may be with regard to the general question, I feel persuaded that we cannot hope to compete with the foreigner in those early productions for which his climate is so much more suitable.

DELTA.

NOTES OF THE WEEK.

APPOINTMENTS.

- Aug. 15.—Claycross Annual Show.
- Witney Annual Show.
- 16.—Shropshire Horticultural Society's Annual Show.
- 17.—Maidenhead Horticultural Society's Annual Show.
- „ Basingstoke Horticultural Society's Annual Show.

ROYAL HORTICULTURAL GARDEN.—On Monday last (Bank holiday) 9530 persons visited this garden. It was open from 9 a.m. to 8 p.m., and the attractions included a flower show, the Beekeepers' Association show, and music.

DWARF LILIAM AURATUM.—At the August monthly meeting of the Tooting Horticultural Society, Mr. Gower exhibited a plant of a very dwarf variety of this Lily. It had four stems about 20 in. high, furnished with narrow, small leaves, whilst the flowers were of the normal size. If this maintains its dwarf character it will be a desirable acquisition.

REGENT'S PARK.—An influential deputation from the inhabitants of Marylebone has waited on the First Commissioner of Works to urge him to throw open to the public the fourteen acres of ground, extending by the ornamental water from Hanover Gate to York Gate, for more than half a mile, which is now enclosed and reserved for the use of key-holders. Mr. Shaw-Lefevre said that by the Act of 1851 the ground in question had passed from the Crown to the people, and he was himself of opinion that it would be most desirable

to throw the piece of ground open. Hitherto the lessees of the Crown Estate had objected to this being done, alleging that if the ground were made public, their property would be depreciated in value. However, the question should now again engage his serious attention and that of the Government. He thought he saw his way to remove all difficulties, and by opening this ground to confer a great boon on the public.

PROPOSED PARK FOR PADDINGTON.—It is announced in the *Times* that in furtherance of this object, a subscriber has promised to raise his subscription from £200 to £1,000, provided an additional £20,000 is subscribed after this date. This, if realised, will bring up the total amount subscribed to £50,000, besides the £80,000 (£1,000 per acre) promised by the Metropolitan Board of Works.

COMPENSATION FOR CARRIAGE.—A friend tells us that a plant sent him to "compensate for carriage" in the case of an order for hardy plants, and with a Latin name attached to it, proved on flowering to be a plant of the common Chicory. It would really be better for growers to throw their failures away than send them out in any form. Weedy or useless plants sent out do harm in various ways, not excepting harm to the trade.

WANSTEAD PARK, lately acquired by the Corporation of London, was formally and unostentatiously opened the other day by the Epping Forest Committee. The park consists of 182 acres of low-lying wild common land, formerly the property of Lord Mornington's trustees, and is situated between the southern extremity of Epping Forest and the northern portion of Wanstead Flats, so that in point of fact it forms a southern continuation of the gigantic metropolitan playground opened in May last by the Queen. It is not, however, intended that the unrestrained liberty enjoyed by the public in their use of the Forest shall be as completely extended to Wanstead Park, which is meant to be used simply for such enjoyments as may be found and permitted in the London parks.

PINE-APPLES FROM FLORIDA.—Messrs. Garcia, of Covent Garden, have called our attention to some very fine Providence Pine-apples from Florida. Some of them weigh 9 lb. and 11 lb., and greater weights are said to be obtained. It is very likely that good cultivation will enable those living in that fine region to grow Pine-apples and other tropical fruits for northern countries now supplied by hot-house growth. No doubt the need of growing Pine-apples extensively in hothouses will before many years have no reason to be. Transit will become so quick that we shall get well cultivated things fresh in our markets. The fruits to which we allude were grown by General Sandford, at Sandford Grant, Florida, and are said to be the first importation from that State. They were grown in the open air.

Useless plants.—There are but few who, in the universal search after novelties amongst vegetables, fruits, and flowers, meet with no disappointments after purchasing some "highly commended or recommended" article. I am partial to Statics in general; most of them are feathery, graceful plants, very well adapted for bouquet making without the use of wire, so I bought *S. Thouini* this season, but it has woefully deceived me. Its habit is stiff, and its blooms comparatively inconspicuous—more green than blue; in short, it is valueless as a decorative plant. *Gaillardia Lorenzii* is with me very poor, not nearly so showy as *G. picta* or *G. amblyodon*, very few blooms being open at one time. The fact of its petals being fluted instead of flat detracts much from its worth. The big Pea American Marvel is perhaps good as an exhibition sort; now everything depends on size, regardless of quality. Compared with Perfection, British Queen, or Champion of England, it is decidedly inferior as regards sweetness. Neapolitan Kohl Rabi, said to be good both for bulb and sprouts, does not come up to its description. It forms no bulb of any size, merely a gouty swelling of the stem, and there

are no sprouts appearing, although the plants are running to seed from late spring sowing.—**SYLVESTRIS.**

FLOWER GARDEN.

Lilium testaceum. This Lily, also known as *L. excelsum* and *L. Isabellinum*, is, as I think, one of the finest of all the really hardy Lillies. In colour it is unique, and but few other kinds rival it in stately vigour. Here one bulb produced three spikes over 7 ft. in height, bearing in all 30 flowers. It is a hybrid between the scarlet *L. chalcedonicum* and the white *L. candidum*, and I am so fond of it that I should like to purchase 50 or 100 bulbs of it for a special position on a border mainly devoted to Bamboos, and where I expect to grow it 8 ft. or 10 ft. high. As a Lily suited to most kinds of soil and climate, *L. testaceum* deserves notice.—**F. W. B.**

Saxifraga granulata fl. pl.—Were I a gardener having to supply cut flowers, I should grow a large bed of this Saxifrage, so useful it is for that purpose. I have looked in vain for it in the gardens of those who live at Kew, Brentford, &c., and whose business it is to grow flowers for posies for the visitors to Kew Gardens and to Richmond, &c. It is so hardy, and flowers so profusely, that it well deserves a place in any garden. Thirty years ago I knew an old gardener who grew a bed of this Saxifrage every spring, edging it with red Daisies, and he was very proud of it, as he had much reason to be. I am informed it cannot be induced to grow in some parts of Lancashire and the north, but it does well in the open air in the south.—**R. D.**

Malformed Foxglove.—I enclose a photograph by Mr. B. W. Bentley, of this place, of a very remarkable "freak" of a Foxglove. It was gathered by Mrs. Brock Hollinshead about ten days ago growing wild in the valley of Chapel-en-le-Frith, near to a farmhouse, where is preserved a skull¹ endowed with miraculous properties—at least the country people so believe—and it is thought that "Dickie," as the skull is named, has had a hand in rendering this Foxglove deformed.—**J. C. BATES, Thorncliffe, Burton.** [Malformed Foxgloves are not confined to "Dickie's domain;" on the contrary, they are very common, and illustrations of them have from time to time been given in THE GARDEN and other horticultural papers.]

Lilium auratum.—The very interesting notes of Mr. Harvey (p. 120) anent this plant deserve notice, and having myself recommended in these columns the culture of home-grown seedlings of this Lily, I am especially pleased to hear of his success with them. At home in Japan *L. auratum* grows among dwarf Bamboos, and I am convinced that in our gardens it likes the company of other vegetation. Mr. McIntosh's fine specimens grow among Rhododendrons, and the finest home-grown bulbs I ever saw grew among the roots of *Corchorus japonica*. Many tender bulbs grow best in the Box edgings or near a Privet hedge, and I never could grow *Narcissus Bulbocodium* here except where the ground is dried and warmed by interlaced Holly roots.—**F. W. B.**

When to sow annuals.—In p. 108 of last week's GARDEN Mr. T. Smith, of Newry, speaks of annuals; he is an excellent adviser in many matters, but he is not quite sound about annuals. Instead of the spring-sown annual blooming longer, it blooms a great deal shorter than the autumn-sown annual. Where the soil is good and light he can prove this for himself in one season. The natural life of an annual in any country in which we have seen them is through the cool autumn and winter season, gathering strength for many months before the blooming time arrives. Surely everyone who has much to do with annuals will agree that those sown in May are smaller and poorer than those sown in autumn. In many cases, and especially of late years, some kinds will not survive, but where a light warm soil allows healthy existence of an annual plant through the

winter and early spring the difference is most important in favour of the autumn-sown. It is not a question of argument, but one of fact, and may be verified both by sowing in gardens and by observation of annual plants in a wild state.—**J. H. G.**

Moneywort (*Lysimachia Nummularia*).—There are many species of *Lysimachia*, and more than one of them indigenous to Britain, but as a decorative plant possibly none are so useful as the common Moneywort, or Creeping Jenny, as it is called. It is found wild in various parts of the country, mostly in shady places on the margins of pastures, near woods, &c. It flowers during June, July, and August, but whether in bloom or not it is always ornamental. It makes a fine border plant, but is still better suited for artificial rockwork, or as a marginal plant for large vases or raised flower beds, for planting in window boxes, &c., where its pretty yellow blooms harmonise well with those of blue *Lobelia* and other plants with which it may be associated. In pots it is well adapted for a bracket in the greenhouse, or for suspending in a wire basket in the conservatory or elsewhere. Indeed, it is one of those plants which appear to succeed in almost any situation, or under any conditions. A very pretty object may be formed upon the lawn or in the flower garden by placing a large flower-pot filled with soil upon the end of a tree stump some 3 ft. or 4 ft. in height. The *Lysimachia* should be planted round the sides of the pot; it will soon grow down, and cover the outside of the pot and also the pedestal with its slender creeping stems and bright yellow blooms, while the centre of the pot may be occupied with a blue *Lobelia* or any other flowering plants. Moneywort is easily increased either by cuttings or by division to any extent during either autumn or spring.—**P. GRIEVE.**

Double Pyrethrums.—These are among the most valuable of hardy perennials, and exceedingly showy during May and June, a time when they do more to make herbaceous borders gay than any other plants with which I am acquainted. They push up numerous heads of Chrysanthemum-like blooms, that last a long time in perfection. A few years ago these fine double Pyrethrums were quite unknown, but now there are numerous varieties of them, embracing nearly every shade of colour, from the purest of whites to the deepest of crimsons. As there are so many that are good, it seems almost invidious to name any specially; but where only a few are wanted, the following will be found distinct and deserving a place even in the smallest of gardens, viz.: *Candidum plenum*, *Boule de Neige*, *Brilliant*, *Coqueterie*, *Fulgens plenissimum*, *Herman Stenger*, *Haage et Schmidt*, *Mdme. Billiard*, *Michael Buckner*, *Ne Plus Ultra*, *Penelope*, *Paul Rouge*, and *Prince of Wales*. This list might be greatly extended without taking in half of the fine sorts there are, and those having plenty of border room would do well to add at least another dozen. As they are low-growing plants, they should be placed in the foreground of others; and, being very fond of moisture, it is necessary for them to have deep soil, in which they can send their roots well down and be independent of the weather. The time to plant is early in spring. The way to increase double Pyrethrums is by division, which should be carried out just as they begin to grow, and then there is no fear of losing them, as they make fresh roots quickly and the cut parts heal rapidly over. Double Pyrethrums may also be raised from seed; but, unfortunately, few raised by that method come equal to even the poorest of the named kinds, and the greater part will be single. Although these may not be cared for to plant in borders, they are very desirable for growing in semi-wild places, such as by woodland walks or in front of shrubs, or to naturalise among grass around trees on large lawns, where, with *Columbines*, &c., they flourish well and look quite at home.—**S. D.**

Ampelopsis Veitchi.—The common Virginian Creeper, so remarkable for its brilliancy in autumn, though introduced to this country from North America more than 200 years ago, is still a

very popular wall plant. *A. Veitchi* is of more recent introduction, although it cannot now be considered to be new. It is, however, not so extensively grown as it deserves to be, as it is one of the comparatively speaking few plants which have in all respects realised the expectations entertained respecting them. As a hardy climbing or wall plant, it is second only to the most ornamental varieties of the Ivies, and had it been an evergreen, instead of deciduous, it would certainly have deserved being placed before them. But, although deciduous, it is nevertheless exceedingly ornamental, even during the winter season, and, like the Virginian Creeper, it has the rare property of possessing an extraordinary brilliancy of leafage during the autumnal months. It is exceedingly well adapted for planting in towns, against the fronts of dwelling-houses, or in other suitable situations which it may be desired to clothe with leafage. All that is required is to place the plant as close as possible to the wall, or other object it is intended to cover, and to which it will cling like Ivy. It is by no means particular as to soil; it will even grow freely in an ordinary gravel walk, but it will, of course, thrive better, and its development will be more rapid in a more generous compost. It may be used for clothing walls, pillars, wooden posts, &c., and it can be readily induced to form the most graceful festoons for draping balconies, verandahs, &c. The young shoots when cut, more particularly in autumn, when their leaves are highly coloured, are exceedingly useful in bouquet or wreath-making, and for mixing with flowers in vases. When first introduced, it appears to have been generally grafted upon the Virginian Creeper, but this is now found to be unnecessary, as cuttings of it, if taken off with a heel and inserted in February in well-drained pots or pans of light sandy soil, root freely. They should be placed upon a gentle hot-bed in a close frame or pit, and, when fairly rooted, they should be potted off singly; or the young growing shoots may possibly be struck under a bell or hand-glass at any time during the summer.—**P. GRIEVE.**

SHORT NOTES.—FLOWER.

Everlasting Peas.—The white and the deep coloured forms of the old Everlasting Pea are among the finest things in the garden now, and also good in water.

Honeysuckle (*W. M. R.*).—The twig of *Lonicera* you send with entire and sinuate leaves resembling those of the Oak is peculiar and abnormal, but of course it has nothing to do with the Oak.

Scutellaria orientalis.—Mr. Ware sends us this, but if it does not look better when seen growing, we think he might do worse than send it all back to its own country. The colour is a soft greenish yellow.

Cape Hyacinth.—This noble plant with the alabaster bells is very fine indeed where its stately spikes rise near or among the flowing swords of the *Gladiolus*, as they do now in the garden at Munstead.

Lavender.—How good the colour of this is now where a few bushes or groups of it are seen. A border we know has these only now in flower and a few *Heliotropes*, and the effect is as good as it is quiet.

Stocks.—Will some reader of THE GARDEN kindly give me the name of two or three good Stocks which, if sown out of doors now, will make good plants to flower early? also some instructions as to their treatment?—**TWIST-HAND.**

Lilium auratum seems to do best of all on the heath soil of the Surrey hills. The specimens are not so large as we have seen them with Mr. McIntosh, but they seem more constantly good. The soil, however, at Weybridge and Munstead are almost alike.

Campanula pulla.—How lovely this is where spread into a bold tuft. We know one now about 3 ft. through, not a close mass, but made up of groups, the whole being canopied with the richest purple bells. It is fully exposed in sandy soil, there being nothing near to overrun it.

Climbers.—The east wall of a handsome red brick dwelling-house is well adapted for hardy climbing plants. What kinds should I plant? Ivy objected to; also Virginian Creeper, unless an uncommon kind. Situation near the sea; south coast.—**C. M. U.**

SENECIO JAPONICUS.

IN botanical collections this plant has long been cultivated under the name of *Erythrochate palmatifida*, but it is only within the last few years that it has found its way into hardy plant nurseries, though it is one of the handsomest of all perennial herbaceous plants, and decidedly the most ornamental of the numerous species of *Senecio* now in cultivation. It is a Japanese plant, as the

watered. If planted in a moist spot, such as near a stream or lake, in deep loam enriched with well decayed manure, it would doubtless grow to a great size, and form a highly ornamental object. The character of the leaves and flower-stems is fairly well shown in the accompanying woodcut; the leaves are all radical, that is, proceeding directly from the base, and the forked stems rise boldly, carrying numerous large golden flower-

spring till almost the verge of winter, that is if it does not suffer from drought. It is perfectly hardy in the neighbourhood of London, and no doubt it would be north of it, provided the position was sheltered. Our drawing was prepared from specimens sent to us by Mr. T. S. Ware from his nursery at Tottenham, where the plant apparently luxuriates in a stiff, moist soil. W. G.

STATELY HERBACEOUS PLANTS.

THALICTRUM AQUILEGIFOLIUM appears to be a scarce plant, but it is one of the most telling which we have in the back row of our herbaceous borders during the month of June. It grows about 4 ft. high. The inflorescence is white, and the leafage abundant, and nearly as handsome as the flowers. It is evidently as hardy as an Oak, and adapts itself to any kind of soil. In our case, our soil being rather heavy, we lift the old stools every two years, divide them, and give them a fresh position, mixing with the soil a bit of well-rotted manure before planting. We have also another variety that grows about 2 ft. high, which flowers quite as freely under the same treatment. As *Delphinium formosum* flowers at the same time as the *Thalictrum*, I grow it rather largely, being a capital companion plant, its purplish blue flowers contrasting admirably with the white of the *Thalictrum*. In height, too, it associates well with it. In order to get a really fine effect with this plant, large clumps are necessary, and, as our borders are long and wide, I put seven or eight plants in a clump. I sow the seed as soon as it is ripe in autumn in a deep pan, and keep the plants there until the following spring, when they are planted out in a rich piece of ground in a border in the kitchen garden. In autumn they are transferred to the flower borders, where they are treated liberally. I make the stations for them thoroughly rich and deep, using plenty of good short manure; and the height to which they grow and the length of the flower-spikes show that they like that kind of management. Our best clumps are four and five years old, and the plants, which are quite 5 ft. high, are now flowering grandly. They are securely staked. As soon as they commence to grow in the early part of the season I put a cone of coarse cinder ashes over each clump to keep off slugs, which are very partial to them. *Symphytum variegatum* is not perhaps a very striking plant, but nevertheless it looks well amongst other plants of a similar height. Its distinct variegation and deep Bluebell-shaped flowers make it a conspicuous object. It is a very accommodating plant to grow, as it is not particular as to soil or situation. We take up the plants once in two years and divide them, changing the position so as to give them fresh soil, but we give them no manure. Under this treatment they grow from 4 ft. to 5 ft. high, commencing to flower at the end of May, and continuing in flower for several weeks. Herbaceous *Pæonies* have been capital companion plants to those just named in conjunction with *Pyrethrums*, *Centranthus*, and other hardy subjects, but the *Pæonies*, owing to their bright colours, ranging from white to the deepest crimson, and their large flowers and handsome leaves, have been the most beautiful. Our plants are large, as they have not been disturbed for the last ten years, but every two years we remove the soil over the roots and replace it with a layer of short rich manure. Our soil is not a very poor one, but I have grown hardy flowers long enough in it to know that all vigorous-growing ones like a bit of manure; in fact, they cannot be had in proper character without it.

J. C. C.

Pansy Lady Kintore.—Mr. Cornhill complains that Pansy Magpie becomes a self with him, and asks if anyone could tell him how to make it keep its character. I am afraid that is impossible, for in the hot summer months it becomes self everywhere. There is, however, a variety raised by Mr. John Downie, a cross from Magpie, which keeps perfectly true in all weathers; its name is Lady Kintore. It is a free



Senecio japonicus (much reduced).

specific name implies, being indigenous to the island of Nippon. It is largely cultivated in Southern Japan as an ornamental plant, and justly so, for in its native habitat it is said to attain as much as 15 ft. in height, with huge radical leaves quite 5 ft. across. We have never seen it half this height in English gardens, but we have never seen it growing under the best conditions to attain full development. It is decidedly a moisture-loving plant; indeed, it cannot exist long in a light, dry soil unless it be constantly

heads in autumn; consequently it seldom ripens seed with us. In order to obtain the finest effect from this plant it should be placed three or four in a group, allowing about a yard or so between the plants, and in no place would it look better than on lake or river banks in company with groups of *Gunnera scabra* and *manicata*, the giant Cow Parsnip, *Ferulas*, and plants of similar character. Like the *Gunnera*, the Japanese Groundsel never looks untidy, for its bold foliage wears a cheerful green hue from the time it appears in

bloomer, and very much admired by all who have seen it. Mr. Cornhill should grow this along with Magpie. It has a yellow eye, set in deep mauve, and broadly and irregularly edged with white; it is bright and attractive.—JOHN D. ADAIR, 4, Hampton Terrace, Edinburgh.

Three distinct Violas.—Violas are now so much valued, that those who are in search of distinct kinds may with safety be recommended to grow the following, viz.: Holyrood, a neat-habited variety, much darker than Tory, with a still darker blotch of purple in the centre, form good, and substance better perhaps than that of many others of the same family; Sovereign—rightly named, for the colour is the deepest of all yellows; the shape, too, and substance are all that can be desired, and habit of growth close and short jointed. So far as I have seen, these two varieties have only one fault, and that is they do not flower early enough to admit of their being used in the spring garden, but in the colder parts of England, where Violas are used for summer bedding, they must indeed be valuable. The third kind is Vestal, a well-known white-flowered variety, unequalled in its class, at least with us in Somerset; it commences to flower early in April, and therefore we are able to use it in the flower garden along with other spring-flowering plants. It is a good grower, its habit is neat and compact, and it continues long in flower.—J. C. C.

Myosotis dissitiflora from seed.—Complaints of the difficulty of obtaining stock of this early Forget-me-not from seed are often made, and if dependence is placed on gathering seed in the ordinary way, there is much chance of losing the greater portion of it, the first-formed pods shedding their contents before the later ones are matured. There is no better plan than planting a few plants somewhat thinly together in a cool, moist situation, covering the surface with 1 in. of light soil when they come into bloom, and allowing the seeds to sow themselves naturally in it. All that one has to do is to keep the soil free from weeds, and quite a crowd of young plants will come up, not all at once, but many of them early in July, and these will make good plants for the following spring much superior as regards passing the winter and flowering to older plants.—J. C., *Biplect.*

Saxifraga Wallacii.—This is the best of all the mossy Saxifrages. Two years ago we were advised to try a plant of it, and, like most other nursery plants, it was small and not effective then; but now, when it has multiplied into square yards, its beauty when in bloom is beyond all praise. It grows about 6 in. high, flowers and all, is dense and compact in habit, and the flowers form a complete sheet of white. Unfortunately, spring flowers are not much wanted here; but its infinite beauty has not altogether been wasted, as it calls forth the admiration of all who see it, and we regard it with the greatest affection. It should be introduced to every garden, however small, and once there it will always be regarded as a gem, even amongst the choicest of hardy subjects. It is readily increased by dividing the old plants and dibbling the pieces, with or without roots, into the ground in March. Planted 6 in. apart, it will cover the ground long before this time. It is perfectly hardy; in fact, in Messrs. Dicksons' nursery at Edinburgh 35° of frost failed to injure it. It is well adapted for an edging in any flower garden, and as a rock plant it is as much to be recommended as for any other purpose.—CAMBRIAN.

Too small beds.—Most gardening books published up to the present time abound with miserable patterns of beds—small, complicated, and "cornered." Naturally, people seeing such things in books feel justified in "carrying them out," but it is mostly with a dismal effect. The trouble of keeping them in order is great, and what they produce is often almost *nil*. They are generally so small and so "finniking," that one can neither trench nor dig, nor attend to them with any convenience. Apart from this, there is no effect worth speaking of to be got out of the

small bed. The only case in which they are tolerable is when they occur at the base of standard Roses, and even then they have a poor and dotty effect, and would in most cases be better abolished. Great numbers of small beds break up the surface of the lawn or flower garden to a needless degree, creating a number of points which vex the eye without satisfying it, and waste labour without any good result. The true way is to turf up such beds and to form large ones, circular or oval, thoroughly well prepared, in positions where they will not mar the breadth or beauty of the lawn or turfed part of the garden, and mostly one bed or a group in a place. These should be quite cut off from tree roots near by a deep trench where that is necessary. In such beds it would be possible to get a really good result with anything we have to deal with, from Clove Carnations to Roses or Lilies and Irises mixed, this being a charming combination for a large oval bed in a quiet corner.—V.

Tree Pæonies or Moutans.—Nothing can possibly be grander than bushes of these Pæonies, either grown as single specimens or planted in groups; and, varying as they do in foliage where a well-selected collection is got together, bushes, even when not in flower, are attractive in early spring and late in the autumn. They make fine plants for the backs of wide herbaceous borders, planted at intervals with flowering shrubs, and they are equally suitable during the summer months for planting in mixed shrubberies, where, when in flower, they have a fine effect. Planted as single specimens upon lawns they also look well, as they can there be seen to full advantage when in flower; besides, they ripen their wood better than elsewhere, having the advantage of the full rays of the sun. When fully matured, they produce plenty of their large showy flowers, of which they are often deficient in shady positions. One of the best situations for them is the American garden, in which they come into flower at the same time as the Azaleas and Rhododendrons, and, being perfectly hardy, they will withstand severe frost. Plants of them suffered but little even during the severe winters of 1880 and 1881, and flowered as freely as usual the following spring. We had a fine plant a few weeks ago, on which there were 130 blooms, all open at one time, its large double light rose-coloured flowers producing a fine effect. The single flowering varieties last but a very short time compared with the time during which the double-flowering sorts last after opening. The soil in which I find they grow strongest and flower best is a mixture of good turfy loam and peat in equal portions, to which is added a little rotten manure, to give them a good start. There are many different varieties, some of which possess most striking colours, and will be found useful in a cut state for filling large vases, or the flowers may be used with good effect singly in specimen glasses on the dinner table.—W. C.

Flowers on lawns.—Most people dislike unmown lawns, but it becomes a question whether a closely shaven Grass plat is always the best and most pleasant to look on. If we are to have wild gardens and numbers of hardy plants naturalised, as it were, there is no position in a garden where many of them do so well or look so much at home as on lawns, the emerald green of which sets them off to advantage. Take Daffodils, for instance. What more pleasing sight is there than to look upon them in a meadow blended with the numerous kinds of Grasses as they run up to seed? many of the latter, too, being highly ornamental in their various stages of development, and light and feathery at all times. Instead of cutting all the Grass where there are large breadths of lawn, I am of opinion that it would be better to leave portions round trees as belts and other irregular patches in the open—all such spaces to be devoted to the culture of such things as Snowdrops, Squills, Bluebells, Primroses, Daffodils, Lilies, Funkias, Columbines, Forget-me-nots, and similar hardy plants that are sufficiently strong to hold their own among the Grass and take care of themselves. A pleasure ground would then be

deserving of the name, as it would be so in reality; at every step there would be something fresh to see and to arrest attention, and especially during spring and the early summer months. To afford facilities for visitors to enjoy them, broad glades having graceful and easy curves might be cut in the Grass and kept quite short by the mowing machine for paths. Near gravel walks there should be broad margins of closely-cut turf along each side and the Grass should be left long beyond, but gravel is only needed for the main walks for use in the wettest and worst weather. A lawn so arranged and kept would entail far less labour, and give an opportunity of growing hosts of plants of great beauty that are now seldom seen. Groups of them might be formed in sun or shade, according to the requirements of the different species.—S. D.

FRUIT GARDEN.

GOOSEBERRIES.

A LARGE collection of Gooseberry fruits shown recently at South Kensington served to show that we have an immense number of kinds in commerce not a tenth part of which are, as a rule, grown in gardens, and but for northern exhibitions would not be in request. The production of large Gooseberries is a hobby that may amuse, but has no horticultural value. We do not so much want big Gooseberries as plenty of fair-sized fruits, and these of rich flavour for dessert purposes, whilst the gardener and market grower, who have to furnish kitchens innumerable, try to secure an abundance of kinds that will give regular crops and prove profitable. Now the market growers who have to furnish Gooseberries by thousands of bushels grow no fancy kinds. That fine red kind, the Lancashire Lad, is one of their chief favourites, for it is hardy, fruits freely, and these are of good size, so that it soon fills the bushel whilst young and green. The demand for green Gooseberries is a remarkable one; indeed, it is probable that twice as many fruits are gathered in a green state for market as are left to ripen, and as the price is always good at the opening of the season, the profit made upon the smaller green fruits is as large as can be made upon the ripe ones. Then the trees get the inestimable advantage of being relieved by their load of fruit very early, so that they are not so much distressed as are those which have to carry out heavy crops of ripe fruit. Rifleman, Crown Bob, both red, and Whitesmith, green, are other good market kinds. What is good for the market grower is good also for the private cultivator, and the sorts named are of great value for ordinary culture where the needs of a household have to be satisfied. For dessert purposes, however, the large kinds will not do, and here where taste steps in it is not so easy to specialise just what kinds are the most desirable. Still, there are of green, yellow, and red sorts kinds that have for the Gooseberry a most pleasing flavour. Of green or white kinds, the Pitmaston Green Gage and the Hedgehog are both excellent. The former may be known by the erect habit of the bush, whilst the fruit is smooth and green and the skin thin. It hangs well. The Hedgehog is whitish, of medium size, roundish, and hairy. The bush grows erect, and is very prickly. Of yellow kinds, the best flavoured are Golden Drop, so early and so well known, and Yellow Champagne, a small hairy variety, the bush being of erect habit. The best reds are the Warrington, so well known in gardens for its drooping, spreading habit and its innumerable spines, fruit medium sized, hairy, and of rich colour; the Ironmonger, so deep in colour when ripe, the bush spreading; and the Red Champagne, often classed with the Ironmonger, but distinct, and of erect habit of growth, fruit a trifle oblong and tapering towards the stalk. It is one of the most delicious of dessert Gooseberries. One particular feature which marks the Warrington renders it specially troublesome to gatherers. In this particular sort the spines or prickles are set in trebles, not singly. This makes the bush peculiarly offensive. It is, however, a good grower,

bears pruning well, and lives to an old age. It is not essential that all these good dessert kinds should be grown in any one garden, but still where daily desserts have to be furnished, variations from red to green, and again to yellow, with diversities in flavour, are very pleasing, and a dozen bushes of six kinds take no more room than the same number of bushes of one sort. Of those large kinds so generally called prize Gooseberries, the growing of which interests and amuses not a few Lancashire people, the following are good sorts: London and Clayton, red; Antagonist and Lady Leicester, white; Cossack and Leveller, yellow; and China and Stockwell, green. Some of these are shy growers, and want good cultivation. A. D.

WATER MELONS.

WERE our climate sufficiently genial to admit of the culture of Melons in the open air, we should probably place a higher value on the Water Melon than we now do. In countries where the summer heat is intense this fruit is much esteemed, being considered wholesome as well as refreshing. In common with the Cantaloupe, it is the favourite summer fruit with the working classes in large towns in France, and at the large fairs annually held there during the late summer months immense quantities of them are sold at very cheap



Water Melon.

rates. Being strong in growth, the Water Melon requires much space for development, a single plant covering, where conditions are favourable, many square feet of soil. One often sees it in gardens in South Germany rambling freely just as Pumpkins and Vegetable Marrows do with us. In fine years in the warmest parts of this country it is probable that the Water Melon would succeed fairly well, and, considering its hardness and vigour compared with our most esteemed kinds, we should perhaps do well to give it a place under glass, as it does not need much care, bears heavily, and, so far as I am aware, is not liable to canker. In any case, early planting in rich, free soil and copious waterings are indispensable. The German gardeners plant it out on a gentle bottom-heat about the beginning of May, sheltering the plants under cloches, and gradually inuring them to full exposure, so that by the time frosts are no more to be feared the plants have good hold of the soil, and are ready to respond to the influence of the season. J. C. B.

Amsden Peach.—This Peach, grafted on the Almond Plum or on a seedling Peach, is most vigorous in cultivation and a good bearer. Fruit of it was gathered from a young tree in Messrs. Ballet's nursery at Troyes in 1881 from the 5th to 10th July. The fruit is large, well coloured, and very juicy, the stone small and sometimes attached by filaments to the flesh. It ripens in the neighbourhood of Lyons as early as the 24th of June, in Dauphny at the same period, and in Provence on the 15th of June. These Peaches realise in

Paris good prices, ripening as they do at least a month earlier than the fine Peach called Montreuil. The Alexander Peach, also an American one, is as fine as the Amsden, as early, and equally good. Both these Peaches ripen eight days earlier than Early Beatrice. The Pomological Congress of France considered the Amsden to be one of the best of Peaches.—R.

MANURING FRUIT TREES.

THE time to apply manure to trees, in order to increase the weight of the crop, is a subject about which some diversity of opinion exists, but it is exceedingly desirable that the matter should be better understood. I am not speaking of the kind of food to be given to plants. It is well known that too much manure, especially if given in a liquid state, produces an exuberance of foliage at the expense of fertility. We know, for example, that the rankest stalk of Wheat does not always produce the best ear. Patches of corn in a crop where perhaps an excess of manure has been given, by accident or otherwise, often show this. If plants had more sunshine and heat this effect would not be so apparent, because, under such circumstances, the foliage is better able to elaborate the food; but a dull sky and a low temperature destroy the advantages of manuring to a very large extent in the case of all plants. Observations of this kind have led cultivators to conclude that it is wrong to apply manure to fruit trees when they are young, or before the fruit begins to swell. To take

The Vine as an example, the almost universal practice not long ago, and one still common, was to apply manure in some form or other only after the fruit had set and stoned—a stage at which it has half completed its growth. I have known numbers of instances in which this rule was held to in the strictest manner. Although the Vines were not particularly vigorous, they never received any top dressing or liquid manure till the Grapes were thinned; after which one or the other was given in quantity, but without, in any single instance, producing fruit either of remarkable size or extra quality. The Grapes never were large, either in bunch or berry. It is admitted that manure applied in the latter stages of growth exerts some influence in increasing the size of the fruit; but after a bunch of Grapes is set, one cannot add to the number of the berries, or alter their structure. Manure may cause the berry to swell out to the extent of its framework; but in order to have big bunches and big berries, we must first have strong shoots and strong buds, and these will to a certainty produce fruit with a capacity to swell under the application of manure. The older one grows in experience the more strongly this conviction is forced upon one. True, we can produce a too rank growth easily by applying manure in excess before the flowering period, but that only proves we are not to manure freely before that period. I am pretty sure that manure given to trees at the middle period of growth does more good to the next year's crop than to the present one. It is well known that those who are ambitious to raise sensational bunches of Grapes act on the principle of feeding to build up a large framework both in bunch and berry. The fact that not a few of such cultivators have overdone it in the end, so far as the permanent well-being of the Vines are concerned, is no argument against the system. Weak Vines, with poor small leaves, always produce small fruit, and *vice versa*. A bunch of Grapes that is going to be large is large from the time the flowers push out from the bud; the flowers are also large, and the berries large as soon as they are set, and they fill up quicker.

The Strawberry affords another excellent illustration of the truth of this. The size of the Strawberry depends principally on the number of pips or seeds produced. No fruit is so quickly benefited by feeding, for the berries can be swollen up to excess by means of liquid manure applied even after they are set, causing the seeds to stand quite far apart in the flesh; but the berry with the most pips will always be the

biggest, and the number of the pips entirely depends on the vigour of the plants and the strength of the crowns, which in turn depend on the feeding the plants have received the previous year. This is the secret of Strawberry culture, and particularly in forcing. To have prize fruits, the grower must not quite depend on the common plan of giving guano water or some other liquid to the plants after the fruit is set. If his flowers are not large, his berries will not be large either, and this is certain always. Fruits that are poor and little at the beginning never grow into big ones. We must first lay the foundation and fatten afterwards.

Method of manuring.—There is a very great difference between rich borders that are also deep and those which are shallow. The former induce the production of roots that penetrate deeply into the rich compost, with the result that strong growth is produced that never ripens sufficiently. A rich and deep soil simply predisposes the trees to that gross habit of growth which deep soils always encourage, and which in our climate cannot be matured. There is no occasion for borders being deep as well as rich, and it would be far better in many instances if the manure was used as a top-dressing more than as a component part of the border. Both Vines and Peaches root readily near the surface of the border that is frequently top-dressed, and so do Apples and Pears. Trees on dwarf stocks are naturally inclined to root near the surface, and the best crops are produced from trees that are frequently top-dressed with manure to induce surface-rooting. Mulching in this way should form a main feature of the culture of all dwarf trees, but it must be practised regularly, because top-dressings of that kind are soon dissipated, and soon perish; unless they are renewed often, the roots that have been formed on the surface become exposed and dried up, to the injury of the crops and trees. With dwarf surface-rooting stocks, like the Paradise and Quince, annual mulching should be practised regularly or not at all, as without top-dressings and mulchings of the surface, the roots will hide themselves under the soil and remain covered. It is only when they are encouraged to the surface by top-dressings that they become exposed; but that is only when such manures as rotten litter and the like are employed, and which, being light and perishable, soon decay and disappear. Dressings of pure soil mixed with manures are best. Vines, Peaches, Apples, Pears, &c., in shallow, well-drained borders should be manured in autumn instead of in spring, say about September or October. The trees may be gross and growing too strongly, but the cause of that is almost sure to be deep rooting in a strong or rich soil. Provided the roots are not allowed to go down too deeply, it has yet to be proved that any amount of rich surface dressings has the least influence in producing a too gross or unfertile growth. It is certain, for example, that a Pear or Apple tree would hardly ever need to be root-pruned if it grew in a position where the roots could not penetrate more than 6 in. or 9 in. below the surface. Under such circumstances you can hardly over-manure the roots of a tree, nor produce, by such means, those gross shoots which are so frequently seen on trees in deep borders. In root-pruning trees I have always noticed that it was the deep thong-like roots which were the cause of gross shoots; at all events, where we find the one we always find the other. Allowance is, of course, here made for climate, for a too gross root action in a dull cold climate can never produce a fruitful habit in trees. The southern grower, who enjoys more sunshine and a higher temperature, may manure more than the cultivator in the north, who has to contend with duller skies; but local circumstances of this kind must be left to be dealt with at fruit growers' discretion. When it is seen trees are in good health and vigour, manure is not needed, and the size and colour of the foliage will always indicate the state of the tree in that respect. Mulching is, however, always safe and advisable in the case of trees in orchard or fruit houses, and in the case of bare borders outdoors, but the

mulching may consist of either poor or rich materials, as may be needful. Short grass will make an excellent mulching when it is not desirable to apply anything stronger.

When to manure.—Vines, Peaches, orchard house trees, and fruit trees outdoors, as well as all small fruits, are best manured in autumn about October. Many cultivators realise this now, and practise accordingly. Manure put on early gets washed down to the roots by the rains, and is there when it is wanted and the trees begin to grow. When put on in spring, especially as a top-dressing above the roots of trees deep in the soil, it is too long before they experience the benefit of it. The only way that Vines or Peaches established in borders can be manured by solid manures, which are better than liquid manures for encouraging surface rooting, is by top-dressings, but it is not much use applying these unless they can be placed nearer the roots at once. This makes the greatest difference possible, for when the top-dressing is placed near the roots they lay hold of it at the same season, and are proportionately soon benefited by it; whereas, if much inert soil, the accumulations from former additions to the border, lie between it and the roots, they will never touch it, and barely feel its influence. Do not pile dressing upon dressing unless the roots are there, and when they are not plentiful on the surface go after them till they are found. Scratch the soil carefully off Vine and other indoor fruit borders till the roots are just visible, and then apply the manure, putting a little common soil, perhaps an inch or two, between the roots and the manure if it be fresh, and afterwards cover the top-dressing with a thin layer of loam, to prevent offensive smells and loss by exhalation. Apples and Pears outdoors should be treated in the same manner; but when the roots are already close to the surface there is no occasion to lay them bare. It is much better to manure trees periodically in this way than to make borders in which much manure is mixed with the soil throughout its depth, unless it be a shallow border, only, as has been said before, the practice must be continued regularly.

J. S. W.

Melons in 6-inch pots.—It is a fact that the plants to which "Sceptical" referred (p. 40) were, when I saw them, fruiting satisfactorily, each plant bearing one and some two. Mr. Hutley says he will do as "Sceptical" suggests, viz., send pot, plant, and fruit to the editor, and also his mode of treatment. Why does not "Sceptical" give the plan a trial? If he would call on me just now I shall have much pleasure in showing him a nice crop of large Melons in 10-in. and 12-in. pots. Growing Melons in too much soil is a mistaken idea. That I have proved in more than one case.—J. CLARKE, *Brynkinat*.

Mealy bug on Vines.—I shall be glad if any good Grape grower would oblige me with a recipe for destroying mealy bug. I have a fine house of Grapes just changing colour, and, notwithstanding the labour I have taken all through the early spring to kill the bug, it is getting into the bunches. Will this pest withstand frost? I could easily clear the house of plants in the winter and keep the lights open if that would be of any use. I have tried many different recipes for destroying mealy bug, but after all it is still here, and I sometimes despair of ever getting rid of it.—J. M.

Peach culture.—This can only be carried on successfully, as "Peregrine" says, under a glass roof. What with insect pests, inclement springs, and sunless summers, the Peach grower in the open has a bad time of it in this country, and although care and skill will do much, it cannot entirely neutralise adverse influences, and trees which have cost much to form often die out before they have returned even a very moderate interest for the outlay they have occasioned. Under glass the Peach is happy, and a moderate amount of care and labour will produce good crops annually just as surely as the open-air ones are uncertain. We are often reminded of what our forefathers

did in the matter of open-air Peach culture, but I should imagine that they also had inclement years to contend with and would have welcomed the cheap glass shelters now at our disposal. At any rate, we who live in an age of cheap glass ought to reap the benefit of it. Whilst we have plenty of fine Pears and Plums which only demand rather more warmth and shelter than they, as a rule, can obtain when grown as standards or in pyramid form, we need have no fear of our walls proving unprofitable. We only come to a full knowledge of the value of many of the finest varieties of these fruits when we can devote a piece of wall to them.—J. C., *Byfleet*.

Surface stirring in fruit culture.—Mr. P. Barry, of Rochester, has a high opinion of this as an aid to good culture. "According to my observation," he says, "wherever the soil was kept finely pulverised and stirred by the horse hoe or cultivator, or if in the garden with a good steel rake, at least once a week, the most severe droughts we ever experienced here have done very little harm. I have never seen better growth of nursery trees than during last summer, and this is always the case in a dry season, with thorough cultivation. I have noticed the same effect in orchards. Where the ground was cultivated well the trees remained healthy in foliage and matured their fruit, whilst those not cultivated dropped both foliage and fruit to a great extent, and at the same time were injured for the future. When in California we were told by fruit growers that the first impression there was that no fruit could be grown without irrigation, but they had ascertained by experience that for trees irrigation was unnecessary. Thorough cultivation was sufficient, and in the most flourishing plantations we visited the ground was kept so fine and loose that we sank into it over our shoes. We were surprised at the results."

Melon disease.—I am delighted with the results, which have been attended with success, of the application of the remedy which I discovered some short time ago for this disease, viz., alum and sulphur. A finer crop and more beautiful fruit than I now have could not be cut. No one need be afraid to use alum in large quantities about the collar of the plant or any other diseased part. It will heal and arrest the disease, and the sulphur will act as a repellant to water and damp. As regards the plants themselves, all thinning and stopping should be done in the morning, and with a sharp knife, never with the finger and thumb, and plenty of air should be given to dry up and heal the wounds. All heavy waterings should be given in the morning, to avoid wetting the foliage. Shut up early with as much heat as you can, then give a little air all night. Water and damp feed the disease.—J. E. WAITING, *Grange*.

Planting Strawberries.—What a waste of time it is to put out weakly Strawberry plants when forming new plantations. Heavy crops are gathered from young plants of the first season under glass, and the same thing would happen in the open air if the same attention was given the plants in their early stages. All success is based upon early preparatory work. The earlier Strawberries are planted, and the stronger the plants the better, in all probability, will be the result. But firmness of root-run is closely linked in with successful Strawberry culture; and this firmness should not be the close-grained hardness of unworked land, but should be the settling down of deeply-stirred staple of some months previous. Very good results have been obtained as follows. The ground has been well manured and deeply trenched in winter, planted with Early Prolific Potatoes in February or March and followed by Strawberries in July of the same year.—HUNTS.

Russeted Peaches.—Will some one kindly say why Peaches grown in a house should have a russet appearance on one side? Can it be caused by watering?—E. W. E.

Amsden Peach.—As we were the first in this country to make known the value of this early Peach, we are pleased to hear such satisfactory accounts of it from Mr. Rutland and other growers.

GARDEN FLORA.

PLATE CCCXLIX.

CLEMATIS SIEBOLDI AND JACKMANI.*

OF these Clematises—two of the most beautiful of open-air flowers now in season—one is as popular as the other is uncommon, but when better known it cannot fail to be a favourite. Indeed it would be difficult to over-estimate the value of these and some of the other kinds now in cultivation either for decoration indoors or in the open air. The long list of garden Clematises may be broadly divided into two sections, both of which are important for their respective uses. The first, of which patens and lanuginosa are the types, are early-flowering kinds, and consequently best suited for greenhouses and conservatories. The varieties of patens are the earliest, and these have been intercrossed with kinds belonging to the lanuginosa type, all of which are remarkable for their large and noble blossoms. The other section may be truly termed flowers of the open air, for there only do they thrive in perfection; and no lovelier sight could be desired than that of a flourishing plant of such a Clematis as Jackmani, swarming with blossoms of the most glowing colours. The plants belonging to this open-air section have chiefly been derived from C. Viticella, a sturdy climber that in South Europe, chiefly Spain and Italy, wreathes the undergrowth in woods with its attractive sweet-scented blossoms, as does our own indigenous Travellers' Joy (C. Vitalba). As regards colour, that of C. Viticella is variable, red, purple, and violet in numerous shades being found in its flowers, and this, combined with extreme hardness, floriferousness, and long and continuous flowering, induced hybridists to cross it with some of the larger flowered species, and with what results we are now familiar. This intercrossing of C. Viticella with C. lanuginosa gave us the Jackmani race of varieties, which combines the free continuous flowering character of Viticella with the larger size and brilliant hues of C. lanuginosa.

Soil.—Concerning the Jackmani and the Viticella group, we find in the Clematis as a garden flower the following: These groups represent some of the hardiest as well as some of the noblest of the whole family. The severest winters do not injure them in any material degree, and from their wonderful fertility of flowers, the plants in the late summer and autumn months literally become masses of blossoms, successively and continuously renewed. They may therefore claim to occupy one of the highest positions amongst hardy ornamental climbing shrubs. In regard to soil, a friable loam is best, and it should be deep, that the roots may penetrate it freely. Manure, too, must be liberally supplied, in order to keep up their strength. In the case of light soils, a good proportion of loam—made friable by frosts, if at all of a heavy or clayey character—should be incorporated, since this will render it the more holding; deep trenching should also be resorted to for the same purpose. In the case of heavy soils, they should be ameliorated by the free intermixture of calcareous soil, or of any sharp gritty materials which may be available, the drainage being made efficient and the soil well aerated before planting. When the ground has thus been prepared, the plants may be put out during any open weather which

* Drawn in the vicarage garden at Bitten by Miss Grace A. Ellacombe, one of the daughters of the Rev. Canon Ellacombe.



SIEBOLD'S AND PURPLE CLEMATIS.

may occur between the middle of September and the end of April. After planting it is beneficial, though not absolutely necessary, to apply a mulching of a few inches of partially rotten manure on the surface; this will both serve to protect the newly-disturbed roots and also tend to fertilise the ground. To sum up, the Viticella and Jackmani types of Clematis require to be grown in rich deep soil, to be manured freely every season, and to be planted out in the open ground, that their roots may have the benefit of free pasture.

"Pruning.—These forms of Clematis flower on the vigorous summer shoots, which culminate in floriferous ramifications, forming dense masses of blossoms. The object, therefore, in pruning should be that of favouring to the utmost the development of these vigorous young shoots, and this is done by cutting the summer growth back early in the season as soon as the frosts have disfigured the plants, say about November, to within about 6 in. of the soil. The mulching, which is then to be applied with a liberal hand, serves to prevent the soil becoming severely frost-bound, and should about the middle end of February be neatly forked in along with, in some cases, an additional supply of rotten manure, the latter being regulated by the manurial qualities of the original mulching and by the natural strength of the land. Thus treated, the plants will commence flowering about the first week in July, and they will go on yielding flowers as long as their strength will enable them to throw out lateral growths. To obtain a later bloom a portion of the plants should be left over at the November pruning, and not be cut back till the end of April, after they have commenced to grow. The process is, indeed, to some extent weakening, but by keeping the ground in good heart by copious manuring, the plants do not appear to suffer, but come into blossom about a month after those pruned in November, and thus help to prolong the blooming period to the limit assigned by the frost. Though, as we have said, this

"Winter mulching is beneficial, it is really more so as a source of food than of protection, for the plants are perfectly hardy, and will thrive as well without it, provided they are otherwise fully fed. There is, however, doubtless some advantage accruing to the plants from preventing the frost striking deeply into the soil, especially in the case of those which are treated for the earliest crop of flowers. The important point is to take care by liberal manuring to keep up the strength of the plants—to make good, that is, the demands which have been made upon them by the marvellous annual development of flowers, a feature which is especially characteristic of most of the Woking hybrids. If, therefore, mulching should be inconvenient, a good dressing of rotten manure applied in November when the plants are pruned, and turned in at once, will answer every purpose.

"The uses to which these types of Clematis may be applied are exceedingly various. They may be trained up snaggy poles, either singly or several together, to form pillar plants, or they may be allowed to scramble over masses of rock-work or rootwork. They may be festooned, or they may be trained over verandahs, or fastened to walls, or led over ornamental iron supports as single standard specimens for lawns. In either way, and in every way, they are found to be thoroughly effective as flowering plants, many of

them indeed, and especially those of the true Jackmani type, being capable of producing a startling impression in consequence of the gorgeous masses in which their rich Tyrian hues are displayed. One of the most useful purposes to which these varieties of Clematis could be put would be to drape a mural ruin or to cover an unsightly bank or slope. They will grow in almost any situation if the soil is not absolutely deficient of food, or if the roots of other plants do not rob them of a fair supply of nutriment; and in such situations nothing would be required but to throw down a few tree roots or rough branches for them to scramble over. Thus planted, a layer of manure worked in annually with the fork and a supply of water in very dry weather would secure a rich compensation of floral embellishment. Again, they rank amongst the noblest of ornaments for low walls, trellises, &c., to which they must necessarily in the first instance be nailed or tied; but once firmly fixed they should be allowed to fall down in rich picturesque masses. Probably, however, the simplest and grandest use that could be made of them would be to plant them on large masses of rockwork, giving them a good depth of rich, light, and sandy earth, and allowing their shoots to fall over the face of the blocks without any training or pruning."

Varieties.—A selection of varieties of the Jackmani type should include Alexandra, Prince of Wales, Lady Stratford de Redcliffe, Rubella, R. superba, Star of India, Rubro-violacea, Tunbridgensis, William Cripps, and Magnifica. Of the Viticella type, the best are Atorubens, Mooreana, Rubra grandiflora, Venosa, Thomas Moore, Major and Modesta. The other Clematis represented in the plate is C. Sieboldi, a very distinct kind from Jackman's or any other Clematis, except C. florida, of which it is said to be a variety. As to its beauty, the drawing, which is an admirable representation, speaks for itself. The Rev. Canon Ellacombe, in whose garden at Bitton it was drawn, speaks of it as follows: "C. Sieboldi is very seldom seen, yet it has most beautiful flowers. It is easily grown, perfectly hardy, and produces abundance of bloom. It was introduced from Japan more than forty years ago. It will succeed trained up a pole, but does better against a wall." It is now in flower about London, and there are some fair examples of it at Kew, where also may be seen several varieties of the Viticella type. W. G.

PLANTS WITHOUT EARTH.

A CERTAIN amount of ingenuity may co-exist in an individual with a want of true perception of the value of a discovery or plan. Anyone who has observed the way plants grow need not be told that they are not always particular as to a "medium." If we bring a load of fine shell from the shore in winter, the first spring day it will be taken possession of by a number of plants which will grow and flower well the same year. Cinders are not soil, yet a heap will soon get covered with plants by no means sickly-looking. Ferns, usually supposed to love moist rich soil, often thrive in the lime dust of a dry wall. We have often noticed the yellow Fumitory high on an old fort, where soil and moisture in any ordinary sense did not exist. Cocoa-nut fibre—the detritus of the husk of a fruit—is chosen by gardeners for its excellent qualities in assisting in the growth of cuttings and young plants. Pure sand is used to a large extent for propagation; and we have seen very remarkable results obtained in striking fine-foliaged tropical plants in sawdust in M. Truffaut's nursery at Versailles.

We may take advantage of such facts, and learn something from them without building unwarrantable assumptions thereon. This we may say of the growth of plants in Moss—a somewhat recent French "invention," of which we have heard a good deal. This so-called discovery reveals to us that plants may be grown in Moss without earth, though we already knew the fact that Orchids grew often in Moss, and even in air, without it or anything else. Moss is nearer in nature to soil than some of the above-mentioned substances, and it has been used a good deal in various kinds of cultivation and propagation. In America Peter Henderson, of Jersey city, has great success with Sphagnum Moss, used in a layer in seed raising, but no one has hitherto recommended it for use instead of earth. M. Dumesnil does this at last, and, judging by the exaggerated statements that have gone the round of the papers concerning his method, he has been busy urging its merits on those who take it for granted all that is said on the subject. No one doubts, who has observed the above and many other facts, that plants will grow in Moss. We often see them so growing in very mossy woods and on mossy rocks. Bog earth, used to a very large extent by itself for plant culture of various kinds, is mainly decayed and compressed Moss. But these things would not justify anyone in giving rise to statements such as we give examples of from *Good Words*.

We ourselves tried this system as presented to us by the agents of the discoverer, and found, as we expected, that the plant—a *Ficus*—lived fairly well in the moist Moss. There was no advantage in the case in having the plant in Moss, because it would occupy no more space in good earth, which moreover would have been simpler and better for the house and its owner, as well as the plant, for the inventor, not having confidence in Moss alone, saturates it with some chemical which to us, as tested in a large room, had a slightly cadaverous, offensive, though not strong, smell. A pot of good earth never has any odour of the kind; but one could get that in the shed, whereas this prepared moss has to be bought like our patent medicines. The one use that such a plan would have is in enabling "floral decorators" to put plants in various elevated and awkward positions in rooms—in our country a matter of limited importance. If it would enable us to grow plants better indoors, the plan would be a gain; but it does not do this—on the contrary, it would make their culture more expensive and troublesome.

The following extracts from *Good Words* may serve to show the length to which want of judgment will urge persons who might write usefully if they would plead the claims of the no-earth plan in terms befitting its use and importance—and they are modest enough:—

"A Russian lady, suffering from intermittent fever, was attended by Professor Edward von Eichwald, of St. Petersburg. The disease readily gave way to quinine, but returned again and again in the most inexplicable manner. At last the cause was discovered; when she left her sick room convalescent she went into the salon, a large room filled with plants. Professor von Eichwald ordered the room to be entirely cleared, and the fever returned no more. Such malignant effects are impossible with fertilising Moss; it cannot turn sour like earth and poison the plants, or contain germs of malaria and poison their owner."

We need scarcely say here that various plants may be grown in a room without in the least tainting the air. The odour of certain plants in flower may be disagreeable, but there is nothing in a pot of sweet earth with healthy roots in it which anyone need fear. In the trial we made with this "fertilising Moss," there was, as we have said, an odour which, to sensitive persons at least, would be offensive, if not injurious.

"The object in the cultivation of vegetables being increased and regular productiveness, the plan adopted by the gardener of Vascœuil is to place their roots, enveloped as above described, in an ordinary bed of mould. The results are most satisfactory. We saw at Vascœuil as many as thirty fine Potatoes, the produce of one mother

tuber. Thus the poorest land may be made to teem with rich crops, the soil being of no importance, the earth merely affording room and shelter for the plants. Seedlings and cuttings are raised in the same way. In fact, the process seems to have all the characteristics of a great discovery—perfection in principle and indefinite powers of further development. The discovery of a nourishment applicable to all forms of vegetable life is the primary fact in the Dumesnil culture. The fertilising Moss agrees with every kind of plant, those that grow wild, as well as exotics, herbaceous or ligneous, ornamental or for food. By its fostering power with plants, natives of the Pyrenees, the Alps, the Carpathian Mountains, the Caucasus, and the Himalayas, introduced during recent years into English gardens, will, by this process, flourish under a simple glass all the year round."

These statements may be left to our readers' judgment, we think. Moss is a useful aid in its place, but much of the more important kind of plant culture in rooms may be carried on without its aid, and has been so carried on for many years in our own country and in others where room culture is more largely practised. It may be useful in various kinds of culture in light vessels or baskets for certain positions, but its use will be limited, by reason of the special sale of the fertilised Moss as a patented article. Such merit as it has, however, should not be used to unsettle people's minds as to the value of soil, in the way of which we have given examples from a periodical of large circulation and influence.—*Field*.

—Mr. Twist, Shipley, Yorks, also furnishes to the *Field* the following additional remarks on this subject: "I read the article on plants without earth in *Good Words*, and immediately got some, and proceeded to experiment. I got three small plants of *Polystichum angulare* var. *proliferum*, and put two of them in French moss only and the other according to directions. They all seemed to do all right, and so in a week or two I thought I would try some more Ferns, when, on casting my eyes round my fernery, I noticed some two or three *Lastreas* that were growing remarkably well on a very thin layer of Cocoa-nut fibre which I have upon the stone bench which runs round the fernery. The idea struck me that, if Ferns would grow under such circumstances, they did not need much fertilising. I then got some common moss off rocks and tried another *P. angulare proliferum* in it. It has done much better than those in the fertilised stuff. I think that moss is better for the majority of Ferns than soil, as they are much more easily kept in a uniform state of moisture."

An economical insecticide.—I am using at the present time a decoction for the destruction of green and black aphides, thrips, and mealy bug on Vines, which I find answers the end in view capitally, costs really nothing, and is within the power of anyone with a garden to manufacture at home. I bruise with a mallet 40 lbs. of common Laurel leaves and young shoots, put them into a copper with about 30 gallons of soft water, which is boiled for about an hour. The liquor is then of a nice sherry colour and of course very poisonous, but perhaps not more so than many insecticides. The above proportions of leaves and water I have used in the undiluted state, with soft soap in some cases to give it adhesiveness, and have found no ill results to occur even in the case of tender young growths of either indoor or hardy plants. It has been used this season, after exhausting our bought in remedies, on Peaches out-of-doors and in the Peach houses after the fruit was picked, on Cherries infested with that troublesome black-fly, on Melons for red spider, and on all with equally good effect, and it is so cheap that one need not be afraid of using it too abundantly. We keep now a good quantity of it always on hand, so that it can be got at for dipping or syringing at any time. For mealy bug I use it now instead of methylated spirit, and find it just as efficient as the latter. It is advisable when using it on trees carrying fruits to wash it off before it has had sufficient time to dry on the fruit. I mean to try

it on Apple trees overrun with American blight, and also as a winter dressing in stronger proportions than the above, and I anticipate good results from its use.—*SYLVESTRIS*.

ROSE GARDEN.

ROSES OF 1882.

AMONG the more striking and most beautiful of these the following deserve prominent notice. Even in cases where other Roses have been fine these have been still better. They have come in good form in most gardens and have appeared in the majority of winning stands. Alfred K. Williams.—Though this fine Rose has failed to grow to the satisfaction of many, and not a few amateurs have complained that their cut-backs have neither grown nor flowered, yet it has been the pride and glory of most of the premier stands. In size, form, substance, and brilliant carmine colour, it has been almost, if not quite, the best Rose of the season. Alfred Colomb.—This old Rose has also been in exquisite form, its lively red being always welcome. Baroness Rothschild is still supremely beautiful in the class of light pinks suffused with white. Beauty of Waltham was never seen in better condition in its brilliant cherry crimson hues. Camille Bernardin, brilliant crimson. Captain Christy has appeared on almost every winning stand, though I do not admire either its form or colour—rather a dead flesh. In striking contrast to this in every quality that goes to make up perfection in a Rose is the old and yet unrivalled Charles Lefebvre, which never showed a deeper velvety crimson or a finer form than this year. Countess of Oxford, rich carmine, and Comtesse de Paris, with its bright fiery red, appeared on most of the winning stands. The old, well tried Dr. Andry was in full size and form, and its deep carmine-red of the brightest and best.

The three Dukes of Edinburgh, Teck, and Wellington were never fuller of vermillion-crimson, scarlet or velvety-red than this season. It is hard to choose between such splendid Roses, but were I obliged to do so it is possible I might still cling to the older duke as the best of the three. Dupuy Jamain again took the lead among the brighter cerise coloured Roses. François Michelin is still the best in its class—deep rose, the petals silvered over with white on the under side. General Jacqueminot is still among the most brilliant and the very best of all the crimson-scarlet Roses. Horace Vernet, though an indifferent grower, and worse than that in many places, for it becomes small by degrees and beautifully less, must flower superbly where it deigns to grow, as its full, rich, velvety reddish-purple blooms testify. John Stuart Mill, though a newish red Rose, has already become indispensable to those who would win first honours. La Duchesse de Morny.—This is a very fine, bright rose-coloured variety, the undersides of the petals being silvered in the way of François Michelin. La France has been prominent, though rather thinner in petals than usual; the centre in not a few cases has also been of a more decided silvery white than ordinary, and in such blooms the rose, in the lilac part of the flower, has been less decided. Le Havre has thrown its brilliant vermillion colours on to many a winning stand. Louise Van Houtte, very fine deep scarlet-crimson. Madame Charles Wood has been specially fine with more of velvety crimson than rose in it as a rule. Madame Eugène Verdier, bright rose with silver shading. Madame Marie Verdier.—This is a new Rose of great promise. Madame Ducher.—This is another novelty that we would rather see again than express an opinion upon. Madame Gabriel Luizet, delicate silvery pink flower that forms a striking contrast to darker varieties. Madame Marie Finger is very much like, if not identical, with Mdle. Eugénie Verdier, a charming flesh coloured Rose.

Madame Vidot is a very delicate, flesh coloured Rose, said to be a very indifferent doer; Mdle. Annie Wood, rich clear red, full and beautiful; Marguerite de St. Amand, an exquisitely formed light pink variety; Marie Baumann, vermillion-

red, simply magnificent; Marquise de Castellane, large, fine, pure rose; Maurice Bernardin, brilliant vermillion, exquisite form, and like Ferdinand de Lesseps; Monsieur E. Y. Teas, a finely formed, very bright rose; Monsieur Alfred Dumesnil, a bright red new Rose of great promise; Mrs. Baker, bright carmine-red, in the way of Victor Verdier, but decidedly deeper in colour; Prince Arthur, brilliant, deep rich crimson; Prince Camille de Rohan—this is still one of the best of all the dark velvety crimson Roses; Senateur Vaisse, still the very best of the rich full dazzling reds; Ville de Lyon, a large full deep Rose with striking foliage; Victor Verdier, unequalled among the bright cherry red Roses; Xavier Olibo—hardly a winning stand is considered fully furnished without this old favourite, which is one of the largest of our velvety-black Roses, shaded with amaranth. Almost the only Noisette Rose that has been prominent at shows has been Madame Caroline Kuster, a beautiful soft yellow. The Maréchal Niel comes almost too early for the shows; it has, however, flowered fairly well in the open this season, though not so fine as I have seen it.

Among Teas the following popular sorts have been prominent; the practice of mixing the finer Teas with Perpetuals has done a great deal this season to secure the premier prizes: Adam, rose, large and fine; Anna Olivier, rosy flesh colour, large and beautiful; Catherine Mermet, a charming fine-formed, light flesh-coloured variety; Devoniensis, never seen in finer form than this season, creamy white and rose; Innocente Pirola, pure white, tinted with pink. This Rose has suddenly acquired great popularity. Jean Ducher, a striking chameleon-charactered Rose, yellow, shaded with salmon, or it may be pink or peach coloured, very distinct. Jules Finger, a bright red, a colour yet rare among Teas; Madame Angele Jacquier, deep coppery yellow, with a bright pink centre. Madame Bravy—This fine formed cream-coloured Rose continues to hold a first place among Teas. Madame Lambard—This is another changeable-coloured Rose, its normal colour being a brighter Rose than that of most Teas. Madame Welch, light yellow, with darker orange centre, very beautiful. Marie Van Houtte, next to Devoniensis—this has been the finest Tea Rose of the season. It has been simply superb, and in several cases has been awarded the prize as the best Tea in the show; yellowish white, with a deeper centre, and the outside of the covering petals tipped with delicate rose, exquisite in colour and form. Niphetos—This is without doubt the finest white Rose; it is mostly described as having a lemon centre, but the lemon is so pale as a rule as hardly to be distinguished from white. The outside petals are also at times slightly suffused with pink after the manner of Marie Van Houtte. Rubens, so like Adam, that it is classed by the Rose Society as identical with it. Souvenir d'Elise, a very fine creamy white flower tinted with rose. Souvenir d'un Ami, long the oldest and best of the Teas, salmon and rose, large, and of good form. No doubt some will miss their favourites from this list of Roses of the season, and as so much depends on local climate, &c., probably many may feel disposed to supplement this list with others that they have seen in good form. In this way a list of Roses of the season might be made up which could hardly fail to be interesting to rosarians at the present time, and also to prove useful in the future.

D. T. FISH.

Fremontia californica.—"W. G." in his interesting note about this plant, writes that in all cases it should be placed in a sunny aspect, for it seldom does well otherwise. Is this an absolute certainty? Some four or five years ago I purchased two specimens of it; and as I thought there might be some difficulty about it, I put one in a semi-shady position, and the other was quite exposed to the sun. In a very short time the latter succumbed altogether, while the first is alive to this day and has grown into a very magnificent shrub. I have seen *Fremontia* in two or three

other places, and I cannot call to mind its having a liking for a south wall, though such may be the case. I write to get information, but certainly my experience differs from that of "W. G." about this matter. I do not think it likes being cut in or touched with the knife. I remember hearing Mr. Joad say as much some few years ago at Wimbledon. —HENRY EWBANK, *St. John's, Ryde.*

TREES AND SHRUBS.

SELECT THORNS.

(CRATÆGUS.)

MAY is generally considered to be the month in which Thorns exhibit their greatest beauty, but

black dots, or the large yellow berries of *C. Aronia* and *C. tanacetifolia*, to show this; moreover, there is the black-fruited form of the common Hawthorn, also *C. nigra* and *Douglasi*, all of which are very interesting. Amongst the American kinds, too, there are some whose foliage tints are lovely in autumn, and as most of them are as hardy and as indifferent as regards soil as the common Hawthorn, it is certainly surprising that they are not more extensively planted than they are. *C. Pyracantha*, a favourite wall plant, is remarkable in winter for the bright hue of its large clusters of berries. Of the common Hawthorn (*C. oxyacantha*) there are a great many varieties, all of which differ from each other more or less in their flowers, fruit, foliage, or manner of growth,

far-famed Glastonbury Thorn. Besides the well-known red berries of the common kind, there are varieties in which the fruit is yellow, green, or, as noticed above, black. The deeply-divided leaves of *laciniata* both afford variety and give to the tree a light and airy appearance, while two very curious forms are *flexuosa*, the twisted and gnarled branches of which remind one somewhat of those of *Robinia tortuosa*, and *salisburiaefolia*, whose style of growth and shape of the leaves bear a good deal of resemblance to those of the Maidenhair tree (*Salisburia adiantifolia*). Of course among the great number of Thorns raised from seed every year more or less well-marked forms are continually cropping up, but those already mentioned are some of the most distinct.

The *Aronia* Thorn (*C. Aronia*) is a moderate-growing tree with slightly fastigate branches and much-divided leaves. Its flowers are produced after those of the common Hawthorn, and are succeeded by large yellow haws of a rather agreeable flavour, so much so that they are eaten along the Mediterranean shores, where it grows in a wild state. *C. Azarolus*, like the preceding, has large edible fruit, but red instead of yellow. It is a vigorous-growing Thorn, becoming, indeed, quite a tree, with a large head of rather upright-growing branches not so much crowded as in many of the others. The variety *maroccana* is altogether smaller than the preceding, but it retains the same tree-like character, and, therefore, is better suited for planting where space is limited. The scarlet Thorn (*C. coccinea*) is a bold, vigorous-growing American species which flowers at the same time as the majority of Thorns, and during autumn becomes heavily laden with medium sized bright red fruit. Its foliage, too, is very ornamental, being large, shining, and bright green until towards autumn when it assumes lovely yellow or yellowish scarlet tints. The spines of this species are long and formidable, but in most cases sparsely produced. A nearly allied kind, or, as contended by some, a variety of the above, is *C. glandulosa*, a small-growing, densely branched tree with an unusual number of spines. *C. cordata* is very valuable on account of its late flowering habit, in which respect it is even more tardy than the Tansyleaved Thorn; it may, indeed, be sometimes seen in full beauty after that kind is over. It forms a small tree, compact and regular in outline; the leaves are dark green and shining, and the berries deep red, but not bigger than those of the common Hawthorn. The Cockspur Thorn (*C. crus-galli*) is one of the most frequently planted of all the American kinds, and also one of the most ornamental. In the typical form the leaves are bluntly ovate, of a bright shining green, and the whole aspect of the tree low and spreading. Of this there are many varieties, of which the principal are—*arbutifolia*, a kind in

which the leaves are larger, and the whole plant more vigorous than the species; *linearis*, *salicifolia*, and *pyracanthaefolia*, small growing forms with narrow leaves, and when on their own roots spreading bushes, but, as usually seen, viz., grafted at 4 ft. or 5 ft. from the ground, the branches spread out horizontally all round in such a way that, although they form a large, flat head, the plant increases but little in height. These varieties are well adapted for planting in confined spaces; or, indeed, a suitable spot can easily be found for them in any garden. The



Cratægus glandulosa.

their flowering season is in reality spread over a much longer period, i.e., if we begin with the Glastonbury, which often opens before winter has left us, and end with *C. tanacetifolia*, *C. pyrifolia*, *C. cordata*, *C. parvifolia*, and some varieties of the Cockspur (*C. crus-galli*), which flower up to the end of June. But not only are Thorns attractive when in flower, they are equally ornamental when

some being much handsomer even than the type. In one respect the common Hawthorn stands out prominently from the rest, and that is in its flowers being of various hues, ranging from white to the deep crimson of Paul's Thorn. Another point is the existence in the common Hawthorn of both double and single flowers of various colours—the only Thorn, as far as I know, in which double flowers are produced. A distinct and little known variety is that known in nurseries as *Gumperi bicolor*, a kind with white flowers edged with red. *C. Oliveriana* is in general aspect like the common Hawthorn, but it does not flower until near the middle of June, and its small leaves and black fruit are distinctive characters sufficient for all practical purposes.



Cratægus pyrifolia.

in fruit. One has but to mention the deep scarlet berries of *C. coccinea*, the yellowish red fruit of *C. orientalis*, that of *C. punctata* studded with

As regards peculiarities of growth, variegation, and period of flowering, we have *pendula*, *variegata*, and *præcox*, the last named being the

flat, tabuliform shape that they assume is very different from that of most of the other inmates of our shrubberies, and as the foliage is bright and

glossy and almost evergreen, they are very desirable white-flowered kinds. *C. crus-galli ovalifolia* and *prunifolia* are two large-growing varieties, the former being loose and spreading, the latter more upright.



Crataegus crus-galli ovalifolia.

C. Douglasi is, as regards fruit, a very distinct kind, the colour being dark purple, and in some cases nearly black. It is a large shrub—indeed, almost a small tree—and is a native of North America. It belongs to the early flowering section, and though pretty when in bloom, its best state is when laden with haws, which are freely produced. Another dark-fruited kind, a native of Europe, is *C. nigra*, the fruit of which is even darker than that of *Douglasi*, but smaller, being only about the size of haws of the common Thorn, the berries of *C. Douglasi* being twice as large. It is a small early-flowering tree when grafted, but on its own roots it throws up suckers freely. Its general aspect is that of an upright, vigorous, large-leaved variety of the common Hawthorn. *C. macrantha* is like a strong-growing form of the Cockspur Thorn, but has very long curved spines, in this respect greatly surpassing any of the others. A well-marked and highly ornamental Thorn may be found in some nurseries under the name of *C. pinnatifida*; it has leaves fully 6 in. long, and so deeply lobed as to become pinnate, there being usually four divisions on either side. It forms a small tree of open character, and from the unusual shape and size of the leaves which, owing to the length and weakness of the foot-stalks are pendulous, it at once attracts attention. *C. parvifolia* is quite a miniature kind, forming a dense dwarf bush of very slow growth. Its leaves are small, being but about 1 in. in length, but the flowers are among the largest of the genus. They are solitary, pure white, and open very late in the season. It is a pretty little shrub, especially when in bloom or in fruit, which is yellowish green. *C. punctata* resembles the scarlet Thorn (*C. coccinea*), but its fruit, which is larger and nearly round, is dotted with black, hence the name. *C. Pyracantha*, to which allusion has already been made, is a native of the south of Europe, but has a representative in Nepaul, from whence comes the variety *crenulata*, which is in every way larger and more tender than the species. Another kind brought into prominence within the last few years is *C. Lelandi*, a more vigorous growing kind and larger both in flower and fruit. For covering walls it is superior even to the common kind. Although principally considered as berry-bearing shrubs, the different forms of *Pyracantha* are very pretty when in flower. *C. pyrifolia* is a handsome Thorn,

which flowers about the same time as the Cockspur, but both the leaves and flowers are larger than those of that kind, besides which it is generally without spines. As a late flowering Thorn this ranks high; it is of vigorous growth,

which show off the small brown stamens to advantage. Of the many varieties that exist of this kind the most distinct is *glabra*, the leaves of which are, instead of being hairy, quite smooth and shining. It is, moreover, slighter in growth and more dense than the ordinary form.

The propagation of Thorns is in most cases simple enough, seeds being produced in such quantities, but of course these can only be used in the case of well-marked species; the different varieties must be increased by grafting or budding. Grafting is done, as in the case of fruit trees, in spring, and budding whenever the bark and buds are in a fit condition for the purpose—generally about the time when Roses are budded. As several seeds are contained in each fruit, they must be separated before sowing; this can easily be done with the fingers if few in number, but when in quantity they should be placed in a heap out-of-doors and covered with sand or soil till the pulpy matter rots off, and then sown in the ensuing spring in the open ground, or if choice and in small quantities, pots or pans may be used; in the latter case they should be kept in a pit till the seedlings have made a few leaves, as if set outside they may perhaps get dry just as germination commences, and thereby lost. Individual characteristics are not, as a rule, reproduced in the case of seedlings, but still by careful selection unlooked-for properties may be secured.

ALPHA.

Encroaching tree roots.—I should feel much obliged by some information as to the means to be employed effectually to grow plants and small shrubs and climbers in a piece of rough ground in my garden which has several large forest trees growing in it, and consequently so filling the ground with roots that everything is choked. Plants have again and again been put in in large holes well filled with good soil, but all to no purpose. Would it be any use to trench the ground all over?—M. B. J.

Conifers from cuttings.—In looking round the gardens at Albury lately we were surprised at the great numbers of graceful young conifers which have been raised from cuttings by Mr.



Crataegus maroccana.

none, is of a peculiar flattened shape and yellowish green when ripe, and from the large adherent bracts easily distinguished from that of the others. It is a late flowered kind, with pure white petals,

Kemp, and now flourish there. The question sometimes arises as to the profitableness of grafted seedling trees; but there is another alternative, and it seems established beyond a doubt that per-

fect and symmetrical growth is produced by cutting plants. Among the trees at Albury which are noticeable as having been raised in this way, we saw a considerable number of the handsome Californian *Thuja gigantea*, and there are very fine specimens indeed of *Thujopsis dolabrata*. These noble trees did not seem in the least affected by recent winters, but were as fresh and green as possible. We spoke sometime ago of the beauty of *Thujopsis dolabrata* at Battle Abbey. Specimens both of the variegated and green form are equally remarkable among the Surrey hills. This beautiful Japanese tree seems to have established its claim for great hardiness as well as singular beauty and massiveness of character. In days when the *Araucaria* and *Wellingtonia* perish so often from frost or cold it is well that we have some trees that prove their fitness to rank in hardiness and beauty with our Scotch Fir, a group of which on the hill above the terrace at Albury is so very picturesque. Among the evergreen lawn trees which we there also enjoyed was the Canadian Hemlock Spruce, feathered to the ground and pushing out its young green the first week in June. We have often felt disappointed with this tree in the slowness of its growth, having read so much of its fine proportions in America, and seeing it usually so poor here as regards size and growth; but it has come so well through recent winters that have killed many things, and its habit is so charming, especially when the fine dark green is dotted with the young green of early summer, that we begin to regard the Hemlock Spruce as one of the most beautiful of trees of our gardens or woods.

ORNAMENTAL ARBORICULTURE.

BY PROF. ROBINSON, OF SALEM.

THE following excellent paper on this subject, though written for tree lovers in another climate, contains a good deal that will interest all who care for trees in this country, and especially those who plant them in northern districts. The paper was read before the Massachusetts Horticultural Society, and is from their excellent Transactions.

To make a plantation which shall contain a desirable variety of trees adapted to the situation in which they are to grow, and calculated to remain a lasting benefit, requires a knowledge of physical geography, especially that which relates to the influence of climates upon plant life. Modern science teaches us that Nature has, in the countless ages of time, evolved for each and every climate a class of plants especially adapted to the influences by which they are surrounded. She has, in particular instances, by gradual and imperceptible changes, adapted groups of individuals of a species to flourish in a climate differing totally from that in which other individuals of the same species are found. Hence, individuals taken from one locality may be perfectly hardy, while other individuals of the same species from other localities fail utterly to endure our climate. For example, the small-leaved *Magnolia*, taken from Massachusetts or the Middle States, is perfectly hardy here, while plants of the same species brought from Florida would not survive a single Massachusetts winter. Under the present theory of the distribution of species, based upon a careful study of geology, our existing flora is considered, with a few rare exceptions, to have been disseminated from a common centre at the north, and to be the result of the inexorable law of the survival of the fittest species or individuals for the places they were forced to occupy. It is useless, therefore, to attempt to remove a plant from a climate to which its ancestors have for ages of time become inured, and expect it to thrive in a different one. We should not give a moment's thought to a proposition to plant the *Victoria regia* of the Amazon in the pond on Boston Common: yet with trees attempts hardly less absurd have been persisted in, simply because the climatic conditions of the regions from which it has been attempted

to introduce them were not studied, the latitude from which they were taken only being considered. A glance at a map of the northern hemisphere shows us that the configuration of the east coast of the continent of Asia is quite similar to that of Eastern North America, and that in the Pacific Ocean, as well as in the Atlantic, a warm ocean current, commencing at the south-west and flowing across the ocean, disappears at the north-east. Therefore, the coast climate of one continent may be expected to closely resemble the corresponding coast climate of the other, which, in point of fact, it does, the climate of North-eastern Asia resembling that of New England and Eastern North America, while that of California and Oregon is not unlike the climate of Western Europe. There are also, in various portions of the globe, certain conditions which tend to produce local climates quite different from the surrounding regions, and, in some respects, not unlike our own. Some such districts are already known to us, and others may yet be discovered. Working upon these facts, we may arrange in order the regions from which we are obliged to select trees for cultivation in New England, and beyond which, unless in rare, exceptional cases, it is useless to go to add to our collections. This order is as follows: 1. The Alleghanian region of North America, which includes New England and Canada, and extends southward to the mountains of Northern Georgia and Alabama, and broadly to the eastern base of the Rocky Mountains. 2. The eastern coast of Asia, north of about latitude 38° and including Northern China, Manchuria and Northern Japan. 3. Regions with climates not sufficiently differing from that of New England to interfere with the adaptability of the plants of such regions to our climate. The Central Rocky Mountain region, portions of Siberia, the Caucasus, Turkestan, and possibly Thibet, are illustrations. 4. To the plants from the regions already indicated may be added certain cosmopolitan species which inhabit widely different localities, and seem to flourish everywhere in the Old World.

To the Alleghanian, the first of these regions, too much attention cannot be paid, for here in a comparatively limited area is found a more extensive collection in number of species of desirable forest trees than is furnished by any region of similar size in the temperate zone, with the possible exception of Japan. There are more species than is possessed by the whole continent of Europe. Neither do the trees from this region require to be experimented with to ascertain their fitness for cultivation in our grounds, for they are of our own flora. But before entering upon the Southern Alleghany Mountain region, where there are many species not natives of New England, we need go no farther than our own woods to find many of the most desirable trees to plant for ornament; trees which in Europe have been eagerly sought for two centuries as great prizes, but which in our own country have been too long neglected for general planting. What tree is more desirable in every way than the Sugar Maple, or for single specimens more interesting than the Hickory? Our Oaks rank among the most magnificent trees in the temperate zone, while the Tupelo, Beech, Sassafras, Hornbeam, the Birches, and the Ashes among the deciduous trees, and the white and red Pines and Hemlock among the evergreens, are all valuable trees for ornamental purposes. To these may be added from among the lower growing species the *Hamamelis* with its November flowers; the gorgeously fruited *Sumachs*; the *Amelanchier*, too often overlooked; the Dogwoods, including the conspicuous *Cornus florida*, and the *Viburnums*. All these grow naturally within twenty miles of this spot. There are besides, in the immediate neighbourhood, a number of trees, which, although not suited for all soils and situations, are, nevertheless, adapted to certain localities. Among such are the American Elm, which flourishes best in the alluvial river meadows, and the true white Cedar of the low swampy lands. As previously stated, one of the greatest storehouses for tree species in the temperate zone is the region of the Southern

Alleghany Mountains. In Pennsylvania and the mountains southward are nearly two-score of trees which, although belonging to the same flora as our own, are not natives of Massachusetts, but are certain to succeed in our ornamental plantations.

There are five species of *Magnolia*, most of which are considered as rare trees in cultivation. We have the Buckeyes—the red and yellow flowered larger species, and the white flowered shrubby one; the *Cladrastis* or Yellow-wood, fine specimens of which are now to be seen on many of the older estates in this vicinity, and one magnificent specimen at the Botanic Garden, Cambridge, over 30 ft. high, with a trunk 2 ft. in diameter. There is the Red-bud, which, with its prodigality of deep pink flowers, presents in spring a most beautiful appearance. Among the plants of the Rose family are two species of *Cratægus*, one somewhat resembling the scarlet Thorn; and the American Crab Apple, desirable for its fragrant flowers and marketable fruit. We have the *Viburnum prunifolium*, resembling our Sheep-berry, but a larger growing tree; the *Halesia* or Silver-bell tree; and the Persimmon, whose fruit ripens in this vicinity and should be added to our garden products, and find the place it deserves upon the exhibition tables of this society. The Virginia Fringe tree, although frequently seen in cultivation, should be more extensively planted, and the Winged and Slippery Elms and the Chinquapin are not so often seen as they deserve to be. Of the Oaks there are a large variety. Besides the eight species more or less common in the woods of this vicinity, there are five others which may be added from the region a little south of us, that are now seldom met with in cultivation here, which differ in foliage and in fruit strikingly from our native species. Among them are the Willow Oak, the Pin Oak, and the Burr or Over-cup Oak. This last species is likely to prove the rival of the white Oak in the value of its wood for mechanical purposes, on account of its durability in exposed situations, where it resists decay seemingly longer than that of any other species. Among the conifers are the Table Mountain Pine and the Bald Cypress, both of which are perfectly hardy. To this list may probably be added a newly discovered Hemlock, with larger cones and longer leaves than our own, known as *Tsuga caroliniana*, and the *Rhus cotinoides* (somewhat resembling the European Smoke tree) which has been lately re-discovered in the mountains of Alabama. From the west of this region, and yet within the limits of its flora, are the *Fraxinus quadrangulata* (blue Ash) of Michigan, a beautiful forest tree with valuable timber, and the western Catalpa, but recently distinguished from the southern species with which it has been confused. This last adds to our collections, without doubt, a tree at once beautiful as an ornament, and of great value on account of its almost imperishable timber. There are also at the west the *Ulmus racemosa* and *Carya sulcata*, or western Shag-bark Hickory, both fine trees. At the north are the grey Pine and white Spruce, the latter one of the best of its class that we can cultivate.

The second region to which we may look with the expectation of adding extensively to our collections will be, as indicated previously, Manchuria, Northern China, and Northern Japan. There are already in cultivation from these countries a great many valuable ornamental plants, but still more may be added. Among those familiar to us from China and Manchuria are the *Wistaria*, *Deutzia*, and *Weigela*, all of which are now widely distributed in our gardens, as is also, though perhaps less extensively, the *Magnolia conspicua*. Of the trees from this region which are likely to find their way into general cultivation as they become more accessible are several species and garden varieties of *Magnolia*, a Tulip tree, the *Phellodendron amurense*, the Chinese *Tamarix*, a much finer and later flowering species than the European tree, which is commonly met with in cultivation; a Linden, a Horse Chestnut, and several Maples, one of which, a variety of *Acer tataricum*, bears

deliciously fragrant blossoms. There is also *Cladastis amurensis*, a relative of our well known Yellow-wood; a Honey Locust, a *Gymnocladus* resembling the corresponding American species; a Hawthorn, two Plums, an Ash, two Birches, a *Pterocarya*, which may be described as a relative of our Hickories; besides an Oak and the Manchurian Walnut. These are all deciduous trees. Among the conifers are the *Taxodium*, occasionally met with here under the name of *Glyptostrobus*; the Chinese Juniper, which much resembles our own red Cedar; the *Pseudo-Larix*, a curious relative of the Larch; and two Pines, one of which, *Pinus Bungeana*, common in the vicinity of Peking, is at once recognised by its white bark. To the west of this region, in Siberia, are the Caragana, an Elm, and *Picea obovata*, all of which are desirable trees for cultivation here.

Japan, however, can probably furnish more desirable trees for New England ornamental plantations than even the continent of Asia. Already there are many species both of woody and herbaceous plants in quite general cultivation from that country. Among the Japanese trees now known to succeed perfectly here are several Maples, including the well-named species, *Acer polymorphum*. This little tree has already won the admiration it deserves, and is rapidly finding its way into our collections in numerous varieties, some of which, when judged by the standard of beauty and their ability to withstand the hot summer sun, are much more desirable than others. Nearly allied to the Maple is the *Negundo cissifolium*, and also thoroughly tested are the *Sophora* and the curiously fruited, yellow-flowered *Koelreuteria*. Two Apples and the *Idesia* are perfectly hardy, and there may also be added a Chestnut, a Walnut, and an Alder, which have proved satisfactory, besides the *Phellodendron japonicum*, the *Zelkova*, an Ash, two Birches, and more than one Oak, which, although no doubt exists regarding their hardiness, have not yet been in cultivation here long enough to be considered as tested. Among the Japanese conifers we find an unusually large number suitable for our purposes—far more than can be obtained in any other region. Of the Pines there are three desirable species; one, the *Pinus densiflora*, has been introduced under the name of *Pinus Massoniana*, which belongs to a more southern Chinese species, not, probably, hardy with us. There are two Spruces, a Hemlock, closely resembling our own, a Larch, and the Umbrella Pine (*Sciadopitys*), already thoroughly tested here. We have besides a long list of *Retinosporas*, which some recent authors have placed under the old genus *Thuja*. They are more nearly related to our true white Cedar than any other New England species. Many of the varieties of the *Retinosporas*, of which there are a great number in cultivation, are very graceful and interesting plants. Of the permanency of these varieties not much can be said. Actual observation proves many of them to be but juvenile forms of well-known species, which, as they grow older, change their characters and take the normal forms. Carrière, a French writer on the Coniferae, has happily called them the "larval forms" of the mature plants. All the *Retinosporas* of our gardens may probably be referred to two or three typical species, although some of the varieties may prove more permanent than others. The cultivation of ornamental plants has been practised in

Asiatic countries for a great length of time, and hence more garden varieties may be expected from this region than from almost any other. In fact with many plants from these countries it is often difficult to determine what is the typical form of the species or its original habitat. Of the Asiatic conifers, the *Ginkgo* has probably been cultivated here longer than any other species, the tree on Boston Common being at least fifty years old. It has usually been considered a native of Japan, but recently this has been doubted. In a paper "On the Conifers of Japan," Dr. Masters says, in reference to the distribution of species, "Before leaving the

subject of the distribution of Japanese conifers a word may be said as to the occurrence of certain trees (often of peculiar organisation) in the immediate vicinity of the temples in Japan, China, Thibet, &c. In some of these cases the trees are not known in a wild state, the aboriginal stocks being either extinct or lurking in some of the all but unknown districts of the Chinese empire, Thibet, or Central Asia. Among such may be mentioned as worthy the attention of students of Buddhist lore—*Cupressus funebris* (China, Sikkim), *Abies Fortunei* (China), *Abies Kämpferi* (China), *Cryptomeria japonica*, *Sciadopitys verticillata*, *Ginkgo biloba*, and certain species of *Pinus*. The regions thus far considered are the ones, and the only ones, from which we may add extensively to our collections. Among the regions where a few additional species may be found—in some cases very valuable ones—is

The Rocky Mountain region of Colorado.—Here many species of the Pacific flora flourish in company with eastern species, and hence this region may be considered as the common meeting ground of the Atlantic and Pacific floras. From this region have come two of our most desirable ornamental trees. These are the Blue Rocky Mountain Spruce and the Douglas Fir. The Blue Spruce has been fairly tested here and proves perfectly hardy. There are several specimens in the vicinity of Boston which have reached the height of 15 ft., retaining a beautifully compact form. Individual specimens vary much in colour, from a dark green to the striking glaucous blue so much admired in many specimens. This tree is known most frequently by the incorrect name of *Abies Menziesi*, hastily given it by Colorado botanists. It should be known as *Picea pungens*. The Douglas Fir is scarcely less beautiful, and is quite as hardy, having been tested here equally long. From an economic point of view—a side of the question which should not be lost sight of even in cultivating trees for ornament—the Douglas Fir is one of the most valuable trees now existing in North America, and may in the future occupy the place likely soon to be vacated by our native Pines and Spruces; when, if forest culture is systematically conducted in Massachusetts, it will be a source of much profit to our people. From this Colorado region also have been introduced, with success, a Hawthorn, a Poplar, the White Fir (*Abies concolor*), *Pinus flexilis*, *Pinus ponderosa*, and *Picea Engelmanni*, the latter resembling, but distinct from, the Blue Spruce (*Picea pungens*), and not unlike our northern White Spruce. There are also not often cultivated here a Pine, a Larch, and a Spruce. The Pine (*Pinus contorta* var. *Murrayana*) has withstood the winters of late at the Arnold Arboretum in good condition. The plants introduced from this region possess a remarkable interest, and establish beyond a doubt the value of experimental stations where scientific tests may be applied to tree culture. As has been suggested in a previous essay, the plants raised from the seeds of certain Colorado trees prove perfectly hardy here in New England, while those raised from the seeds of the same species of tree collected in the milder, moister climate of the Pacific slope have failed to endure our climate, but flourish perfectly in England, where most of the trees from the Pacific slope find themselves at home, thus proving by actual experiment the analogy between the climate of the North-western United States and that of Western Europe. Again, turning to

The eastern hemisphere, among the regions from which we may hope to add plants for cultivation here is a portion of Turkestan, from whence already an Ash has been obtained. From Thibet, the *Pinus Gerardiana* promises to prove hardy, and similar results may be expected from some trees in portions of the Himalaya Mountains. From the region of the Caucasus we have still more species—a Maple, the *Zelkova crenata*, the *Pterocarya fraxinifolia*, a fine specimen of which stands in the Botanic Garden at Cambridge; the *Carpinus Duanensis*, long cultivated here, though not extensively; and among the conifers, *Abies cilicica*, *Abies Nordmanniana*,

and *Picea orientalis*. Of the last two species, specimens may be seen on some estates near Boston 15 ft. high and of fine appearance. From the Balkan Mountains of Roumelia, which is now considered its original home, though it was introduced here by way of Europe, we have the Horse Chestnut. This tree, in proper situations, possesses a stateliness unequalled by any other, and its magnificent show of blossoms in the month of May never fails to attract attention.

As it is said that "the exceptions prove the rule," we resort to the exceptional species from regions whence it is generally useless to attempt to introduce trees with the prospect of satisfactory results. There are certain species of trees whose geographical range is of such wide extent, that they seem to have acquired a special power to adapt themselves to different climates. Among such are the White Willow and the European Elm. Both of these trees are familiar objects to us, having been brought here by the early colonists as reminders of their old homes. The European Elm proves, for city streets, superior to the American species, which has unfortunately been selected as the one American tree for constant service. The American Elm, although of surpassing beauty in a moist alluvial soil and with abundant space, is usually planted in a dry soil, where it does not flourish, and its drooping branches make it generally unsuitable for narrow streets, where it is frequently seen. The English Elm, however, is more erect in habit, retains its foliage longer in the autumn, and withstands the smoky and dusty atmosphere of our cities far better than the American species. The European should, wherever possible, replace the American Elm in our city streets. The European Larch is another tree of this class. Growing naturally in a dryer soil, it is much more suitable for our gravelly hills than the meagre foliaged American tree, which finds its home in low, wet grounds. The Norway Maple, too, in situations near the ocean may, perhaps, be considered the most desirable among the foreign Maples for general cultivation, and the conspicuous yellow blossoms coming before the leaves appear give an additional value to the tree. The Turkey Oak, *Fraxinus ornus*, *Tilia argentea*, and *Acer campestre* may be added as desirable, and also *Carpinus Betulus* and *Salix laurifolia*, and, perhaps, also *Tilia dasystylis* and *Quercus pannonica*, but the last two are not fairly tested. Among the conifers which may receive mention here is *Thuja Wareana*, usually called Siberian Arbor-vitæ, and considered a native of Europe. It is in reality a seedling variety of our own New England *Thuja occidentalis*. From its preference for drier soils it is much better adapted for cultivation than the typical form, which flourishes only in wet or low grounds, and is of little service in ordinary plantations. From the Pacific slope we have as exceptions the *Rhamnus Purshiana*, well known in medicine; the Vine Maple, and, possibly as serviceable in favourable situations, a Hawthorn, a Crab Apple, a Poplar, *Abies amabilis*, *Abies nobilis*, and *Picea sitchensis*, but these need a more extended test. Among the European trees most common in cultivation is the Sycamore Maple, specimens of which at fifty years of age are worthless. The other European Maple, the Norway, is, however, suitable for certain situations, as already stated. Neither of them are so beautiful as our Sugar Maples and even the white and the red Maples hold their own against them in favourable soils. The European Mountain Ash, more frequently seen in cultivation than either of the American species, seldom matures, except in a miserable condition, and the European Linden possesses but one advantage over our own—that of having more fragrant blossoms, while the American tree is otherwise its superior. The European Ash cannot claim to even equal the American white Ash either as an ornamental or as a useful tree, and neither the European Beech nor the Birch compares in cultivation here with the corresponding American species. Our Chestnut is superior to its Old World relative, and the black Walnut, or even the Butternut, is far better for us than the Walnut of

Europe. The English Oak fails here in less than fifty years, when it should be hale and hearty at a thousand. Probably no European tree has been more extensively introduced into cultivation than the Norway Spruce for ornament as specimen trees, for wind-breaks, and for hedges, and yet New England possesses in the white Spruce of the northern forests a tree every way its superior; or, were it possible to replace the Norway by the blue Rocky Mountain Spruce, which is suited for all purposes, the improvement would be great indeed. The same comparisons may be made in favour of the American Pines. The white Pine far surpasses either the Austrian or the Scotch Pine as an ornamental and useful tree. The red Pine, which is even now found growing naturally in Massachusetts, while it resembles the Austrian Pine somewhat in appearance in the young state, is just beginning its maturer life when the Austrian Pine is failing, as it almost always does in the course of thirty years. The common Pitch Pine, often overlooked, is for us a much more valuable tree for planting in a sandy soil than either of the European species. It is a very common error to suppose that by what is popularly known as

Acclimatation almost any plant may be made to flourish in a climate where it does not naturally grow if it only can be inured gradually enough to the change. This theory has been proved false by actual experiments. It is not, therefore, by habituating to our climate plants from regions differing totally in climate from our own that we should expect to add to our collections, but by carefully studying the climatic conditions of all countries, and selecting from such regions as seem to possess a climate resembling ours plants which we can cultivate here with the prospect of success. We cannot, therefore, too highly estimate the value of the work contemplated by Harvard College in establishing the Arnold Arboretum. In 1874 a tract of land on the Bussey estate, in West Roxbury, near Boston, was set apart by the college for the purposes of an arboretum. A collection of living plants was at once commenced, both of native species and of those from other portions of the temperate zone. By a system of exchanges with institutions of similar character in other parts of the world the collection was rapidly augmented, so that at the present time it contains a larger number of species and varieties of hardy trees and shrubs than any other collection in this country. It is intended as soon as practicable to plant along the roadways the species of trees and shrubs, both native and foreign, in the order of their botanical sequence, and to have them so grouped that the plants of one family will be together and readily studied. All the varieties, too, of a species will find their appropriate places in the systematic order, that the visitor may acquaint himself with their position, and readily compare them with the species from which they are supposed to have been derived. By this arrangement it will at once be seen what species and varieties are most worthy of cultivation, and in what countries or portions of countries the plants best adapted to our wants are found. Those which prove failures will also be pointed out, that we may know what to avoid in making our selections. In other portions of the grounds it is intended to illustrate the methods of making artificial forests and the different ways of planting trees for economic and ornamental purposes.

Arboriculture is indebted to horticulture for the production of many valuable garden varieties of trees. The magnificent variety of Rhododendrons and Azaleas, and the hybrid Magnolias and other plants, attest the zeal and success of enlightened horticulturists, and by the preservation of such natural sports as the purple Beech and some of the cut-leaved Birches and Maples, as well as the finer sorts of weeping trees, horticulturists have contributed many valuable additions to our ornamental collections. But there is a tendency to overdo this as well as other branches of gardening, and we find the absurd practice too much in vogue of saving and perpetuating many monstrosities which should never receive a place

in any collection. There are long lists of golden-leaved, cut-leaved, and blotched-leaved varieties, which are but diseased and short-lived abnormal conditions and arrested growths of healthier plants, and are wholly unworthy of preservation. Nor can much more that is favourable be said of the many so-called "inverted" varieties of hardy trees. This fashion is as unhealthy as the plants themselves, and should be as short-lived. If one-tenth the energy which is devoted to the propagation of such plants were given to the study of climate and the introduction of new species, our gardens and plantations would better illustrate the advances that modern science has made in botanical geography and the knowledge of plant life. Nor is it enough to select and secure proper trees for our plantations; it is as necessary to properly care for them as to plant them. Too little attention is paid to the proper thinning and pruning of our trees. It is a subject little understood or practised here, although in Europe its importance has long been recognised, and pruning forms an important part of the arboriculturist's duty. The want of proper pruning and care is especially noticeable in our city and roadside trees. They are too often left to themselves, or else mutilated in rude attempts at unscientific pruning. To supply information on this important subject, the Massachusetts Society for Promoting Agriculture has recently caused to be translated from the French a treatise from the pen of the Comte des Cars, a work which has passed through many editions in France, and which is of great practical value. It should be in the hands of everyone who has charge of trees, or is interested to see them properly managed. Could Mons. des Cars's directions be followed, the trees on Boston Common and in the parks and streets of our cities would present a very different appearance, and their chances for long life and greater beauty would be immensely increased. One of the most experienced and scientific horticulturists, whose name is known wherever the study of plants is pursued, has said: "It is the duty of our enlightened community to plant trees, and to so care for them that posterity shall not suffer—a duty, unfortunately, too little regarded in our day."

List of trees which may be used for ornamental plantations in the Northern United States, arranged under the regions indicated above. Such as have not been thoroughly tested, but which may be expected to succeed, are marked by an asterisk:—

I. APPALACHIAN, OR ATLANTIC AMERICAN.

Magnolia acuminata (Cucumber tree)	Cercis canadensis (Red-bud)
cordata	Gleditsia triacanthos (Honey Locust, three-thorned Acacia)
Fraseri	Prunus americana (Canada Plum)
glauca (Sweet Bay)	pennsylvanica (Bird Cherry)
macrophylla	serotina (Black Cherry)
Umbrella (Umbrella tree)	Pyrus americana (American Mountain Ash)
Liriodendron Tulipifera (Tulip tree)	sambucifolia
Tilia americana (Basswood, Linden)	coronaria (American Crab)
* heterophylla (Southern Linden)	angustifolia
Esculus flava (Sweet Buckeye)	Crataegus cordata (Washington Thorn)
glabra (Ohio Buckeye)	Crus-galli (Cockspur Thorn)
Pavia	coccinea (Scarlet-fruited Thorn)
Acer dasycarpum (White or Silver Maple)	sub-villosa (from the valley of the Mississippi)
pennsylvanicum (Striped Maple)	tomentosa (Black Thorn)
rubrum (Red or Swamp Maple)	Amei-lanchier canadensis (June-berry)
saccharinum (Sugar Maple)	Cornus florida (Flowering Dogwood)
var. nigrum (Black Maple)	Nyssa multiflora (Tupelo)
spicatum (Mountain Maple)	Viburnum Lentago (Sheep-berry)
Negundo aceroides (Box Elder)	prunifolium (Black Haw)
Rhus typhina (Stag's-horn Sumach)	alternifolium
glabra	Oxydendrum arboreum (Sorrel tree)
* cotinoides	Kalmia latifolia (Laurel)
copallina	Rhododendron maximum (Great Laurel)
Robinia Pseudacacia (Locust)	Diospyros virginiana (Persimmon)
viscosa (Clammy Locust)	Halesia tetraptera (Silver-bell tree)
Cladrastis tinctoria (Yellow-wood)	Fraxinus americana (White Ash)
Gymnocladus canadensis (Kentucky Coffee tree)	

Fraxinus viridis pubescens (Red Ash)	Fagus ferruginea (Beech)
quadrangulata (from Michigan, &c.)	Ostrya virginica (Hop Horn-beam)
sambucifolia (Black Ash)	Carpinus caroliniana (blue Beech, Iron Wood)
Chionanthus virginica (Fringe tree)	Betula alba var. populifolia (White or Grey Birch)
Catalpa bignonioides speciosa (Western Catalpa)	lenta (Black or Sweet Birch)
Sassafras officinale	lutea (Yellow Birch)
* Ulmus alata (Winged Elm)	papyracea (Paper or Canoe Birch)
americana (White Elm)	nigra (Red or River Birch)
fulva (Shippy Elm)	Alnus incana (Speckled Alder)
racemosa (Rock Elm, from Western States)	serrulata (Blunt-leaved Alder)
Celtis occidentalis (Nettle tree)	Salix nigra (Black Willow)
Morus rubra (Red Mulberry)	cordata (Heart-leaved Willow)
Machura aurantiaca (Osage Orange)	lucida (Shining Willow)
Platanus occidentalis (Butterwood)	Populus balsamifera var. canadensis (Balm of Gilead)
Juglans cinerea (Butter-nut)	grandidentata (Large-toothed Aspen)
nigra (Black Walnut)	tremuloides (American Aspen)
Carya alba (Shag-bark Hickory)	monilifera (Necklace Poplar)
sulcata (Western Hickory)	Juniperus virginiana (Red Cedar)
amara (Bitter-nut Hickory)	Chamaecyparis sphaeroidea (White Cedar)
porcina (Pig-nut Hickory)	Thuja occidentalis (Arbovitae)
tomentosa (White-heart Hickory)	Taxodium distichum (Bald Cypress)
Quercus alba (White Oak)	Abies balsamea (Balsam Fir)
bicolor (Swamp White Oak)	Tsuga canadensis (Hemlock)
coccinea (Scarlet Oak)	* caroliniana (from North Carolina, &c.)
heterophylla (from New Jersey, Delaware, &c.)	Picea alba (White Spruce)
imbricaria (Shingle Oak)	nigra (Black Spruce)
macrocarpa (Over-cup Oak, Burr Oak)	Larix americana (American Larch)
Muhlenbergi (Chestnut Oak)	Pinus banksiana (Grey Pine)
palustris (Pin Oak)	resinosa (Red Pine)
Phellos (Willow Oak)	pungens (Table Mountain Pine)
Prinus (Rock Chestnut Oak)	rigida (Pitch Pine)
rubra (Red Oak)	Strobilus (White Pine)
stellata (Post Oak)	inops (Jersey Scrub Pine)
tinctoria (Yellow-barked Oak)	
Castanea vulgaris var. americana (Chestnut)	
pumila (Chinquapin)	

II. NORTH-EASTERN ASIA.

A. China and Manchuria.	*Acer Buergerianum
Magnolia conspicua (Yulan)	palmatum
stellata	capillipes
(garden hybrids and vars.	carpinifolium
Liriodendron (species from Northern China)	* distylum
Phellodendron amurense	* argutum
Tamarix chinensis (Chinese Tamarisk)	* pycnanthum
*Tilia mandshurica (Manchurian Linden)	* sessilifolium
*Esculus chinensis (Chinese Horse Chestnut)	Negundo cissifolium
*Acer Mono tataricum	Rhus semi-alata (R. Osbecki of authors)
var. Ginnala (Frangrant Maple)	Phellodendron japonicum
Cladrastis amurensis	Gleditschia japonica
Gleditschia ferox (Thorny Honey Locust)	Cercis chinensis (C. japonica of gardens)
*Gymnocladus chinensis (Chinese Coffee Tree)	Sophora japonica
Crataegus orientalis	Pyrus Toringo
Prunus Maackii	* tomentosa
Mume	* praeox spectabilis
Cedrela chinensis	Kolreuteria japonica
*Fraxinus mandshurica (Manchurian Ash)	Zelkova Keaki stipulacea
*Pterocarya stenoptera	Idesia polycarpa
*Quercus mongolica	Rhododendron (species and garden varieties)
*Betula Ermani	*Fraxinus longicuspis
*ulmifolia (Elm-leaved Birch)	* obovata
Juglans mandshurica (Manchurian Walnut)	* pubinervis
Taxodium heterophyllum (Glyptostrobus)	*Platycarpa strobilacea
Pinus Bungeana (White-barked Pine)	Ulmus parvifolia
Mandshurica	Morus alba
Juniperus chinensis	*Pterocarya rhombifolia
Pseudo-Larix Kämpferi	Juglans Sieboldi (Japanese Walnut)

B. Japan.

Tilia cordata	*Fagus Sieboldi
*Acer crataegifolium (Hawthorn-leaved Maple)	Castanea japonica
*micranthum	* Betula Eljopatra
polymorphum (including some varieties)	* corylifolia
*Acer Sieboldianum	* Maximowicziana
pectinatum	Carpinus japonica
* truncatum	* Thujula dolabrata
* trifidum	* japonica
* diabolicum	* orientalis
* circumlobatum	pendula
	Cephalotaxus drupacea
	Taxus cuspidata

Chamaecyparis (Retinospora) pisifera	* nipponica
squarrosa	* littoralis
leptoclada	* davurica
plumosa	Sciadopitys verticillata
filifera	(Mitrella Pine)
obtusata	Pinus densiflora (often cultivated as P. Massoniana)
lycopodioides	* Thunbergii
pygmaea	Pinus parviflora
nana	koraicensis
Keteleeria	Tsuga japonica (Japanese Hemlock)
breviramea	Ginkgo biloba (Ginkgo tree, Salisburia)
pendula	Larix leptolepis
filicoides	
Juniperus rigida	

III. SPECIAL REGIONS.

A. Rocky Mountain region of Colorado.	Halimodendron argenteum
Acer glabrum	Ulmus pumila
*Robinia Neo-Mexicana	Picea obovata
*Crataegus rivularis	
Betula occidentalis	C. Turkestan.
*Populus angustifolia (narrow-leaved Poplar)	Fraxinus potinophylla
Abies concolor (White Fir)	D. Thibet.
*subalpina	*Pinus Gerardiana
Pseudotsuga Douglasii (Douglas Fir)	E. Caucasus.
Picea Engelmannii	Acer latum
pungens (Blue Spruce)	Zelkova crenata
Pinus ponderosa var. scopulorum	Pterocarya fraxinifolia
	Carpinus dumensis
	Picea orientalis
B. Siberia.	Abies Nordmanniana
Caragana arborescens	cilicica

IV. EXCEPTIONAL SPECIES.

A. Pacific Slope.	*Larix Lyalli
Species of the Pacific forest of more or less wide geographical range, which should be tested in New England, from their more northern limits in the Rocky Mountains and coast ranges.	*occidentalis
Rhamnus Purshiana	*Pinus albicaulis
Acer circinnatum	*conforta var. Murrayana (Twisted Pine)
*macrophyllum	*flexilis
*Crataegus Douglasii	*Lambertiana
*Pyrus rivularis	*monticola
*Fraxinus oregana	B. European.
*Quercus Garryana	Æsculus Hippocastanum (Horse Chestnut)
*Populus trichocarpa	Acer campestre
*Alnus rubra	platanoides (near the ocean)
*rhombifolia	Tilia argentea (Silver-leaved Linden)
*Salix lasiantha	dasystylis
*Torreya taxifolia	Fraxinus ornus
*Chamaecyparis nutkaensis	Ulmus montana
*Thujaopsis borealis (of gardens. Hardy in New York)	campestris
*Thuja gigantea	Quercus Cerris (Turkey Oak)
*Abies nobilis	*pannonica
*grandis	Carpinus Betulus
*anabasis	Salix alba (White Willow)
*Tsuga Mertensiana	laurifolia
*Pattoniana	Populus alba (White Poplar)
*Picea sitchensis	*Picea Omorika
	Larix europea (European Larch)

Discussion.—Mr. C. M. Hovey thought there was something in taking seed from trees growing in northern regions. He had never seen a tree of *Abies Douglasii* 10 ft. high in this country except at Mr. Hunnewell's. Professor Robinson said he knew of trees of the Douglas Fir raised from Colorado seed 12 ft. high, and that this species forms an admirable illustration of the rule that trees raised from seed collected on the Pacific slope are tender, while those of the same species from Colorado seed are hardy here. All the California trees raised in England forty years ago were from seed collected on the Pacific slope. Mr. Hovey said that Mr. Hunnewell imported trees of *Cedrus Deodara*, which, though they proved tender, grew large enough to produce seed, and the trees raised from this seed proved hardy. He said that he admired the English Elm, but objected to it as a street tree. The limbs grow out horizontally, and those on the Beacon Street Mall stretch almost across the street. He had read of Elm trees in England which were dangerous from this cause. The American Elm, on the contrary, grows more erect, does not give too much shade, and the limbs will not interfere with travel. The English Elm holds its leaves longer than the American, which is an advantage. The Sugar Maple is a fine tree of slow growth; it takes about thirty years to get it 30 ft. high, and our people are unwilling to wait for it. The same may be said of the Scarlet Maple. The White or Silver Maple is of more rapid growth, and a very fine tree. Its greatest fault is that the branches are

liable to be broken by gales, but the broken limbs may be cut off without material injury. The Oriental Spruce and Nordmann's Spruce are two of the finest. He had raised seedlings of the Salisburia, or Ginkgo tree, which averaged 1 ft. of growth in a year. He thought the Ginkgo tree on Boston Common was older than stated by Professor Robinson—probably eighty or ninety years old. The Liquidambar, whose foliage is so beautiful in autumn, is tender here.

Mr. W. C. Strong asked, in reference to the greater hardness of trees of *Picea pungens* and other species when grown from Colorado seed as compared with those raised from seed from the Pacific slope, whether it was not the process of acclimation continued over a long period which made the difference?

The Hon. Marshall P. Wilder could not agree with Mr. Strong in regard to acclimation, but thought it in a general sense a fallacy. Soil and situation have a great deal to do with hardness. He has a Cedar of Lebanon on a ledge where there is but 6 in. of soil, and neither too much nor too little water, which has survived when every other one in New England (so far as he knew) had been destroyed.

Professor Robinson said that we must draw the line between what can be accomplished by a man in a single generation and what can be done by Nature in the course of ages. The changes effected by Nature are gradual and imperceptible. The introduction of hardy and tender forms of the same tree from Colorado and California is very different from acclimation. Both forms were probably disseminated from one stock at the close of the last geological epoch, when they were forced north, some to Colorado and some to California—perhaps a million of years ago—and during that time, which cannot be computed, have gradually acquired the differences which now mark them.

Magnolia macrophylla at Summerhill.—In reply to Mr. Cornhill (p. 116), I may note that to-day I saw a splendid specimen of *Magnolia* with a large number of fine creamy white conical blooms preparing to open against a south wall in Mrs. Moore's garden here. It was rooted in a warm border, and well protected from north and east winds, and has flowered continuously for several years without any protection or undue care. The fine bright glossy leaves of a deep green hue indicate rude health. At present it covers about 30 ft. long by 10 ft. high. I am not acquainted with any other specimen in this vicinity equally floriferous and of similar age. I have heard apparently similar *Magnolias* called *M. macrophylla*, *M. grandiflora*, and *M. conspicua*; is there a specific difference?—W. J. M., Clonmel.

SHORT NOTES.—TREES AND SHRUBS.

Sambucus heterophylla.—An Elder with very finely divided leaves, almost Rush-like indeed. A variety of the common kind, and desirable on account of its distinct foliage.

Ligustrum japonicum.—The most tree-like of the Privets, and extremely valuable in warm districts. It comes in flower from Coombe Wood, but the scent is rather too strong. It makes a fine street tree in Italy, the head being trained in the standard form.

Colletia ferox.—A shrub densely clad with fragrant moist looking flowers, and leaves like needles, or worse. An interesting thing always, but we fear too well armed to be a general favourite. It comes full of blossom from the Coombe Wood Nurseries.

Colutea arborescens.—More graceful than we have seen any of the family, with fresh leaves and many good yellow flowers. Sent to us by Messrs. Veitch, who are paying increased attention to hardy flowering trees.

Bramble.—The North American Brambles with the large and handsome leaves are, where well placed, among the finest things now in our gardens. *R. adoratus* now bears many of its large cups.

Bignonia radicans does not flower with me, though it looks strong and healthy and grows rapidly. It is on the house, south aspect, and we have had it three years without one bloom. —M. H. W.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J., SURREY.

ENOTHERA LAMARCKIANA, with its stately habit and delicate pale yellow flowers, is of great use in large high bouquets; it arranges well with pale green *Funkia* leaves and flowers of the white variety of French Willow; its flowers do not close in the daytime in a room, as they do out of doors in sunlight. Some two dozen blooms of *Helianthus rigidus*, cut from 18 in. to 3 ft. long, make a grand table bouquet, best seen against a dark background. A wide delft bowl is filled with *Eschscholtzias* and richly coloured leaves of Beet, and a wide-mouthed glass holds spring-sown Sweet Peas, cut with a good length of their own foliage. White Everlasting Peas are arranged with rather large leaves and sprays of green Ivy. The dinner table has orange and scarlet *Nasturtiums* with small tips of red-tinted *Berberis* leaves.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Sempervivums.—A few years ago there was some danger of this class of plants ousting every other hardy kind that was being used as edgings, &c., in the flower garden, but as the stock increased, so did the horrible "cockle-shell" appearance of our gardens, and this artificiality soon made us dislike them, and by this means the danger was averted—still, in reasonable proportions and in appropriate positions several of the kinds are desirable. All the hardy sorts are in every way effective on rock and root-work, and on dry banks and old walls, but the kinds to which I wish to allude now are those that best serve for edgings and groundwork to flower beds, and especially to succulent beds. The varieties that can with advantage be so used are *arachnoideum*, *calcareum* (californicum), *globiferum*, and *montanum*. The large growing kinds, such as *arborescens*, *variegatum*, *canariense*, *ciliatum*, *haworthii*, *retusum*, and *urbicum*, are desirable sorts for dotting about in dwarf foliage beds and for intermixing with allied species in succulent arrangements. We have several such beds here, and even amidst all the wealth of flower which we have at this time of year they stand out conspicuously in their quaint, yet chaste, beauty, and, what is of no small importance, wind or wet weather does not harm them.

Rock garden and fernery.—Heat and drought now begin to tell unfavourably on the plants in this department, and daily waterings are necessary, particularly in the case of the rarer kinds. Cut away all seedling flowers and stems, and keep the whole free from weeds. The common *Spergula* is very troublesome, and this being its main seeding season, every effort must be made to clear out every particle of it from both rock-work and walks. Remove rusty fronds from Ferns, and curtail the growth of the ranker growers to prevent them from encroaching on the weaker and more choice varieties. Whilst the present dry, hot weather lasts, a syringing overhead at sunset will help to keep the plants in good health and free from spider.

Mixed borders.—In my experience herbaceous plants have never been gayer than this season, and they have certainly well repaid all the attention that has been bestowed on them, which has simply been a general look over weekly to see to the ties, picking off bad blossoms, and keeping the borders free from weeds, and strong growers mulched. At the present time *Phloxes* are making a grand show; the double *Geums*, *Campanulas*, *Potentillas*, and the Perennial Sunflower are also very fine, and in order to keep them in that state we now have to water them twice a week. Whenever there is a blank place, seedling *Aquilegias*, *Canterbury Bells*, *Brompton Stocks*, and other perennials will be planted in it the first showery day, and meanwhile the places will be prepared by digging them with a hand-

fork and manuring them with guano or some other fertiliser.

Propagation.—If cuttings can be had without marring the appearance of the beds, Pelargoniums ought now to be propagated; the handiest way is to strike them in the open border. Any kind of light soil will do provided the cuttings are well firmed in it. To plant the cuttings in boxes at once will save labour, but my experience is that they never do so well as those struck in the open border and potted up about the middle of September. A hotbed should be made up for the striking of Ageratums, Petunias, Lobelias, Verbenas, Mesembryanthemums, Coleus, Iresines, and Alternantheras; only sufficient of these should be propagated to ensure a good supply of cuttings in the spring, as spring-struck plants grow away much more freely than those struck in autumn. Violas, Pansies, Pentstemons, Antirrhinums, and all other hardy perennials usually propagated from cuttings may be put in now; a north or shady border upon sandy soil and handlights or frames are all that is needed to ensure a successful strike.

General work.—This will consist in watering shrubs, trees, and Roses moved in the spring, and the renewing of the mulching over their roots; also in picking off decayed flowers and foliage from the flower beds, and pegging, pinching, and tying up the plants according to the needs of each. The completion of shrub cutting, also the picking of seed vessels off choice Rhododendrons and Azaleas, at the same time tearing off suckers or shoots that spring from the stock, will now also need attention as well as hoeing shrubberies, clipping verges, and weeding walks if neatness is to be maintained, and it ought, for without it a garden can yield no real pleasure.

FLORAL DECORATIONS.

J. HUDSON, GUNNERSBURY HOUSE.

THOSE who may have grown any of the following kinds of ornamental Grasses should secure a good quantity for future use whilst they are in perfection. They will not be nearly so fine if allowed to remain on the plant after they are fully developed. A heavy downpour of rain will also spoil their beauty. Of the *Agrostis* we grow *A. pulchella* and *nebulosa*. The former is very pretty and useful for working into button-hole bouquets; the latter is most useful for floral decorations in general. *Briza gracilis* and *maxima* are both valuable kinds, the latter especially so for floral decorations of a somewhat bold character. *Lagurus ovatus* is always useful, especially when associated with liliaceous subjects. It is very soon spoiled by rain, and should therefore be secured on the first favourable opportunity. *Hordeum jubatum* is another beautiful Grass that ought to be grown in the most limited collection. It thrives best in a moist situation, quickly feeling the effects of drought. *Paspalum elegans* is another good and distinct sort. We shall secure our winter stock of all these in a few days. After this is done each kind will be loosely arranged in glass bottles, such as have been used for pickles, &c. We then place them in a spare airy room not too near the light; no water of course is given them. In this manner we find them to keep their colour fairly well. Another very useful late kind of Grass is *Eragrostis elegans*; this is just beginning to unfold its spikes, and in the form of successive crops will continue to do good service till the early frosts spoil their colour. All of these and several other distinct kinds will be found valuable where extensive decorations are carried out during the winter months. Those who have not room to grow these can secure many pretty sorts from the fields, woods, and hedges, all of which will help to economise the use of Fern in winter, when there is frequently none too much to spare. Of annuals easily raised from seed, the following will now do good service in the shape of cut flowers, viz.: *Campanula Lorei* and *alba*, both extremely pretty when arranged with some spikes of the *Agrostis nebulosa* and Sweet Sultan; the yellow

kind can be used in association with these also, likewise the various colours of the Cornflowers. *Salvia patens* is valuable for its colour; a spike or two used with white Sweet Pea will give a pleasing effect. For the want of anything better or closer to hand, a few Carrot leaves that are assuming their autumnal tints will be found not to be out of place. The different varieties of *Phlox Drummondii* are also extremely pretty, especially in small arrangements.

PROPAGATING.

No time must now be lost in putting in cuttings of all kinds of stove plants required; for if longer delayed, the wood becomes too hard to root readily. I refer to such subjects as Crotons, Ixoras, Dipladenias, and Francisceas. Ixoras I find root best when a large proportion of peat is used in the soil, say two parts peat to one each of loam and sand. The whole must be sifted fine and pressed down firmly, leaving just enough space for a layer of sand on the top. Of course as good drainage is necessary, the pots will need to be filled within 2 in. of the top with broken crocks. Fern spores sown in spring will need attention in the way of pricking off, the aim being to get them as large as possible before winter. Of Oleanders there are now many beautiful varieties, the whole of which may be readily struck from cuttings during the summer months. The two principal points to be observed are first, not allowing the cuttings to become too hard before taking them off, and secondly, giving them plenty of water at all times; indeed they will emit roots freely in water alone, or, better still, in water-tight pans of wet sand, but in either of these cases care is necessary in potting them off, as the roots are so brittle that they are easily broken. Such being the case, the better way is to put them in pots of sandy soil, and keep them close and moist till rooted. Another common subject, but one that many fail to strike satisfactorily is the Lemon-scented Verbena (*Aloysia citriodora*); the failures in this case generally result from using wood in too matured a condition. The best way is to take the succulent growths in the spring as soon as they are long enough, and treat them just as one would Fuchsias, Verbenas, and similar plants, when, with the exception of requiring a little additional care to guard against damp, they root as readily as the others just mentioned. Later in the summer, if cuttings are required, the better way is to put a plant into a close, warm house, when it will at once start afresh, and when of sufficient size, use the young shoots as cuttings.

T.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Bougainvillea glabra.—All the weak shoots at this time should be cut out of specimens of this plant that are grown in pots and have finished blooming, for as these do not in the least promote the formation of fresh flowering wood, it is not well to allow any overcrowding of weak growths, as they are merely a strain on the energies of the plants for no purpose, for this *Bougainvillea* will only bloom profusely on shoots that have attained some strength. If the balls are very full of roots, it will be found good practice to put about 1 in. of well-rotten manure on the surface, as the addition of new material of this description by encouraging the formation of fresh feeding fibres is a great assistance to the plants. Managed as above advised, this *Bougainvillea* can be had in bloom again about the end of September, and there will still be time enough after the flowering is over to get it sufficiently hardened off before the end of the year.

Tillandsia Lindenii.—This beautiful blue flowered Bromeliad is most effective for decoration, and it looks best in the form of single crowns grown in little pots, in which size it can be dotted about better than when larger. It throws out suckers when its blooming is over, and when these have got big enough they ought to be taken off, removing a few of their lower leaves and putting

them singly in small pots, being mindful not to over-water them till they have rooted, after which they will need more root space. The plants will push a second lot of suckers after the first have been removed; these in their turn when they have attained a proper size can be treated like those first taken off. Sandy peat answers well for it, draining the pots well and giving it a position where it will get a fair amount of light.

Ipomæa Horsfallii.—From this time, on during the autumn, this plant should have every encouragement to make growth, for the quantity of flower that may be looked for will be regulated by the strength and number of the shoots. It is not a long rampant grower, nor likely to shade anything under it over much, and on this account where space is limited it may with advantage be trained over a path. In a position of this kind attention to training can easily be given.

Aristolochias.—These plants likewise are well suited for occupying a place over a path, and nowhere else are their remarkable flowers seen to better advantage. It is not yet too late to put in cuttings; any of the larger species will bloom freely next year. Young examples will in many cases be found better to manage than old plants, as these require a good deal of cutting back to prevent their getting beyond bounds. The medium sized side shoots that generally are to be met with at the lower part of the stem will strike readily if taken off with a heel, put in sand, covered with a bell-glass, and kept in a brisk heat. When they have rooted they will need moving into 6-in. pots, and through the winter ought to be kept growing gently.

Gardenias.—Where a sufficient stock of these are grown, and they are managed in a way to flower in succession, there is no difficulty in having a supply of their fragrant blossoms for many months. If they are wanted over as long a season as possible, in addition to the older larger stock, it is a good plan to each spring propagate some. Young plants of this year's striking intended to flower in winter must have all requisite attention; they should at once receive a shift into the pots they are to bloom in; by doing this now they will have time to establish themselves well before the short days. The size of the pots ought to be regulated by the strength and size of the plants; from 8 in. to 11 in. or 12 in. will be big enough.

Gesneras.—The winter blooming *G. exoniensis* must not be neglected, nor let to be overshadowed by other plants, or it will get drawn up, and unless the growth is stout and short it is useless to expect a satisfactory amount of bloom. The Donckelaari and Cooperi section will flower a second time if encouraged by being kept in a good light position and supplied with manure water.

Toxicophlæa Thunbergii.—Plants the flowers of which have a pleasing odour are always acceptable, and, if for no other reason than its perfume, this *Toxicophlæa* is worthy of a place; but in addition to this it has a compact habit, and in growth is not unlike a *Gardenia*. It blooms from the axils of the leaves and also from the points of the shoots; a few of its flowers, which are white in colour, and borne freely in corymbs, are sufficient to scent a house. It blooms well in a small state, and does not want a great amount of root room.

Ferns.—Such kinds as *Adiantum cuneatum* and *Pteris serrulata*, which are so serviceable for using in a cut state, are best for this purpose when grown in comparatively small pots. If they have been well cared for, they will have made good growth, and should now be put where the requisite hardening can take place before winter. On this being properly done to a great extent depends the use they will be. Let them have a position where they will receive sufficient air and plenty of light, but if the atmosphere of the house they have been grown in has been moist, and a good deal of shade employed, do not let them have too much sun, or the colour of the fronds will be injured; they will also suffer similarly if they go short of water. Tree Ferns will by this

time have got the main lot of fronds that they made in the spring matured, and it is a good plan to take advantage of this and give a good cleaning to those that are infested with scale. It will generally be confined to the older fronds; the largest insects ought to be removed with brush and sponge, laying the plants down on their sides afterwards, where this can be done, and dipping the affected parts in a solution of some or other of the various insecticides. Fowler's, at about 5 oz. to the gallon, will be found effectual in destroying most of the young insects, and by this means a good deal of labour is saved compared with the slower process of hand cleaning.

Berry-bearing Solanums.—When the weather is dry any of these that are planted out must be well attended to with water, so as to enable them to keep in a healthy condition. It will also be well to see if there is any red spider on them, for though they are not so liable to be attacked by it when planted out as when grown in pots, still sometimes it will make its appearance, and soon do much harm to the leaves if not destroyed. A good dressing with Gishurst used at the rate of 2 oz. to the gallon of water will generally free them from this pest. Plants in pots affected by the insect can be dipped in this mixture.

Mignonette.—Plants sown early to bloom in pots must not be allowed to get cramped at the roots. The size of pots necessary will, as a matter of course, be regulated by the strength of the plants and the size they are wanted to attain. Keep them tied in whatever shape is required. They look much the best when the form chosen is a more natural one than the pointed stiff style often seen. Plenty of air and abundance of light are essential to prevent their becoming drawn and weak, a condition that cannot be remedied if once they get into it. To keep the foliage green they must never be allowed to want for water.

ORCHIDS.

J. DOUGLAS, LOXFORD HALL.

East India house.—Our patience has been very much tried this season in striving to overcome thrips, which have been more difficult to eradicate than I ever remember them to have been, but as the whole garden seems to be alive with them outside the houses, this is not to be wondered at. They swarm on Phloxes, Carnations, Pinks, and other flowers, and we cannot hope to fight them effectually while these are in bloom. We are afraid to use tobacco smoke, as the leaves of many Orchids are injured by it, while they do not suffer by being dipped in soapy water, made more destructive by the addition of a little tobacco liquor. We find *Cattleya Leopoldi* to do well in this house; our plant has made two very strong growths, and is now flowering freely. This is a really good and distinct *Cattleya*, of easy growth and very moderate in price. It will produce a score of flowers on one spike. Also in flower at this time is *Cattleya superba*, a very richly coloured species, which flowers freely as soon as the growths are formed. It must be placed near the glass and receive as much light as possible. We have grown a plant of *Dendrochilum filiforme* in the cool end of this house for the last four or five years, and it has made very good growth, and has increased rapidly in size. It does not seem to be liable to the attacks of thrips, but red spider is its desperate enemy, and may do mischief before it is perceived. Its graceful spikes of bloom now form one of the most charming features of the house. I give it plenty of water at the roots while it is making its growth, and even when at rest it must not be allowed to become dry. Such plants as *Dendrobium Falconeri* suspended near the roof in the coolest end of the house while growth is progressing must yet be freely syringed with water that has been standing in pots or small tanks where it is rather warmer than the temperature of the house. Some of the deciduous species of *Dendrobiums* have been taken out of this house, growth being completed; they are now in a house almost as cool as a green-

house. If kept moist and warm after their growth is made, they start afresh from the base, and do not get sufficient rest. We maintain a night temperature of about 70°, rising about 10° in the day-time, or to 85° when the house is shut up in the afternoon.

Cattleya house.—Many species and varieties of Orchids are now making their growth in this compartment; such being the case, we maintain a temperature of about 65° at night with plenty of moisture. Reference was made (p. 76) to watering *Cattleyas*; nothing more, therefore, need be added now except to say that it is better not to water any of the plants until they really want it. A large proportion of the roots will grow over the sides of the pots, and make exceedingly healthy development in the moist, warm atmosphere. To many growers the time when Orchids develop their sheaths is quite as interesting as the time when they flower, and they then require even more attention. If any plants are not in good condition, owing to the compost being sour, the sooner they are repotted the better; but if all right at the roots, and it may be thought they ought to be repotted, I would rather defer the operation until January or February than I would do it now. The same remark applies to such species of *Odontoglossum* as succeed best in this temperature. One of the most desirable of them is *O. hastilabium*, and it is one which seems to be very easy to grow. The treatment is much the same as that which *Cattleyas* receive, but the best time to pot this species is when the young growth starts from the base of the last formed pseudo-bulb, and it will often do this even before the flowers fade. At present most of them are making their growth; when that is completed, the flower-spikes will appear, and at that time, if care be not taken, they are very liable to be eaten by slugs or small snails. *O. vexillarium* is now making strong growth. This species may be repotted after flowering, or in winter. No advantage is gained by potting in summer, and usually there is more time to spare in winter for performing the operation. We have to watch the plants carefully, lest they be injured by thrips. *O. Phalaenopsis* succeeds best in this house placed near the glass. This species also likes a fair supply of water, and succeeds well if kept free from insect pests. *Sobralia macrantha* we tried in a warmer house, but I find it does best in the coolest part of the *Cattleya* house; it is now starting into growth, and wants a good supply of water. The *Sobralias* are often potted in peat, the surface being made level, as is usual in ordinary potting. I find they do best when potted much the same as *Cattleyas*; the growths usually start under the surface of the ground, and pushed downwards at first, the raised surface allowing them to come to the light sooner than they otherwise would do.

Cool house.—The temperature of this house both by day and night has been considerably warmer during the last few days than hitherto, and it is at such times that the anxiety of the cultivator for the safety of his cool Orchids is greatest. The plants during hot weather, and indeed for the rest of the season, succeed best in a house built against a north wall. A fault belonging to our house is that it cannot, owing to its position, be kept cool enough, being placed where the sun can shine upon it during the whole day. It might be thought by some that the plants at least would flower more freely in such a house than they would in a lean-to facing the north, but I do not find them to do so; in fact, if *Odontoglossums* of the *O. crispum* type can be induced to form large bulbs, it is certain they will produce spikes large in proportion, and they seldom fail to flower well whatever may be the circumstances under which they have been formed. I find that the daily attention which the plants require in exposed span-roofed houses is very much more than they need in lean-tos facing the north. During hot weather use the shading freely, but it is not desirable to open the ventilators to that extent, which would cause a rapid circulation of hot air amongst the plants. It is better rather to

keep the ventilators closer during the day, and to open them in the cool of the evening. See that all Orchids making their growth are kept sufficiently moist, and a moist atmosphere is a positive necessity. Keep down the temperature as much as possible.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Peach houses.—Where it is the practice to start the early houses in November, the period extending over August and September is perhaps the best for exposing the trees to the full influence of the atmosphere, as the buds are well advanced and summer showers have a most beneficial effect on the foliage and surface roots. Another advantage which should not be lost sight of is the efficient way in which the lights can be thoroughly dried, repaired, and painted at times when outside work cannot be carried on. If any of the trees require an additional supply of soil or partial lifting, now is a good time to get the work done, as the roots will at once commence working in the new compost, and the trees will be in a fit state for starting at the usual time, and capable of carrying a full crop of fruit next year. Successful growers of Peaches know that a strong calcareous soil is indispensable, and where this cannot be obtained, light loams may be improved by the addition of marl and old lime rubble, which must be thoroughly mixed together when dry, and made as firm and resisting as possible by good solid ramming when the borders are being formed. If midseason houses cannot be stripped, all the ventilators must be left open; good daily syringing and an occasional washing with the garden engine will also be necessary, and last, but not least, borders from which that best of all elements, rain water, is excluded must be well mulched and thoroughly drenched with the hose, until the flower buds are made up and ripe, when less water will be needed, but on no account must Peaches at any time become what is termed dry at the roots. Where late houses have been systematically retarded through every stage, midseason kinds will be approaching ripeness, while late varieties, under liberal ventilation, will carry on the supply after many of the wall trees are over. The fruit in wall cases will now require full exposure to the influence of sun and light by being raised up on small pieces of lath placed on the trellis. As the Peaches are elevated, apex upwards, to insure colour, stop all strong growths and tie them down to the trellis, otherwise they will rob the fruit, and most likely upset the balance of the trees. Keep them well syringed until the fruit begins to soften for ripening. Give plenty of water to the roots, and expose or shut up so as to avoid having a glut of ripe fruit at any one time, particularly where there is a steady family demand.

Figs.—When the flush of the second crop has been taken from the early forced trees encourage them to go gradually to a state of rest by running down all the lights, or by stripping the roof altogether; but guard against starving them into this condition by suddenly withholding water from the roots, or by leaving off the daily bath from the syringe. If the weather continues fine a great number of Figs of most delicious flavour will ripen after the house is thrown open; but where a good dish of fruit is indispensable in making up an early spring dessert, the strongest and best of trees should not be allowed to carry more than two crops in one season, and all half-swelled fruit should be rubbed off when the lights are removed from the house. Let the second crop of fruit in the second house be well thinned to ensure fair size, and feed copiously with good warm liquid and guano water as often as the roots can take it. Syringe well twice a day, close with sun heat, and carry on incessant war with the numerous insects which so often become troublesome about this time. The worst is mealy bug, then follow scale and red spider, which may be kept in check by good syringing and occasional sponging, and bug speedily melts away under a

dressing of methylated spirits applied with a small brush if taken in hand before it extends from the shoots to the leaves and fruit. Where there is a constant demand for good Figs, and old-established trees occupy snug corners in the kitchen or fruit garden, such kinds as Brown Turkey, White Marseilles, and all the Ischias will soon pay for the cost of a glass covering, which, under judicious management, will give a supply of ripe fruit from the end of July until the middle or end of October, and that in good seasons without the aid of fire heat; but a heating apparatus should always be provided, as such structures are invaluable store houses through the winter. To keep the trees in moderate growth and fruitful it is necessary to lift occasionally and replant in a mixture of good loam and lime rubble, resting on ample drainage for carrying off water, of which Fig trees under glass require a very liberal supply. Pruning or thinning should always be performed with a liberal hand before the trees are nailed to the wall in the spring, ample room being provided for laying in the young growths without crowding the foliage or having to pinch the points, an operation altogether unsuited to the management of late houses, and often injudiciously practised in early ones.

Melons.—Devote all possible attention to the last batch of plants recently put out, and encourage them to make a strong and quick growth of vine by full exposure to sun and light, and by closing in time for the house to run up to 90° with solar heat and plenty of moisture. As I have before stated, quick free kinds in 12-in. to 16-in. pots should be selected for late work, and the bottoms of the pots should be placed within the influence of the bottom heat pipes when fire heat through the last stages becomes a necessity. Train each plant to a single stem, carefully preserve every old leaf from the base upwards, take out all laterals that start between the bed and the trellis as soon as they can be seen, and pinch the points out of the leaders when they have covered two-thirds of the trellis. Fertilise every female flower as it opens, select the most evenly balanced fruit for the crop, but defer stopping until the Melons have attained the size of Walnuts; then pinch at the first joint, and gradually remove all useless side shoots, laterals, and spray. When the time arrives for earthing up the plants the soil in the pots as well as the top dressing should be in a dry state and fit for ramming firmly without becoming adhesive, otherwise it will cake and crack, and water will pass away without permeating the whole of the ball.

Late crops in pits and frames will require a steady bottom heat from fermenting material or hot-water pipes until the fruit is ripe, as anything approaching a check is sure to destroy the flavour if it does not prove fatal to the plants. Let every fruit be raised above the bed, but not quite clear of the foliage, as some kinds of Melons are liable to turn brown when early airing is neglected on bright mornings. Place a few pieces of charcoal as a preventive about the stems, and apply quicklime and sulphur to the parts affected should canker set in. This troublesome disease may, however, easily be prevented by using a good, sound, but not over rich loam, by the careful preservation of the stem leaves, and by stimulating at the proper time with tepid liquid or guano water in preference to top dressing with solid manure.

Tropæolums.—"A. D." states in THE GARDEN (p. 112) that the King of Tom Thumb varieties should be classed as Tropæolums rather than Nasturtiums. May I ask does he know of any of the so-called Nasturtiums that do not belong to the Natural Order Tropæolaceæ? Subject to correction, may I be allowed to submit the following remarks as to the cause of the confusion? The names of Nasturtium, Nasturtions, and Indian Cress were attributed to the Tropæolum majus by popular fancy on account of the pleasantly pungent flavour of its leaves, resembling that of the Garden Cress (*Lepidium sativum*), and in a measure that of the Water Cress (*Nasturtium Sisymbrium*).

Thus the matter is solved, botanical arrangement is thrown to the winds, and the Tropæolum becomes a cruciferous plant (?). Can your correspondent afford a more satisfactory explanation? —SEMPERVIRENS.

SOCIETIES.

ROYAL HORTICULTURAL.

AUGUST 8.

THOUGH there were fewer new plants shown than usual on this occasion, there was nevertheless a bright display in the way of other exhibits, consisting chiefly of Gladioli, Petunias, Carnations, Balsams, Achimenes, and similar plants.

First-class certificates were awarded to—

PHALÆNOPSIS VIOLACEA SCHROEDERI.—A splendid new variety of a species recently introduced from Borneo. It is much superior to the type, which has too much green in the flowers to be very showy. The new variety has larger flowers than the type, the sepals and petals wholly suffused with a beautiful carmine-purple colour, copiously freckled and barred with a paler tint, while the lip is of an intensely deep amethyst hue. The plant was shown by Mr. Ballantine, gardener to Baron Schröder, The Dell, Egham, and was a model of good culture.

GLADIOLUS A. F. BARRON, a magnificent variety, having large flowers of a most brilliant scarlet colour streaked with white. The spike shown of this variety bore fourteen expanded flowers. James McIntosh, massive spike, flowers large, colour a bright crimson, flaked and blotched with a deeper colour. Ala, flowers and spike large, bright magenta, white striped. Bono, a fiery crimson colour, flowers very large, spike massive. All from Messrs. Kelway, Langport, Somerset.

GODETIA SATIN ROSE.—A lovely variety similar in growth and floriferousness to Lady Albemarle, but the flowers are of a beautiful deep rose-pink, the surface shining like satin. It is one of the most beautiful of all the varieties yet raised, and is a real acquisition. Exhibited by Messrs. Carter & Co. High Holborn.

LASTREA MONTANA CORONANS.—A variety with long, slender fronds, having each pinna tufted, giving the plant a distinct and handsome appearance. Messrs. Stansfield, Todmorden.

LATHYRUS ODORATUS BRONZE QUEEN.—A variety of the Sweet Pea quite distinct from any variety we have seen and very beautiful. It is nearest to that called Butterfly, but the colours are deeper and there is a kind of metallic lustre on the petals unlike any other. This was the finest among several shown by Mr. Eckford.

POLYPODIUM VULGARE CORNUBIENSE FOWLERI.—A long name for a most elegant variety of the common Polypody, by far the best we have yet seen. It can only be compared with Trichomanes radicans, the Killarney Fern, for it is more like it than any other. It is an important addition to hardy Ferns, and one which will no doubt be much sought after. Messrs. Stansfield.

PETUNIA MRS. DUNNETT.—A double variety, having large rosette-like blooms with exquisitely fringed petals, prettily variegated with deep purple and white. It was selected from about a score of new double varieties. Messrs. Carter & Co.

SCOLOPENDRIUM VULGARE CRISPUM MULTIFIDUM.—A bold growing variety of the common Hart's-tongue Fern, having long, erect growing fronds of a bright cheerful green, deeply crimped at the margin, rendering them very handsome.—Messrs. Stansfield.

FIG NEGRO LARGO.—A variety remarkable for the high quality of its fruit and its extreme productiveness, even when grown as small trees in pots. The fruits are large, in colour like the Brown Turkey, and of a delicious flavour. Plants in pots were shown, which bore evidence of its prolific character, as they were loaded with fruits in various stages of ripening. It is without doubt the finest dark variety now in cultivation, having now been tested for several years. Messrs. Veitch.

A most uncommon exhibit was a beautiful collection of cut flower-sprays of shrubs, shown by Messrs. Veitch & Sons from their nursery at Coombe Wood. Such an array of different kinds indicated what a wealth of beautiful things there exists amongst hardy shrubs, which, however, is not taken advantage of in planting gardens. The collection numbered some three dozen kinds, of which the following are the most noteworthy: *Ceanothus azureus grandiflorus*, with large, feathery clusters of flowers of a lovely purple-blue colour; *C. Arnoldi*, similar in character, but of a delicate blush-pink colour; and *C. albidus*, pure white. Of *Spiræas* were *S. callosa*, one of the most beautiful of the pink-flowered type; *S. sibirica*, apparently a form of *S. salicifolia*, with pink flowers; and *S. palmata elegans*, a most delicately coloured herbaceous *Spiræa*, shown on this occasion better than we have hitherto seen it. A shrubby variety, named *S. callosa pumila alba*, is a very elegant and pretty shrub, of dwarf growth. *Olearia Haasti*, a shrubby composite from Australia, was well shown; it is quite hardy at Coombe Wood. *Eucryphia pinnatifolia*, a handsome Chilean shrub with large white flowers, is a valuable hardy shrub, the half-opened flowers being very beautiful. Some glorious clusters of *Hydrangea paniculata grandiflora* were among the most prominent in the collection, and the pink, starry flowers of *H. stellata* fl.-pl. were likewise attractive, though it is not such a valuable open air shrub as the other. We had never hitherto seen finer specimens of *Clematis coccinea*, the flowers being twice the size usually seen, and of a deep reddish crimson colour. About a dozen plummy spikes of *Pavia macrostachya* made a fine display, and it is certainly one of the most valuable of early autumn shrubs. Among others in the collection were *Escallonia macrantha* and its variety *Ingrami* (not so fine, but more floriferous) and *E. rubra*, *Indigofera floribunda*, *Diplopappus chrysophyllus* (*Cassinia fulvida*), *Lonicera japonica Halleana* (a very beautiful Honeysuckle), *Colletia ferox*, *Berberidopsis corallina*, *Veronica salicifolia* and *V. Andersoni*, and various *Hypericums*, including the very handsome *H. oblongifolium*.

The brightest display in the room was that from Messrs. Kelway—some half hundred or more spikes of Gladioli from their nursery at Langport, Somerset. As usual, there were numerous new varieties exhibited, which, however, differed but little from older kinds, except perhaps as regards the tone of colour, for the Gladiolus has been brought to such a state of perfection by Messrs. Kelway, that it is difficult to imagine any advance being made. Besides the new varieties certificated, there were in the collection others, called severally *Agus*, a brilliant carmine; *Bono*, similar, but with white markings; *Albani*, a long deep salmon-pink; and *Agricola*, pink flaked with crimson. All these were simply perfection as regards colour, size, and fine form of the flowers and the length of the spikes, some of which were nearly 1½ ft. in length. The most distinct and beautiful of the other varieties contained in the collection were named *Julia*, *Belgica*, *Maria*, *Lord Leigh*, *King*, *Mr. Derry*, *Brutus*, *Pictus*, *Shakespeare*, and *Antigonus*, which together form a representative selection. The same exhibitors showed about a dozen kinds of single *Pyrethrums*, ranging from pure white to the deepest carmine. Flowers of the big Ox-eye Daisy (*Chrysanthemum Leucanthemum maximum*) were also shown, and were quite as attractive as the *Pyrethrums*.

From the Hale Farm Nursery, Tottenham, Mr. Ware sent a numerous and fine collection of single Dahlias, which represented almost every shade of colour except blue, and many were very beautiful. About two dozen blooms of named varieties were shown, of which the following struck us as being the finest: *White Queen*, very fine large flower, pure white; *William Cullingford*, yellow; *Lutea grandiflora*, apparently the same as the last; *Nora* and *Ascalon*, deep magenta; *Mauve Queen*, a fine mauve flower; *Pantaloon* and *Union Jack*, variegated white and crimson; *Albion*, a deep scarlet; *Aurantia superba*, a bright orange-scarlet; and

Lothair, a deep mauve. This rich Dahlia collection was supplemented by an equally fine collection of Phloxes, some with huge heads of flowers, and embodying a great variety of colour. A new white Clove Carnation from the same nursery, named Gloire de Nancy was very fine, being large, full, very pure in colour, and with a delicious Clove scent.

Messrs. Cannell & Sons, Swanley, showed an excellent collection of double and single Dahlias, both representing some of the finest sorts to perfection. They also showed a singular variety called the Treble Dahlia, which has the florets duplicated in a curious manner. Otherwise it has the appearance of an ordinary double Dahlia. From the same exhibitors likewise came some flowers of *Salpiglossis variabilis* in various colours, showing what a beautiful annual it is. The new *Gladiolus Lemoinei*, also from Swanley, was in contrast to the brilliant hues of Messrs. Kelway's blooms.

An extensive collection of Petunias, numbering some 500 plants, came from Messrs. Carter, and entirely filled one side of the entrance vestibule, and was certainly deserving a higher recognition than the vote of thanks accorded it. There were about a score of varieties represented in the collection, the majority of which were very beautiful. Of the singles the best were White Pearl, a pure white; Blue Vein, Cerise, Brilliant, Stars and Stripes, King Crimson, and Maltese Lace. Of double sorts, among the finest were Double Rosette, a large and very floriferous variety of various shades of colour. Besides these Messrs. Carter showed about a score of new varieties, both single and double. The names of these were Mabel Sharnan, Cetewayo, Mrs. Hathorn, Hugh Steward, A. F. Barron, Prince George, Blushing Bride, Iris, Violet Beale, Elaine (pure white), Village Maid, Danish Flag, and Princess Beatrice, all double varieties, several of them with beautifully fringed petals.

A new *Caladium* called Frederick C. Bause was exhibited by the General Horticultural Company from their Anerley Nurseries. It is of dwarf growth, the leaves of medium size, of a rich crimson-red colour, broadly margined with deep green, and the whole surface shines as if it were polished. It is one of the most distinct and beautiful of the many varieties of *Caladium* now in gardens. From the same nursery Mr. Bause brought fine plants of *Nepenthes Hookera* and *N. superba*; the latter, a rather new variety, bore a profusion of its large pitchers of a reddish brown colour. It is decidedly among the most beautiful of Pitcher plants.

Two new Begonias were shown by Messrs. Laing, Stanstead Park Nurseries, Forest Hill. They were The Gem, a double flowered variety, with large rosette-like blossoms of a deep rose, borne profusely on slender drooping stalks, giving the plant an elegant as well as showy appearance. The other, named Dr. Masters, is an extremely fine variety of that bold vigorous habit so much desired; the flowers are large, of fine form, of a brilliant scarlet, and borne abundantly on stout stalks. Messrs. Saltmarsh, Chelmsford, also showed a new double Begonia called Beauty of Chelmsford; it has large showy flowers of a deep rose-pink, and produced plentifully.

Three new varieties of Coleus were shown by Mr. King, florist, Rowsham, Aylesbury, who has raised so many fine varieties. They were named Admiral Seymour, Miss Wetherall, and Lord Charles Beresford. All are excellent, having beautiful foliage, coloured with indescribable hues. The variety Miss Wetherall, we understand, is a new break from the ordinary run of varieties, as it has been derived from the old *C. Verschaffeltii*, much used for bedding out, and it is claimed for this novelty that it possesses as hardy a constitution, while being far more attractive.

Mr. Howard, florist, Southgate, made a fine display of cut flowers of Carnations he grows so well and in such great variety. These were interspersed with cut spikes of *Hyacinthus candicans* and *Yucca flaccida* and the long pendulous clusters of the white *Lapageria*, the whole making a most attractive and highly interesting group.

A collection of double Balsams from Mr. F. Smith's nursery, West Dulwich, which well maintained the high reputation of this firm for their fine strain of Balsams, the flowers being very large, perfectly double, and exhibiting a wide range of colour from pure white to the deepest purples and crimsons.

A pretty new Carnation, named Mary Morris, was shown by Mr. Smythe, Drury Lane. It was even finer than when shown previously, the lovely rose-pink hue being very bright, and the flowers large and full. A new Carnation, called Chiswick Red, was exhibited by Mr. Barron. It is of the richest cardinal colour and very sweet scented, and the number of blooms shown sufficiently indicated its free flowering character. A good pure white Carnation, called Duchess of Westminster, was shown by Messrs. Dickson, The Nurseries, Chester.

Fruit and vegetables.—A silver Knightian medal was awarded to Messrs. Veitch and Sons for a collection numbering about a dozen and a half of fruit trees in pots, consisting chiefly of Peaches, Nectarines, and Pears. These were all excellent examples of good culture, the trees being in vigorous health and loaded with fruits of good size and of high colour. The principal varieties of Nectarines shown were Lord Napier, Rivers' Early Orange, a fine early sort, Elruge, Pitnaston Orange, Humboldt (a rather late and excellent variety) and Victoria, the latest sort. Some specimens of cordon-trained Pear trees on the Quince stock were literally hung with fruits, particularly those of the varieties Louise Bonne, Beurré Bachelier, and Beurré Musque. Apples on the Paradise stock were likewise very prolific, thus showing what a valuable stock it is. Messrs. Veitch also showed a collection, consisting of about eighteen sorts of Apples in fine eatable condition, and all valuable early kinds. Amongst them were Echlinville, Kentish Codlin, Lord Suffield, Hawthornden, Manks Codlin, Keswick Codlin, Borovitsky, Irish Peach, Duchess of Oldenburg, Kerry Pippin, Oslin, Summer Thorle, Summer Golden Pippin, Red Quarrenden, Red Astrachan, and Early Harvest.

Some fruits of Late Admirable Peach were shown by Mr. J. Broadfoot, gardener to Col. Miller, Shot-over Gardens, Wheatley, which were so large and fine as to induce the committee to give a cultural commendation to the exhibitor. Several seedling Melons were shown, but none were considered superior to older sorts. Mr. Oliver Goldsmith, Polesden, Dorking, sent a fruit each of Blenheim Orange, Hero of Lockinge, and Bloxholm Hall varieties, all of which were good.

A new early dessert Apple called Early Lowfield was shown by Messrs. Cheale, Lowfield Nurseries, Crawley. It is a medium-sized conical fruit of good flavour for an early Apple. It was, however, scarcely shown in its best condition.

A collection of some eight or ten seedling varieties of Peas was exhibited by Mr. Eckford, gardener to Dr. Sankey, Boreaton Park, Baschurch, Shrewsbury. The committee considered it a promising collection, the varieties Duke of Connaught, Grand Admiral, Duke of Albany, and Home Ruler being particularly remarkable.

Mr. R. Gilbert, of Burghley, sent a dozen sorts of Potatoes, all excellent sorts, consisting of White Mountain, Sutton's Fillingbasket, Premier White, Porter's Excelsior, Pride of America, Adirondack, Radstock Beauty, Holborn Favourite, Uxbridge Kidney, Beauty of Hebron, Grampian, and International. The committee accorded a cultural commendation to the exhibitor.

The large collection of Tomatoes alluded to last week was again shown by Messrs. Carter & Co., High Holborn. Two new sorts were shown, viz., Carter's Red Emperor, a large-fruited kind, and Carter's Empress, a small oval fruited sort.

THE *Gladiolus* show, which, as announced, was to have taken place at the Alexandra Palace, Muswell Hill, to-day (August 12), is, we learn, unavoidably postponed.

***Campanula nobilis* var. *alba*.**—This is a distinct plant of dwarf habit, bearing large flowers of tubular shape and nearly 3 in. in length. They are white dotted with purple inside. *C. pulla* is also now very pretty, as is a white form of *C. rotundifolia*, which the late Miss Hope sent to me as *C. Hosti alba*. *C. pyramidalis*, both blue and white, is now at its best. Our largest or three-year-old clumps are 7 ft. or 8 ft. in height, bearing numerous spires of salver-shaped blossoms.—F. W. B.

Late-flowering Delphiniums.—Now when the flush of these is over it may not be out of place just to note one or two that form a good succession to them. They are *Ranunculi-florum*, *Triomphe de Pontois*, and *Beatsoni*; double kinds. These three are quite distinct in colour, and most useful for cutting from, as well as for border decoration. Single blooms of them associated with a bit of scarlet and green make good button-hole bouquets. Last, but not least, there is the old Siberian Larkspur, a grand and a continuous bloomer.—J. C. F.

Francoas.—Mrs. Loudon describes three Francoas: 1, *F. appendiculata* (common Francoa), no stem, flower-scapes rise from long, Turnip-shaped leaves, flowers pale pink, deeper in middle; 2, *F. sonchifolia*, from a stem covered with leaves, flowers small, dark purple; and 3, *F. ramosa*, can scarcely be recognised as same genus; stem erect and branched, leaves small, pale green; flowers white. There are engravings of No. 1 Bot. Mag., t. 3178; Bot. Reg., t. 1645; Brit. Flow. Garden, 2 ser., t. 151. 2. Bot. Mag., t. 3309; B. Flower G., 2 ser., t. 169. 3. Brit. Flower Gard., 2 ser., t. 223. 1 and 2 are in Loudon's Annuals, but not 3.—J. R. DROOP, Stamford Hill.

Wood ashes.—Where can these be procured in quantity?—F. R. M.

Specimen plants.—F. W.—Such a specimen as you name would not be a bona-fide plant, but a number of plants in one pot, and therefore would probably be disqualified.

Exhibiting herbaceous plants.—E. M.—Neither *Spiraea callosa* nor *Hydrangea* should be shown in a collection of hardy herbaceous plants, as both are shrubs. The *Solidago* is, of course, admissible.

"The Garden" general index to the first twenty volumes.—Those having sets of THE GARDEN would perhaps do well now to look them up and complete them, because the general index is being printed, and will, we hope, soon be ready. It need scarcely be said that it will make the whole series more useful to the possessor.

Names of plants.—Mrs. A. Lyde.—*Jasminum officinale*.—W. Nelson.—1, *Solidago canadensis*; 2, *Kerria japonica* fl.-pl.; 3, *Lythrum Salicaria*; 4, *Alisma Plantago*.—F. Molyneux.—1, *Abelia rupestris*; 2, *Echinops Ritro*; 3, *Gaillardia picta* var.; 4, *Francoa appendiculata*; 5, *Harpalium rigidum*; 6, *Gnaphalium margaritaceum*; 7, *Solidago canadensis*; 8, *Eriogonum macrocarpa*; 9, *Alstromeria aurea*.—J. H. (Newington).—*Tritonia aurea*, also called *Crocus aurea*.—C. M. O.—*Sedum kamschatcense*. The white leaved plant is apparently *Centaurea ragulina*.—Mac.—1, *Deplacus glutinosus*; 2, *Hieracium aurantiacum*.

COMMUNICATIONS RECEIVED.

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"This is an Art
Which does mend Nature : change it rather : but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ANNUALS AND BIENNIALS IN TOWN GARDENS.

ANNUALS are of more value in town than they are in country gardens, as they can be sown in spring, and so complete their growth in the most favourable season. When sown in the autumn they have to stand the smoke and fog of winter the same as perennials. While living in the suburbs of London I grew at different times nearly all the annuals in cultivation, but having a small greenhouse I found it better to sow early and prick out into small pots, planting out the moment the weather was favourable than to trust to autumn sowing. Most of the annuals named by Mr. Groom came up in the autumn from self-sown seeds, and these stood the winter and gave an early bloom. I think *Silene pendula* is the hardiest of all annuals; only one of my plants died during the severe winters of 1879-80 and 1880-81. Seeds seem to be harder than plants; *Eschscholtzias*, *Godetias*, *Clarkias*, &c., and even the more tender *Phlox Drummondii* and *Marvel* of Peru come up out of doors from self-sown seed even after tolerably hard winters, and these self-sown plants are always stronger and healthier than those from freshly sown seeds.

Autumn sowing of annuals is mainly advantageous with those kinds which bloom best when they have a long period of cool weather to grow in before flowering—the *Leptosiphon* family for instance, and the *Nemophilas*, both of which are ruined by a dry spring. Except the little *Leptosiphons*, of which *roseus* is the prettiest, I cannot add any to the list given by Mr. Groom, but there are one or two that require a word of caution. Sweet *Alyssum*, *Candytufts*, *Campanula Speculum*, and *Oxalis Valdiviana* are apt to become weeds, coming up in all sorts of places where one does not want them. *Saponaria calabrica* is a beautiful annual in a poor dry soil, but in a rich soil it is simply a pink Chickweed, and should not be grown except in specially prepared situations. Biennials must be sown in the autumn; many of these do well in the suburbs of London. Sweet *Williams*, which have been greatly improved of late years, should be sown now and pricked out into their blooming places as soon as they are big enough to handle. Foxgloves, *Antirrhinums*, and *Canterbury Bells* require the same treatment. The old *Campanula pyramidalis*, or *Steeple Bellflower*, should be sown in spring to bloom its best the following summer. *Ranunculus*-flowered *Poppies* are gorgeous things when in flower; these should be sown now where they are to remain. *Pansies* make a fine show in early spring if sown now; they bloom freely and for a long period as seedlings. In a cool season I have had them bloom from February to November by merely top-dressing between the plants with a little, fresh, light rich soil, as each crop of blooming stems became exhausted cutting all these off at the same time. *Pansies* treated as annuals and biennials are amongst the most useful and trustworthy plants an amateur can grow. Perpetual *Carnations* sown early in spring and pricked out in the end of August are splendid things treated

strictly as biennials; of course layers or pipings can be taken of those that it is wished to preserve, but the seedlings are the strongest and best border plants. Some of these keep continually sending up blooming shoots, and make scarcely any shoots fit for propagation; these are not of much use after their first year of blooming. I have had from 100 to 150 flowers open on these at one time. German *Wallflowers* are good biennials for spring flowering: they greatly resemble *Stocks*, but the colours vary from light yellow, through orange and *Wallflower* colours to brown-violet, making a capital contrast with biennial *Stocks*.

Sowing and soil.—I find the safest way for an amateur who has other things to attend to besides gardening is to sow all seeds in pots or boxes; in pots where a small quantity is required, and in boxes for a larger sowing. The boxes in which *Figs* are imported are the best; they are light, strongly made, and of a wood which seems almost weather proof. I have several times lost a good crop of seedlings through English-made boxes falling to pieces in my hands. The soil for seeds should be light, rich, and sweet, mixed some time before using, and frequently turned over so as to expose all well to the air; too much attention cannot be paid to this. I have had a good instance of the importance of it this season in sowing seeds in suitable soil, and in stagnant material that would breed mould and Moss. The seeds in the good soil all germinated and made strong plants, while those in the bad soil, where they did germinate, only sent out the radix a little way and then died; the pots were standing side by side, the seeds were sown from the same packets, and received exactly the same treatment. Large seeds may be covered with light soil, but small seeds and flat thin seeds like those of the *Carnation*, *Sweet William*, and *Stock* are best sown on the soil and covered with sheets of glass if in boxes, or with small bell-glasses if in pots; the sheets of glass must fit the boxes fairly so as to prevent evaporation. This proves handier than a cold frame, as each pot or box can have individual treatment. I cannot see how a busy man could raise such things as *Auricula*, *Polyanthus*, and *Gentian* from seed in any other way. For such things as *Bartonia aurea* and *Poppies* which do not transplant well and for all sowing out of doors on the beds, fine soil should be sifted over the places where the seeds are to be sown; here bell-glasses can be used to cover the seeds; inverted flower-pots are useful for the same purpose, and also to protect seedlings in severe weather. All improved or florists' flowers, and those which present a variety of colours or markings, should be sown very thinly, so that those which germinate first can be removed without injuring the later ones. If any of a lot of seedlings of these have to be wasted, those should always be the strong ones which spring up first. The finest flowers will almost always be the last to germinate; even in other plants it is good policy to save a few of the late seedlings on the chance of getting something good. I have tried several methods of raising seedlings, but find, generally speaking, the above to be the most successful. One great advantage of sowing on the surface of the soil is that the process of germination can be watched, the radix can be seen protruding and then descending, and when it has reached something nourishing the seed leaves burst their envelope. The critical period with seeds would seem to be from the protrusion of

the radicle until the formation of the second pair of leaves. Another advantage of sowing on the surface is that the attacks of insects can be detected at once.

Insects.—Seedsmen are often blamed by amateurs for sending bad seed when insects are the cause of failure. A lurking woodlouse will devour the seed leaves of a pot of seedlings as they come up, and only the most minute inspection will detect that the seeds have ever germinated. I remember giving some pots of seed up as hopeless, and only detected some time after four or five empty chrysalids of the daddy-longlegs protruding from the surface of each pot; the leather-jackets had devoured my seedlings as fast as they appeared. The best manure for seeds is a tablespoonful or so of genuine Peruvian guano (not ammonia fixed) to a pailful of water once a week.

J. D.

A NEW ROCKERY.

THE way really to enjoy the cultivation of alpine plants is to build a new rockery every year. If stone is near at hand and the dull time of year is used for the work, it need not be a very expensive luxury, and the advantage of having plenty of room for new plants, and of being able to arrange those whose habits we know according to their requirements, fully compensate for the trouble. Accordingly, my rockery, number five, has this year occupied nearly as much attention as all the rest of the garden together. It is true that for the first year the plants are not so conspicuous as at once to attract the attention of the uninitiated. Visitors remark, "This is new this year, I suppose;" and then, as if to apologise for having hurt my feelings by noticing the unpainted appearance of the stones, they add, "But I daresay it will be very gay next year," to which I assent, and lead them on to a blaze of tall *Phloxes* and *Rudbeckias*, for it is no use trying to make anyone admire what they cannot appreciate. But this rockery, which is 25 yds. long and 7 ft. wide, and about 5 ft. high, and is built of rough limestone selected from the surface blocks at Grange-over-Sands, contains the chief alpine gems of the garden. All the experience gained in constructing and planting the annual rockeries of four previous years has been brought to bear upon it, and those who know what choice alpine plants are will not be induced to pass it with a mere casual glance.

The soil is stiff and retentive beneath, but sandy on the surface, and the stones are full of cracks and hollows, all of them meant to be utilised. In a projecting fissure out of the reach of stagnant wet *Eritrichium nanum* flowered freely last spring for the first time in this garden. Under stones, which make a sheltered hollow facing the east, being placed so as to slope with their back towards the west, so as to protect from driving rains, several *Androsaces*, especially *A. sarmentosa*, have made luxuriant tufts. Alpine *Pinks*, too, rejoice in the sandy flats of the upper surface, and flower there freely. A double *Pink*, with miniature white flowers as fragrant as *Jasmine*, which came from Mr. Williams, of Ormskirk, who called it *Dianthus petræus*, is one of the largest admitted, and has increased rapidly. It is remarkable how fast plants which have been wintered in frames, or struck early in spring, grow on a new rockery. *Onosma taurica*, planted out in April as a single tuft, has become quite a fine plant, and if it will only winter well, as it ought to do with the high place assigned to

it, will be a showy plant next year. *Geranium argenteum* is another plant which may be admitted on the choicest rockery, never becoming coarse or spreading. *Stachys corsica* and *Teucrium pyrenaicum* for compact and neat labiate plants, and *Cyananthus lobatus*, with its large Periwinkle flowers, have suitable places on the slopes assigned to them, for they are all choice and contented with a moderate space. Very few *Sedums* are admitted, but some which flower late in summer are too useful or too pretty to leave out. *S. populifolium* is most elegant and distinct; *S. Ewersi*, which is now a mass of bright rose flowers; *S. pulchellum*, which always flowers itself to death; *S. Sieboldi*, projecting from the perpendicular sides, and flowering till the frost, are amongst the best. A few choice and new Saxifrages, such as *S. stelleriana*, with a stiff surface of compact green tufts, almost like the cells of a honeycomb. Then there are close-growing hemispheres of *S. diapiensioides* and *S. valdensis*; and in the narrow cracks facing the north, *S. Burseriana*, which seems liable to sunstroke, if exposed to the full blaze of the midday sun.

A new rockery also comes in for the planting out of many choice things of doubtful hardiness. Such are some of the St. John's Worts. *Hypericum reptans* is one of the choicest and neatest in habit, which must be well established before planting out, but makes a fine plant in a season from a small cutting, and flowers on till stopped by the frost. *H. ægyptiacum*, the smallest of the shrubby class, which no one could be so cruel as to expose to the cold of winter, whether it could endure it or not; and *H. empetrifolium*, nearly as dwarf and far more floriferous. We have also the pretty Australian Violet (*Erpetion reniforme*), a neat and pretty plant, but rather tender; *Acantholimon venustum*, with spikes of rose coloured flowers like those of a dwarf *Isia*; *Erodium Reichardi*, the neatest of its class, but this, too, wanting protection in hard winters; *Erythraea linarifolia*, probably hardy enough, not growing 1 in. high, with flowers like the common Centaury and perennial. Another curious plant is *Origanum dictamnus*, a very dwarf plant, with downy leaves and flowers like pink Hops, for which a taller growing kind, *O. pulchellum*, is often mistaken. A sunny, sheltered slope is assigned to *Campanula Allioni*, which grows freely here, but seldom flowers. Some other *Campanulas* deserve to be spoken of. The best of all rock *Campanulas* is perhaps *C. isophylla alba*. Spring cuttings have now grown into large plants, and will probably be too large to survive the winter, so that fresh cuttings must be taken. As for the *C. muralis* of different authorities, I have despaired of reconciling the names. Several distinct and good forms are included at Kew under the name *C. garganica*. *C. fragilis*, *alias* Barrelieri, makes fine long trailing flower-stalks if kept from the wind. All these flowers and many others which it would take too long to describe are now adorning my new rockery.

Those who think that rockeries must be limited in number and extent will, when they have reached the limit, say five or six, find it a good plan to go back to number one, and, having pulled it to pieces, and entirely cleared out all the plants, to reconstruct it with all the improvements suggested by past experience, and to replant it, omitting all plants which have proved troublesome. It is true that some visitors to my garden think that rockery number one is in spring the prettiest of all—"So truly natural," they say, "and

so well filled;" and perhaps I might think the same if I did not mourn a hundred choice alpine dead and buried beneath masses of mossy Phlox, spreading Saxifrages, London Pride, and *Sedum spurium*, and if I did not know by experience the comfort, when a box arrives by parcel post from Zermatt or Bayonne, of having some vacant spots to fill.

C. WOLLEY DOD.
Edge Hall, Malpas.

GOOD THINGS.

WHAT a brilliant flower is that of the Cactus *Dahlia* (*D. Juarezi*), which is now 6 ft. high here, and *Tropæolum aduncum*, better known as the Canary Creeper, having intertwined itself lovingly among the crimson-scarlet blossoms, a most pleasing effect is produced. *D. Paragon* and Ware's inimitable *D. White Queen* are also most effective either on the plants or when cut for vases indoors. *Gladiolus Lemoinei* and *G. Marie Lemoine* are also now amongst our most lovely of outdoor blossoms, and should be noted by all who do not now possess them. They were figured in *THE GARDEN* some time ago.

Balsamita grandiflora (*Plagius grandiflorus*), or Golden Nugget, is a distinct composite, bearing flat heads of pure gold 2 in. in diameter singly on stalks 2 ft. to 5 ft. in height. As a showy composite without ray florets it is botanically interesting, and it is to boot a good and effective hardy plant. *Nicotiana longiflora* and the new *N. affinis* are now both very floriferous in open beds and borders here, and to elegance of port add the charm of fragrance. The large single perennial Sunflower (*Helianthus multiflorus simplex major*), which Mr. Parker gave me two years ago, is a grand thing 6 ft. in height and most effective in blossom. It was figured in *THE GARDEN* last year from here, and is one of the many good things of which one may not easily have too much of.

Last winter the Rev. Mr. Ewbank, of Ryde, sent me, under the name of *Chrysanthemum lacustre*, a remarkably fine form of the Ox-eye Daisy, our British *C. leucanthemum*, than which it is dwarfier, has larger leaves, and much larger flowers of better shape and with broader ray florets. It is a gem in its way, and having previously had *C. lacustre* true to name from Mr. Lynch, of Cambridge, I can the more readily welcome this lovely stranger. Everybody is fond of that never-failing yellow *Calceolaria* with the stem-clasping leaves (*C. amplexicaulis*), but from Mr. Smith, of Newry, cometh a lovely sulphur-coloured variety of it not generally known. Its colour is so softly pure and delicate, and the plant of such a nice bushy habit, that it must soon become popular. It is known as *C. amplexicaulis* var. *albescens*. After a mild winter some half-hardy shrubs from N. India and Japan have been exceptionally fine this year. Shrubby *Hypericums* and *Veronica Hulkeana* have also done especially well. Amongst the *Hypericums* one of the finest of all is *H. triflorum* of Blume, a native of high mountains in Java, which has withstood at least the three last winters in the county of Wicklow, and has recently been very lovely in Mr. Phineas Riall's garden at Old Conna, near Bray. It is of the *H. oblongifolium* group, but instead of remaining satisfied on the Himalayas it must needs straggle down near the line and gild the Javanese mountains with its cups of Daffodil-like gold. Fancy a plant native of Java and yet hardy in Ireland. One would scarcely think it necessary to speak of the old Tiger flower in a list of this kind, and yet it is one of the good old things seen but too seldom in modern gardens. It is a Mexican beauty in a poncho of scarlet and gold! Here it forms fine clumps on a warm, sunny border planted quite near to a wall.

Billardiera longiflora is now becoming very attractive on the same wall, its slender stems being strung with Fuchsia-like fruits of a glossy purple hue. As a half-hardy shrub in mild localities

near the sea-side, this plant and the Lilac-flowered *Veronica Hulkeana*, already mentioned, deserve notice. May I venture to hope that others may tell us of their "good things." A record of bad things is not nearly so interesting. I must say, however, that some plants condemned in recent articles are here and elsewhere quite beautiful and "at home." After all, much depends on soil, aspect, elevation, and moisture. Again, peat-loving things must needs be poor if planted in crude soil on limestone, and *vice versa*. Of course, even "good things" may like special soils and positions, and be but "poor things" if not humoured to some extent; yet where plants are concerned, I would rather praise the "good things" and leave the "poor and bad hardy plants" to fight their own battle. I have great faith in selection, but one must be careful and not go to extremes. Selection with a mere view to showy or colour effects gave us the "bedding system" as applied to half-hardy plants, and we must guard against beautiful hardy plants being thus degraded.

F. W. B.

PENTSTEMON MURRAYANUS AND SPECIOSUS.

THESE two beautiful Pentstemons are not so often seen in such good condition as might be desired, a circumstance probably attributable to the fact that they are often treated as hardy plants in the true sense of the word. On light, warm, well-drained soils they will often remain in good health for a considerable period, but where circumstances are not so favourable, hard winters either kill or so cripple them that a true idea of their beauty cannot be obtained. What is needed in their case is annual propagation, not deferring it until the plants become exhausted and the shoots woody, but taking off some cuttings any time during the summer; but the earlier the better, whilst the wood is sappy and in free growth. They strike readily in a cold frame, and as soon as they have taken root they should be inured to full exposure, so that they may become perfectly hard by winter, when the protection of a cold frame is all that is needed to guarantee their safety. In any case, even where local conditions are of the most favourable description, a few young plants should be annually raised, as young free-growing specimens always produce the finest flowers. These Pentstemons may always be raised from seed, which may be either sown as soon as ripe or kept until spring, but if the former course is adopted the young seedlings should be wintered in a frame or cool house, planting them out in good free soil about the end of March. It should, however, be mentioned that seedlings vary in colour, especially in the case of *Murrayanus*. This latter is a handsome plant, the flowering season of which lasts from the end of May until July, the colours being rose, flesh-coloured, or red, according to the variety; whilst in *speciosus* the flowers are of a most beautiful blue. Many fine plants, such as these Pentstemons do not find a happy home in gardens generally, simply because a little labour is not spent upon them annually, but of which they are quite as worthy as the many tender plants which cost so much to keep through the winter.

J. CORNHILL.

The Golden Spergula.—This very pretty carpet plant was referred to recently by a correspondent with approbation. It is indeed a very neat growing plant, almost perfect in that way—quite as much so as are the mossy *Sedums* or the *Herniaria glabra*. The plant never loses its bright golden tint; it is ever dwarf; and, not least, it does not bloom. Probably in this feature it resembles the golden-tipped *Sedum*, which also does not bloom, its colouring matter evidently being absorbed in the creamy variegation. Yet should the *Sedum* revert to the green form, it will then flower freely enough. It does not follow that this *Spergula*, although such a capital carpet plant, is useful only in carpet bedding. There are many bulbs—autumn and winter Crocuses, Colchicums, Siberian Squills, Irises, &c.—that need some kind of carpet about them when in bloom, and one of

a kind that resembles Moss, and that is neither deep-rooted nor too robust, so as eventually to strangle the bulbs, and that plant is the Golden Spergula.—A. D.

NOTES FROM NEWRY.

ANEMONE VITIFOLIA is now nicely in flower. I like it better than the white form of *A. japonica*; it has a more stately air of individuality about it which the other has not. *A. japonica* usually grows into a mass; this does not. It is not, I believe, hardy generally, but it is quite so here.

SPARAXIS PULCHERRIMA.—Several distinct forms of this have been gracefully and beautifully in flower with us. They grew nearly 6 ft. high, arching in the prettiest manner. I find this to be quite hardy if planted 9 in. deep, though being evergreen it is necessary in very severe weather to place a few Spruce branches amongst its leaves.

SALVIA CANDELABRUM is now in flower, and is in every way a pretty plant; it grows nearly 3 ft. high, sparsely branched; the flowers stand erect, are purple in colour, marked with white.

SARRACENIAS and similar plants have made nice growths this season in the open ground, where they have been during the last and previous winters. *S. flava* has made pitchers 18 in. high and plenty of them. *S. Drummondii*, 1 ft., clean and healthy. *S. variolaris* evidently likes its quarters, but its growth is dwarf. *S. purpurea*, in all aspects and soils, is most vigorous. *S. Stevensi*, put out in spring, has made pitchers nearly 2 ft. long. *Drosera spathulata*, *filiformis*, *longifolia*, and *intermedia* have grown most vigorously. *Darlingtonia californica* is very vigorous and happy, and has made good pitchers.

ARGEMONE MEXICANA is now very handsome with its Romneya-like flowers. It is a distinct plant, having white Poppy-like blossoms on the stem of a Thistle. It does not succeed here as a hardy annual, but must be sown under glass and planted out when fine weather comes.

ANAGALLISES are charming annuals to throw about here, there, and everywhere. The most beautiful, I think, is a form probably of *A. Philippii*, with deep blue blossoms 1 in. across. I find this to succeed admirably amongst bog plants and even in rather shady spots; nothing could be more charming than this lovely plant with myriads of blossoms opening in the morning sunshine. *A. sanguinea*, a deep red sort, and *A. Memoria de l'Etna*, a fiery red sort, are both good varieties; there are many others, but these are the most distinct.

BEGONIA DIVERSIFOLIA is still a fine plant for the summer flower garden; strong plants of it put out in June soon assume their proper character, and their erect habit and crowded rosy crimson blossoms render them distinct. I have never tried planting out the tubers at rest, as we do the ordinary tuberous varieties with the best results, but have no doubt they would succeed equally well.

ARMERIA PLANTAGINEA RUBRA is worth a place in any garden where there is only room for one *Armeria*. It is, I think, the finest of all the group, forms fine rosettes of deep green leaves, and produces scapes nearly 2 ft. high of bright rosy red blossoms. The fact is all the *Armerias* are good garden plants, but this is the tallest, and *A. maritima alba*, from the Scilly Isles, the smallest—at least that is so here.

POTENTILLA PEDATA is a beautiful yellow-flowered perennial growing about 1½ ft. high, and producing its rather large, silver-shaped, deep golden-yellow blossoms for months at a time.

ENOTHERA PUMILA is the smallest of all the family, so far as I know. Individual blossoms of it are not large, the whole plant in fact a pigmy; but as the flowers are numerous, and are continued over a long period, it is desirable for rock-work.

SCABIOUS, white, purple, rose-pink, black, and other colours, are just now amongst the finest ornaments of the garden, both in masses and single plants jammed into all sorts of nooks possible and impossible, here, there, and every-

where. They are not only distinct and floriferous as garden plants blooming over a long period of time, but most useful for cutting. Every bloom has a long, slender, though strong stalk of its own, and no part of the plant need be cut to waste, as is the case with very many things.

PENTSTEMON RICHARDSONI is most free and floriferous, blooming right on for months. Its habit is, however, rather straggling; the branches grow erect at first, then fall down on the ground, and from the points the flowering shoots rise, the whole forming a mass 3 ft. or 4 ft. in diameter. The best way is to plant a tall-growing *Phlox*, say white, and it together. Thus you have a natural group not easily matched—a towering head of white above a mass of beautiful rosy purple. A great many plants are all the better for being associated with some other.

ERIGERON ROSEUM is the most continuous blooming plant we have, beginning in spring and continuing until frost comes in autumn.

TRADESCANTIA PILOSA (Dwarf Spiderwort) is one of the most charming plants in bloom here just now. It has ample leafage covered with soft hairs, as the name implies. Its stems are semi-prostrate, the flowers numerous, and of the deepest blue. It only grows from 2 in. to 3 in. high.

KNIPHOFIA ALOIDES NOBILIS.—Our big clump of this has now six flower-stems nearly 8 ft. high, towering far away above all other plants around it. Its appearance is particularly attractive and indeed noble.

MESEMBRYANTHEMUM TRICOLOR is one of the brightest and best of all annuals for filling up bare spaces on rockwork, that is, spaces left bare after bulbs, &c., die down, and one of such easy culture that it should be largely used. I simply go round and strew the seed about here and there and everywhere, a slope here and nook there, the edge of a wall here, and so on, and let it alone, never cover it. April is the proper time for sowing. It is now dense sheets of bloom.

PTARMICA SERRATA is by far the best of the group to which it belongs. It only grows about from 1 ft. to 1½ ft. high, and bears huge triangular heads of pure white blossoms fully 1 foot across. Its flowers are numerous, continue for a long time, and the plant is in no sense weedy.

WULFENIA CARINTHIACA is rather miffy in many places. It is succeeding well here, planted at the base of a stone, and level with the walk—a dense mass of deep green persistent leaves. I think the leaves are its best feature. It blooms freely, but the flowers, a nice shade of blue, have a curious habit of looking away from you, and are not showy. The position in which it grows is shaded from the morning and mid-day sun, which, however, sets upon it in the evening.

T. SMITH.

HERBACEOUS RUBBISH.

THAT there are many plants in cultivation in gardens inferior to many of our native weeds there can be no doubt, but it is also true that many plants look weedy because they are not properly contrasted with other plants of a different character. "Dirt," said Lord Palmerston, "is matter in its wrong place," and a good plant may have the effect of rubbish simply through being put in a wrong position. I have been greatly interested by the Rev. C. Wolley Dod's remarks about the difficulty of arranging hardy plants to produce a preconceived effect. I hope our most skilful amateur gardeners are not going to shirk this, the acme of hardy plant gardening; if so, what is to become of those not so happily situated? who have little or no time to make experiments and are obliged to trust to the experience of their more skilful brethren for light and leading. This is thoroughly an amateur's question, and one in which we can expect little help from professional gardeners. They are obliged to show their employers' successes, while amateurs can afford to say "this plant is not worth growing," or "that combination is a failure," and so forth.

Growing all sorts of plants in mixed beds is no doubt the best way as a temporary measure, as of good combinations a note can be made, and it can also be seen what plants will suit as neighbours, but no chance mixture will show what hardy plants are capable of. There are three kinds of taste which have to be suited in gardening, although two or all may be combined. This is the florist who values "made flowers," and goes into ecstasies over perfect globes, flat petals, rings of colour, &c. There is also what may be called botanical taste, which cares only for the beauty of individual plants and individual blooms, and there is—well, perhaps I might call it common taste for want of a better name, which cares only for decorative effects—great blazes of colour, and a general brilliant look of the whole garden. It was the last class which was pleased by the effects of the bedding system, and which will have to be pleased with the effect of hardy plants if they are to remain popular with an appreciative popularity, not depending on their being for the present "the thing to do." We cannot expect masses of hardy flowers planted together to have the same brilliant colour effect which bedding plants have, as if they are to be in flower at one season they will be out of flower at another, and tell only as foliage while other plants are blooming, but it is quite possible so to contrast even the foliage and habit of plants as to give a good effect without the flowers. If a lot of plants of feathery graceful habit, and from 18 in. to 3 ft. high, are planted together, they are sure to look weedy, the eye cannot follow the multitude of crossing lines and forms, and the whole looks like a bit of hedgeback as far as the foliage is concerned; but take one of these feathery plants, or a small group of them, and plant them singly amongst a mass of low growing things, and the full value of the plant is seen. If this is not the best way of arranging hardy plants, it is a very good way, and one which will give value to the weediest plant in cultivation. In order to carry it out properly, however, nine-tenths of the plants in a border must be low, close growing things, tufted, and not given to rambling too much.

Cottage garden borders.—I see frequently a little cottage garden border where this idea has been carried out unintentionally, for it has been arrived at by simply planting anything that came to hand, and planting it wherever there was a vacancy, and also by allowing the plants to seed themselves; the edging is of large flints, but they are completely hidden by greenery. There is nothing extraordinary in the planting, the stock being of quite common things. Pansies, Marigolds, Columbines, Hepaticas, Orpine, Stonecrop, Lathyrus, Gladwin, and a few Roses are all I can call to mind; but there is no bare earth except in the depth of winter, and there is always something in flower from spring until autumn, and a shimmer of sunshine and shadow amongst varying foliage the whole summer through. No doubt many plants have perished in that little border, and the effect has been reached by a process of natural selection and the survival of the fittest, but a skilful cultivator can tell very quickly whether a plant is doing well or not in any situation, and can move it to another, while those that suit as neighbours can be made "a note of." We must treat plants as an artist treats his materials; we must know all about our plants before we attempt to combine them, but once let us be able to say with confidence, "This will do here, or that will grow there," and there should be little difficulty in arrangement for effect. Two things I am convinced must in time disappear, the mixed border and the bare border. In small gardens the mixed border is the only way in which a great variety of plants can be grown, as there is only room for one or two of a sort, but in large places it need never be adopted; a border 20 ft. wide filled with some half-dozen kinds of plants will always have a better decorative effect. The bare border is death or semi-starvation to most plants (I mean the kind of border which shows plenty of bare earth, and in which the plants are set at intervals and tied to stakes); even a border

overrun with weeds will produce better flowers than that arrangement. What ought to be aimed at is to cover the ground with greenery, during summer at least, so as to preserve its moisture. This is Nature's plan. All plants except florist's flowers are weeds somewhere, and where Nature has to decorate bare, parched places, she uses bulbs and annuals, which disappear in the drought and come up again in the rainy season. It may be asked how are we to decorate our beds and borders until we get a sufficient number of plants that will grow together? The way out of that difficulty is simple: Plant hardy florist's flowers and old-fashioned plants that everybody knows all about; plant Phloxes, Pentstemons, Delphiniums, Pansies, Antirrhinums, Lilies, Gladioli, Iris, Carnations, Pinks, Narcissi, Primroses, Polyanthes, Auriculas, Anemones, and Ranunculi. Plant Hepaticas, Christmas Roses, Saxifrages, Columbines, Goldilocks, Fair Maids of France, and similar things. Hide the early bloomers in the shabbiness of their decay with hardy and half-hardy annuals, letting *Tropæolum* and Morning Glory clothe the stems of Delphiniums, Columbines, Iris, and *Polyanthus Narcissus*, and keep the new-comers in a mixed border, or in special beds until their capabilities are known.

Shrubberies.—There is one feature in our parks and gardens which requires thorough reform, and that is the shrubberies, with their miserable fringe of earth in which nothing but bedding plants will grow. Parks and gardens are too often designed to look pretty on paper, the shrubberies and beds forming harmonious combinations of flowing curves. The ground plan of a garden has no business to look pretty, and flowing curves on paper are almost certain to be tame and ugly curves when carried out in walks and beds. Gardens should be designed and staked out on the ground they are to occupy, not drawn on paper and then transferred to the ground. The main difference between real mediæval building and modern imitations of it is that the old work was staked out on the ground from a rough sketch and the details filled in as the work proceeded, whereas the modern work always fails in picturesque effect because it always looks like a built drawing. Our gardens have exactly the same fault—the shrubberies never look as if Nature had planted them; there is about them an utter absence of naïveté, of change, of variety, and of sudden effects and surprises. There is a grand opportunity for any one now laying out a new garden in boldly going in for a new style of shrubbery, doing away with those great belts of shrubs winding along near the principal walks; especially abolish all evergreens of the rounded or bee-hive shaped type; plant instead in singles, groups, and masses of fruit trees which are ornamental in flower as well as in fruit, flowering deciduous trees and shrubs, with here and there a feathery Birch, a graceful Linden, or a Mountain Ash for its scarlet berries. Leave alleys and glades running in amongst the trees—here running through and giving a glimpse of distance; there narrowing and passing out of sight; let these vary in width from 6 ft. to 30 ft., and leave a good 6 ft. at least between the trees and the turf. Plant here a great mass of Pansies, at another place some hundreds of Primroses of all colours; here a mass of alpine Auriculas, there a sheet of *Gentianella* or spring Phloxes, or Daisies, or Daffodils, or Anemones, or that gem of the Columbines, *Aquilegia glandulosa*. In smaller groups plant the larger subjects, clumps of Foxgloves, Campanulas, Phloxes, &c., each in its own proper soil and station, and let the tongue or spit of ground where two walks meet be a great bed of mixed plants. Every yard of a garden would in this way have its own distinctive character. The succession of flowering would in this way be along the borders instead of being all mixed up, and if, as in the present year, things did not keep their seasons, and *Anemone japonica* and autumn Phloxes flowered along with Pinks and Provence Roses, as they are doing at present with me, and a faint sprinkling of Auriculas and Primroses came up in what ought to be the dog days, they

would disturb no preconceived arrangement of colours. We have had several illustrations of Fern dells in the gardening papers; why not institute a glade of Pansies? A little winding walk with some 30 ft. of gently sloping and undulating bank on either side filled with Pansies only; the mixed flowers for ground and the selfs in clumps 6 ft. or 9 ft. across; here a patch of blues, there a patch of russets, here a clump of whites, there a clump of crimsons, and so on through all the other colours. Many other plants could be treated in the same way. Rose walks might be made, or Clematis walks, or both combined. All that is required is that people shall avoid doing as their neighbours do, and strike out boldly into new paths for themselves. The besetting sin of the English mind is a tendency to get into ruts. One man starts a way of doing certain things, and all the others follow like a flock of sheep, until any one who does not choose to follow the fashion is looked upon as a Bohemian or a semi-lunatic. In things involving such a multitude of details and varieties as gardening there is no right way, but a great many right ways and a great many wrong ones; one of the worst ways is that of making all gardens consist of the same features, and every hundred yards of a garden like every other hundred yards.

J. D.

RAISING GLADIOLI FROM SEED.

It is no more trouble to raise Gladioli from seed than to raise the most common vegetable; with the simplest garden culture there is an almost absolute certainty of success. Prepare your bed in spring as for any hardy annual; the soil should be made fine and comparatively rich; sow the seed in drills, cover to the depth of 1 in., hoe and weed sufficient to keep the soil light and clean, take up the bulbs after the first frost or before if ripe, store them during the winter in a dry cellar or room free from frost, plant them out again in the spring following, and in the ensuing summer very many of them will flower. With the convenience of a hotbed, or frame, bulbs may be produced from seed in one season that will very nearly all flower the second. It will require a little more care and trouble to grow them in this way, but the increase in the size of the bulb will more than pay the extra cost. One of the chief advantages, however, in sowing in a frame is that in case of a heavy storm, the young plants may be protected by the sash that during all heavy rains should be kept closed, as the young plants rarely recover after the leaves have been bruised or broken down. I know of no pleasure in gardening equal to that of growing plants from seed. The certainty of getting some remarkably fine varieties is well balanced by some that are decidedly uninteresting; but upon the whole, when proper care is exercised in the selection of seed, a marked improvement, at least in the case of the Gladioli, may be expected. The fact that the best rarely flower first will tend to create a warm and watchful interest. A pertinent and common question is, how to obtain the best seed. I answer simply by making a careful selection of the best varieties under cultivation. If an amateur, make a selection that suits your own taste, as you are not bound by society's rules as to what constitutes a perfect flower—keeping in view those of the best form, largest size, and of the most intense and positive colours; whenever they are marked or variegated, have the markings bold and distinct. Plant at least 6 in. apart each way. Without further care you will get some good seed, better quality, and far greater quantity will be obtained by cross fertilisation, which should be done on a dry day, when there is but little air stirring. It is not absolutely necessary to cross-fertilise for good varieties; neither are you sure of success if you do, though it is probably the more certain way in the line of improvement. Yet very many of our most valued seedlings were accidentals, and each year produces varieties with colours and markings entirely new, but not at all times desirable—by leaving this part of the work to the bees. Gladioli dislike a stiff, clayey soil, but will thrive well in almost any other its preference being for one of

a moist, sandy character or light loam. If the soil be good they need but little manure, and that should be well rotted; successive plantings on the same ground should be avoided; change the locality of the bed, so as not to return to the same spot for at least three years. It is the better plan to make your ground very rich for some light crop this year, then plant *Gladiolus* on it next; this plan cannot, however, be conveniently carried out in small gardens.

Increase of desirable sorts is effected by the small bulbs or bulblets that form at the base of the new bulb. Some varieties will average a hundred per year, others will produce scarcely any; this will account for the marked difference that exists as regards the prices of the named sorts, and also for the rapid increase of the more common varieties and the sudden disappearance of those that are greatly prized. Choice sorts are usually short lived unless they are increased by means of the bulblets. In many of our named sorts old bulbs will not produce good flowers, if, indeed, they produce any; consequently the bulblets of all favourite sorts should be saved and planted each spring; at least a sufficient number of them for the required stock. The question is frequently asked, "Do the varieties sport or return to the type, or do the white and yellow grounds become scarlet?" To all such queries I say emphatically no. "But then," continues the querist, "how is it that now all mine are red?" the first year or two the collection was superb, the best kinds I could get; now they are not worth growing." I will tell you. The light colours have less vitality, as a rule, than the dark ones; consequently do not rapidly reproduce, and, like delicate children, are but short lived. On the contrary, most of the older red varieties are nearer the type and possess healthy, strong constitutions and increase with great rapidity. I have planted small bulbs of the variety *branchleyensis* not larger than Peas, and in the fall have taken from them more than two hundred well ripened bulblets. From a Shakespeare, a variety that never flowers well excepting from young bulbs, or many others of that class, I should consider myself fortunate if I could get a dozen. The explanation is, as I have said, the rare kinds die out; the more common ones multiply so rapidly, that quantity is kept intact at the expense of quality. It is impossible to keep up a good variety unless you grow them on from bulblets, or buy your stock from year to year from those who do. The bulblets may be sown in early spring in any convenient out-of-the-way place and given the same treatment as recommended for the seed. If in good soil, they will, with proper attention, nearly all flower the second year. The first season they require but little room; make your drills the width of a common garden hoe and about 2 in. deep, sow the bulblets so close that they will nearly touch each other, and they will do much better than if more scattered. Take them up in the autumn after the first frost, and carefully dry them and pack them away during the winter. The plantings should be made as early in spring as the ground can be got in order, no matter if there should be hard frosts after it will not penetrate the ground sufficient to injure them. For late flowering reserve some of the stronger bulbs until the 1st of July, which will keep back their flowering until about the 1st of October.

Manures.—There is another important point in the cultivation of the *Gladiolus* that will apply equally well to the cultivation of all other plants, a point upon which success or failure usually turns, a point upon which more questions are asked than upon all others—it is, what is the best fertiliser? I have tried bones of all kinds; bones in their natural state, bones crushed, bones powdered, bones dissolved with sulphuric and muriatic acid, bone phosphates and superphosphates, and also guano. But for bulb culture all stimulating manures are dangerous and should not be used. It is true that some of these manures will give the flowers colour and size wonderfully magnified, but not healthy bloom. My experience has been that bulbs produced with such help are diseased

and short lived. The object of manure is to return to the soil those elements that go to produce plant life, and which have to an extent been exhausted by the previous crop. For that purpose there is nothing that will take the place of well-rotted turf. For small gardens where what is termed a rest is impracticable, it is invaluable and has no substitute. The next best for flowers is manure from the cow-house, which should be well rotted; they may be used together to good advantage. In this connection let me say that I mean these remarks to apply to small gardens only, as turf could not be got in sufficient quantities for general use; for that purpose stable manure occupies the first place among fertilisers, as it contains the largest number of ingredients required to sustain plant life and in the greatest variety of form. In ordinary gardening there is but little, if any, danger in using too much, that is, when it is evenly distributed.—C. L. ALLEN, in *New York Hort. Society's Proceedings*.

OUR OWN SELECTION.

THE "own selection" business falls with special severity on the owners of small gardens who wish to go in for hardy plants, but who do not know what to choose. The owner of a garden, no point of which extends further than a hundred yards from the house, who purchases one of these "collections" of hardy plants is extremely likely to think he had better have kept to bedding plants and "the ills he had rather than have rushed to others that he knew not off." Nurserymen do not or will not understand the requirements of small gardens of which the owner is really the head gardener. There no plants are suitable which are shrubby border plants, or merely good filling up material. Everything must be the very best that can be had, and everything that can be characterised as weedy is out of place. If nurserymen would make up collections consisting of good Auriculas, Polyanthuses, Primroses, Primulas, Narcissi, Irises, Tulips, Anemones, Columbines, Ranunculi, Pyrethrum roseum, Pinks, Pansies, Carnations, Phloxes, Pentstemons, Delphiniums, Antirrhinums, Lilies, and Chrysanthemums, and some of the more striking hardy plants like *Anemone japonica*, *Senecio pulcher*, *Dictamnus Fraxinella*, *Sparaxis pulcherrima*, and *Anthericum Liliastrium*, and next growing plants like the Saxifrages, Sedums, *Silene Schaffa*, *Iberis*, *Aubrietia*, and the Scillas, a few good cutting flowers like the double *Geum coccineum* and *Achillea Ptarmica* fl.-pl., and a few plants for extra hot stations and for moist and shady ones, they would be conferring a great boon upon thousands who are willing to buy if they only knew what, and would do the public and themselves much more benefit than by sending out plants which require the background of a wood or a shrubbery to show them off to advantage. Some of the collections advertised consist of really good plants almost entirely, but have the unfortunate fault of being just such plants as when placed together produce an extremely weedy effect unless planted in some arrangement which would require from a dozen to a hundred of the dwarf kinds to one of each of the tall kinds selected. J. D.

VIOLAS AND ANNUALS MIXED.

DISTINCT and extra good, as no doubt the three *Viola* mentioned by "J. C. C." (p. 140) are still owing to the comparatively short time during which they bloom, we have here been reluctantly compelled to discard them for summer work in favour of the following older kinds, having smaller individual blooms it is true, but producing immense quantities of them for a great length of time—in fact, nearly all the year round, viz.: *Admiration*, *Lutea Grievei*, *Regina*, and *Golden Gem*. Although our soil is the worst possible kind for growing *Violas* well, being thin, stony, and very light, nevertheless, we find the above thrive moderately well in the flower garden, which occupies a steep slope facing due south. Observing in other years that for two or three weeks in the

latter part of July and early in August the beds devoted to them looked rather rusty, the blooms of the darker ones being scorched, and all not flowering as freely as earlier and later, and having this year planted two large oblong conspicuous beds with the three first named varieties mixed, I decided on trying to fill up the blank just for a short time, and yet give the *Violas* all the chance possible to bloom earlier and later, as previously. Consequently on June 2 I sowed *Saponaria calabrica* and *Silene pendula* mixed thinly among the *Violas*, and the result has far exceeded my expectations. For what with the pink and white of the annuals, the bluish-purple, primrose, and white of the *Violas* all intermixed, edged with *Koniga variegata*, we have a pair of the loveliest beds I have seen for many a day. The annuals being soon over is no disadvantage in this case, for as the nights get longer and cooler the *Violas* will require all the space, and will no doubt bloom profusely. I may add that having largely used *Lamium aureum* in our somewhat extensive carpet bedding, it has proved to be a decided failure, making a few leaves only, which, as soon as developed, turn brown and powdered. Can any one assign a cause for this? J. A.

Tropæolums.—"Sempervirens" is, I fear, hard to please in the matter of plant nomenclature. I only wished to state that the King of Tom Thumb section differed materially from the common cottage garden trailing *Nasturtium*.—A. D.

Achillea ægyptiaca.—This old, but not common plant comes to us larger than we have seen it, with a fine corymb of handsome yellow heads. It is one of the best of the Yarrowes, but we are not sure that it is everywhere hardy. We used to grow it with variegated and silvery plants. From the gardens at Stanley Hall, Bridgenorth.

Evening Primroses.—"A. G." (p. 134) is wrong in saying *Oenothera macrocarpa* attains a height of nearly 6 ft. This species is of procumbent habit, and seldom exceeds the same number of inches. I presume from his description of the stately habit of his plants that they are *O. biennis*, which, as the specific name implies, is only of biennial duration, while *O. macrocarpa* is a true perennial.—E. JENKINS.

Acæna microphylla.—In last week's GARDEN (p. 131) "Brockhurst" mentions the "small red burr-like flower-heads" of the *Acæna*, and explains the object attained by their peculiar formation; he does not, however, mention the fact that the red rays or thorns (from which the plant derives its name) are not the actual flower as commonly supposed, but, as it seems, a peculiar development growing upon the seed capsules as the pistils and stamina fall off. The flower consists of a Burnet-like head of many inconspicuous flowers. I enclose specimens of the early buds, the perfect flowers, and the thorned seed vessels, none of which are yet ripe. A not very dissimilar appearance is presented by the seed vessels of *Trifolium stellatum*; nor is the development of the seed vessels of the Calvary Clover (*Medicago*—?) altogether without analogy.—T. H. ARCHER-HIND, *South Devon*.

SHORT NOTES.—FLOWER.

Lathyrus pyrenaicus.—Mr. C. Goodheat, Langley Park, Beekenhamp, is desirous of knowing where he may obtain seed or plants of this hardy plant.

Naturalising bulbous plants.—Are the following bulbs suitable for permanent planting on the sward in a secluded place, viz., *Narcissus poeticus*, single and double, *Orange Phoenix* and *odoratus* and *Leucojum æstivum*? When should they be planted? (All are suitable for the purpose, and should be planted as soon as possible.)

Milla biflora.—The long-continued rains have brought out this beautiful bulbous plant in great perfection. I have some bulbs of it with several stalks bearing as many as twelve flowers, three of which opened at once. They are fully 2½ in. across, and in the evening exhale a delicious perfume.—MAX LEICHTLIN *Baden-Baden*.

EDITOR'S TABLE.

LONICERA JAPONICA.—Always a very fragrant and graceful twining bush, very hardy and free. It appears to be the green form of the variegated Japanese Honeysuckle, which has become so popular a plant. From Mr. G. Carpenter, Rydens.

WHITE LAPAGERIA.—A lovely wreath of this from Messrs. Cripps, of Tunbridge Wells, with delicate buds and beautiful flowers in exquisite gradation of flower and bud. It is indeed a treasure, and it is pleasant to see it so well grown in many gardens now-a-days. No plant is worth more care or a better place in our cool greenhouses and conservatories.

PHILESIA BUXIFOLIA.—Admirably grown; from Messrs. Cripps, of Tunbridge Wells. We have never seen it so good near London. As some of our readers may not have seen it, we may say it is a little bush with flowers like those of a *Lapageria*, not so large, but, if anything, finer in form. Perhaps Messrs. Cripps will tell us the conditions under which it grows so well in their nurseries.

THE CROWN DAISY.—Mr. Kingsmill brings us very fresh and bright specimens of *Chrysanthemum coronarium*, which have been cut for a week. It is an annual Daisy, found plentifully in the north of Africa, and is, we believe, one of the best of all the large Daisy race, the colour, a yellow centre with creamy yellow ray, being singularly good. The wild form which he has is the best. It is very easily grown.

ERYTHREA DIFFUSA.—A neat little plant bearing this name comes from Messrs. Backhouse, of York. It grows in the form of a dense tuft about 4 in. high, each slender erect stem being terminated by three or four blossoms about ½ in. across of a bright rose-pink colour. It is an excellent little rock garden plant, but we imagine it is not a true perennial, but, like our common Centaury, of biennial duration only.

NEW ROSES.—We are pleased to see the beautiful new Roses from Mr. Henry Frettingham, Beeston Nurseries, Nottingham, named respectively Lord Frederick Cavendish, Mrs. Henry Frettingham, and R. C. Sutton. These are all strong and handsome Roses, and will, we hope, prove all the raiser desires; but English raised Roses, or any other Roses, can never be spoken of with certainty until they have been tried for several years in a variety of soils and positions.

CARNATIONS.—It is interesting to note the fine variety of Carnations and Picotees one may get from seed, and how beautiful the seedlings are if well grown. In this race, as in all others, our raisers should be active in finding out the best forms in each colour, so that we may be able to get distinct effects from sure growers. We saw lately a very fine scarlet Clove with Mr. A. Dean, which we hope to hear more of. A numerous batch is sent us by Mr. George Carpenter, Rydens Gardens, Walton-on-Thames.

ROSE DUKE OF ALBANY.—This new Rose, of which Mr. William Paul sends us some blooms from his nursery at Waltham Cross, is a worthy addition to English-raised Roses. It is one of the dark coloured class; the blooms are large, full, broad in the petal, and of "good substance." The colour is a glowing rich crimson of a deep shade, and with a velvety lustre. The most beautiful phase of the flower is its half expanded state, for then the colour is brightest and its form most perfect. We hope it is a vigorous grower, and likely to become a good general garden Rose.

CARNATION SUSAN ASKEW.—A very soft and large flower, not having the qualities of flatness which the florists seek, but finely incurved and large, and of a good creamy white. It is from Mr.

William Culverwell, of Thorpe Perrow, who also sends other fine seedling Carnations and Picotees—the largest and best coloured we have seen this year. The beauty of these flowers is all the more welcome, as they are gathered in the open air and sent just as they grow, untouched by tweezers, gum, and the rest of the floral barber's work. We hope Mr. Culverwell will go on raising fine border varieties of Carnations and Picotees, and fix upon one or two of the best of each colour. Some of his yellow ground kinds with crimson tipping will be valuable if they prove vigorous and free.

ROSES FROM CUTTINGS.—I enclose six blooms of different kinds of Roses gathered from cuttings put in nine months ago. We began cutting from them at the end of the eighth month. Finding that you are fond of Roses on their own roots, I thought you might like to see some of the blooms produced in that way. Why not have some of these in beds to cut from instead of so many things of not half their value that want wintering under glass, and that take equally long to grow? J. CROOK, *Farnboro' Grange*.

[Fesh and good blooms. Mr. Crook should tell us how he strikes and grows them so freely. Too much cannot be told as regards simple ways of establishing Roses on their own roots.]

ROSE QUEEN OF QUEENS.—When such a veteran among Roses as Mr. W. Paul, of Waltham Cross, gives a new Rose such a name as this, we naturally expect to see a good one. It is a good one, and the blooms we have of it before us are much finer than any we have before seen of it this season. Amongst older Roses the nearest related to it that we can call to mind is *Marguerite de St. Amand*, an established favourite. The Queen of Queens is a brighter rosy flesh colour, particularly towards the centre, and the outer rows of petals possess that delicate gradation of shades which we so much admire in Roses like *La France*. The flowers are what would be termed large and in form flattish. We know nothing of its habit of growth or constitution, but we may be sure that Mr. Paul, who has given to our gardens so many beautiful Roses, would not adopt a variety that was weak in these important qualities.

INDOOR GARDEN.

HYACINTHUS CANDICANS IN POTS.

It cannot, I think, be generally known that this makes a fine pot plant. It is still less known, perhaps, that it can be forced into flower out of its natural season. It is rather a striking plant when well grown in pots and placed amongst other bright flowering plants, as it has ample leaves of a pleasing shade of green. It may be potted singly in 6-in. pots, and grown as for indoor decoration; but it is much more effective when five or six bulbs are planted in 8-in. pots, and the growths neatly staked as they increase in height. They are not at all particular as to soil. I find they grow very strongly in half loam and half leaf soil, but no doubt any ordinary garden soil would suit them. They like a fair supply of water, especially when producing their flower-spikes. In dealing with them under glass, a light, airy position is necessary to secure well-developed foliage. Potted at different times, they may be had in flower nearly the whole year, and therefore they are valuable for those who may require white flowers for cutting. One has only to cut out the dark anthers to have a very chaste and beautiful white flower. In dealing with them in the open ground it is best to plant them and leave them alone. I planted some bulbs in clumps six years ago, and there they have remained undisturbed since. Every year they increase in number and effectiveness, so that no severe frost is likely to hurt them. For the mixed border they are very useful, as they come into flower at a time when hardy flowers are scarce. Planted in alternate clumps with *Gladioli* they are very striking, being of the same habit of growth. As they seed freely,

and the seed ripens in ordinary summers, it is easy to raise a few hundreds or thousands of bulbs in this way if so many are required. We sow the seeds thinly in the open ground in April, and leave the young plants undisturbed all the summer, just keeping them free from weeds. In November the bulbs are lifted and stowed away, as we do Dahlias, not to keep them from frost, but to make sure of their not being injured by being dug up in winter. If we want a few dozen roots to flower the next summer, we select the largest and keep them separate. In spring the largest are planted where they are wanted to flower; the small roots are planted in the reserve border. They are put about 2 in. under the surface and 9 in. apart each way. Generally the whole of these small ones flower the second year; but if large bulbs are wanted, it is best to pinch off the flower-spikes to give strength to the roots.

J. C. C.

LAPAGERIAS, THEIR HARDINESS AND CULTURE.

HAS anyone measured, with something like accuracy, the degree of hardiness of *Lapageria rosea*? Some years ago the late Mr. G. B. Davy, who, I believe, introduced the *Lapageria rosea* to this country, planted out in the grounds attached to his residence at Colston Bassett, near Bingham, Notts, some hundred or so of plants, his object being that they should grow up against the trunk of a tree or clump of trees until the shoots penetrated outwards towards the edge of the branches and there hang down in graceful festoons, freely flowering as the plant does in its native habitat. I have often wondered how these plants fared, and if any of them are living. Two or three years ago a shoot of *L. alba* forced itself outwards from a warm house at Gunnersbury Park between the upright of the door and the brickwork, where it remained for two or three years until some structural alteration in the house necessitated the removal of the branch. It is worthy of note that this branch, though in a north aspect, survived one or two sharp winters without sustaining any injury; and the theory was put forward that so long as the roots can be protected from frost, the shoots will take no harm. Is this so? That it does well in a cool house cannot be denied, and it has been seen growing freely and flowering bounteously upon the roof of a temperate fernery with a north aspect.

The *Lapageria* strongly objects to close soil; it does best in rough turfy peat and a little loam, but it must have an abundance of drainage. Some planters take all the fine soil from the peat, but whether they plant out or in a pot, they sprinkle some silver sand among the peat when planting. In cases where the *Lapageria* has been successfully planted out a pit has been made with plenty of drainage at the bottom, and when planting out, pieces of charcoal and some broken crocks were thrown in, not exactly mixed with the soil, but added in little groups, and so formed kind of air chambers, and into these it is found the roots run freely. The roots of the *Lapageria* are very wiry and brittle, so that it is necessary that they be not shifted oftener than is necessary, and, therefore, it is much better to plant out than to cultivate in pots. But a good depth and freedom of drainage is absolutely necessary, and when this is perfect the plant can scarcely be over-watered, and at the growing season the more liberally it is applied the better. Slugs are very fond of the young shoots of the *Lapageria*, and if not kept in check will eat them off as they come through the soil. The *Lapageria* throws up strong succulent shoots from the roots when in a flourishing condition, and it is these which furnish and extend the surface of flowering wood. If these are prevented from developing, much is lost. Slugs should therefore be carefully looked for. One grower uses short glass tubes to place over the points of the shoots as they are seen coming up through the soil, and in this way prevents harm from vermin.

It is probably true that some varieties of *L. rosea* are more floriferous than others, but cul-

ture has something at least to do with freedom of bloom. Starved and neglected plants will be certain to disappoint, but those that are well looked after and are kept clean and healthy will bloom abundantly. Plants that appeared to be sparing of flowers have bloomed freely when subjected to an improved system of culture.

R. D.

DARLINGTONIA CALIFORNICA.

ALTHOUGH so much has already been written on the cultural requirements of this curiously formed, yet ornamental, Pitcher plant, there still appears to be wanting in many gardens a knowledge of the sort of treatment under which it will thrive. Success in its cultivation did not meet the exertions of its possessors at first, and it is only recently that full-sized healthy specimens have been grown in this country. The late Dr. Moore was eminently successful with the *Darlingtonia*, and gigantic specimens with leaves or pitchers 3 ft. high and beautifully coloured were soon numbered among the many attractions at Glasnevin. Messrs. Backhouse, of York, also grew and, I believe, still grow the *Darlingtonia* very well, and it was in their establishment that it first proved hardy in this country. At Kew there is a fine specimen of it along with other good examples of so-called insectivorous plants.

Like the *Sarracenia*, the home of *Darlingtonia* is in moist, swampy open places, where there is no shade or absence of moisture during the summer months. In such a situation it grows luxuriantly. From this it will be apparent that the two things most essential to the health of the *Darlingtonia* under cultivation are light and moisture, to which must be added plenty of pure air, as a close, ill-ventilated house invariably proves disastrous to it. Early in spring the plants should be carefully washed out of the old soil and re-potted in a mixture of good peat fibre and Sphagnum, with a little charcoal and sand added. Neither loam nor leaf-mould appear to agree with *Darlingtonias*; the more open and sweet the soil the better the plants will grow. The pots should be filled about one-third with crocks, and the peat fibre and Sphagnum should be pressed firmly about the roots. A little Sphagnum may be pricked on to the surface of the soil, which improves the appearance of the plants and keeps the base moist. Place the plants in a light greenhouse where they can be kept close for about a week or so, and keep the soil moist until the roots begin to move. During the growing period abundance of water should be given and the plant should be syringed twice or thrice a day. A little air may be given during the day, but no cold currents should be allowed to reach the young pitchers, or they will be sure to suffer. Let the temperature run up as high as it likes with sun-heat and do not do anything to prevent a single ray of sunshine from reaching the plants. Our plants receive a good soaking at the root every morning, but no saucers are used to hold water about the roots, in my opinion a bad practice, and one which should never be adopted for delicate plants. As the summer advances and the pitchers reach their full development, more air may be given, so that by the autumn they will be fully ripened and well coloured. During winter a cool dry greenhouse, where the plants are just protected from frost, is the best position for plants grown under glass. Although, as has been stated, the *Darlingtonia* will live out of doors in this country, it never attains such a size nor the healthy vigorous appearance which it does under glass.

The propagation of *Darlingtonia* may be either by division or by means of seeds, the former being easily accomplished, as this plant often develops long stolons or runners, or the main stem may be divided without much danger of losing the plant. Seeds germinate freely if sown on chopped Sphagnum covered with a square of glass and placed on a shelf in a cool house. When the seedlings are large enough to be handled they should be transplanted into pans or boxes and watered freely, after which the treatment just

recommended for larger plants will be found also to suit the young ones. B.

Allamandas and their culture.—Mr. George Humphrey, gardener at Nash Court, Faversham, Kent, writes to us stating that he had nothing to do with the article on this subject stated to have been copied from another in a contemporary. He adds that "the article in question is an accurate account of the treatment which Allamandas receive here."

Indoor plants out of doors.—Is it right at this season to have pots of Camellias, Roses, Pelargoniums, Gloxinias, or what not turned out in the garden and left there to "rest," as gardeners call it, with only a chance watering, or even watered twice a day? Would it not be better to bank the pots up in ashes or sink them in the ground? What ought to be done with Pansies now in order to ensure a good bloom next year, and might I also ask the same question in reference to Picotees and Carnations?—ENQUIRER.

Nepenthes Mastersiana bids fair to outshine its parent, *N. sanguinea*, and to become altogether a freer and more manageable plant. A short row of this grand hybrid of Messrs. Veitch's at Chelsea is furnished with about 300 large dark blood-red pitchers, the uniform character of the plants showing well the free growth. They are each but a few inches in height, yet each bears from nine to twelve pitchers.—J. O'B.

Fuchsia leaves (*N. R.*).—There is no fungus on your leaves; the peculiar white appearance like bloom to the naked eye is owing to the cuticle having quite perished. The cuticle is quite devoid of moisture or cell contents, and is white and dead. Similar results sometimes occur when hot, sunny weather suddenly sets in and there is insufficient moisture at the roots. There may, however, be some other cause. Sometimes the cuticle of the leaves of Peaches and other plants is quite loose and white, the result of a too rapid growth early in the season and then a sudden cessation of growth. The (at first) loose and distended parenchyma of the leaf draws itself together and gets free from this cuticle.—F.

Striking Camellias in water.—A correspondent of the *Revue Horticole* has been successful in doing this. The cuttings are taken either in winter or early in spring from wood made the preceding year, and should have three joints to them. Each cutting is put in a phial of water and plunged in a tan bed under a cloche, the phials being kept constantly filled. In due time the cuttings take root. They are then potted and once more plunged in bottom heat until well established. Although this method of propagation does not offer any great advantages to the trade grower, it would probably be found useful in private establishments as an easy means of annually raising a few young plants.—J. C. B.

Nymphæa zanzibarensis.—This Water Lily, which proves to be the largest and finest of the genus, owes its introduction to the late M. J. M. Hildebrand, who collected seeds of it in Zanzibar, and forwarded them in 1874 to Professor Caspary, of Königsburg, by whom it was flowered. The blossoms are large and beautiful, having the sepals green on the outside and purple on the inside, the petals being of an intense blue, whilst the anthers have a shade of violet in them. During the summer the flowers open at eleven o'clock in the morning, and close at five o'clock in the afternoon, completing their blooming period and sinking under the water at the end of five days. The number of petals varies from sixteen to twenty-four; the four largest of them are brownish carmine on the back, next to them coming a row of eight smaller ones, and another row of eight more completing the series. The leaves are roundish or elliptical in form, and are more than 18 in. in width, being in colour a greyish green, more or less tinted with violet on the under side.—J. C. B.

PLANTS IN FLOWER.

DOUBLE PRIMROSES.—Some one sends a very charming batch of these, labelling them "spring in summer." They consist of the old double white Primrose, which no doubt flowers in moist districts at this season.

FRAGARIA INDICA, that pretty little Strawberry usually grown as a rock plant, is answering very well at Messrs. Veitch's as a basket plant for a cold greenhouse. Its pretty flowers and bright crimson fruit make it very attractive.

ACHILLEA PTARMICA FL.-PL.—This old plant is very good this year, and comes to us from many places. We admire it as a neat plant, but it has, after all, no form or no particular grace or colour or perfume to recommend it in the form of cut flowers. Gardeners and others should begin to consider the form of the individual flower more than they now do.

WHITE CLOVE CARNATION.—From Mr. J. Crook, Farnboro' Grange, come some flowers of a white Clove-scented border Carnation. He has been growing it for these last four years in large patches, and when associated with the red Clove nothing can be more beautiful. For bouquet making it equals any of tree Carnations, and its Clove scent adds much to its value.

GAILLARDIA LORENZIANA.—This new variety, which differs from all the rest in having its flower-heads entirely composed of tubular florets, is now in bloom at several places round London, but in none of the specimens we have seen are the flower-heads so large, so symmetrical, or so perfect as those represented in a drawing of it which was sent to us last year. It may, however, improve when its culture is better understood.

A NEW BEGONIA, called Victor Lemoine, promises to be a valuable addition even to Begonias, judging from plants of it now in flower in the Pine-apple Nursery, Maida Vale. It is an erect growing plant, with small foliage; the flowers, too, are small, rosy pink, and produced abundantly even on small plants. From the name we infer that it is one of the numerous hybrid productions of M. Lemoine, of Nancy. The neat little B. Schmidt, with bronzy foliage, is also bearing a profusion of its tiny white blossoms, which indeed it seems to do throughout the year.

GREENHOUSE RHODODENDRONS.—It would be difficult to visit Messrs. Veitch's nurseries at Chelsea and not find some of their hybrid greenhouse Rhododendrons in bloom. At present they have Prince Leopold, light orange-scarlet; Duke of Edinburgh, the nearest approach to scarlet among Rhododendrons; and Tylori, with a pure white tube and clear rose-coloured petals, as well as some of their earlier kinds, among which the lovely pink Princess Royal still retains a prominent place.

MONTBRETIA ROSEA is quite distinct from the better known M. Pottsi, being more like a Tritonia or an Ixia. It is really a pretty plant, particularly for growing in pots for adorning a conservatory at this time of the year. It grows about 1 ft. or 1½ ft. high, has narrow, grassy foliage, and slender stems furnished with numerous blossoms, each about the size of a shilling and of a beautiful rose-pink colour. A plant of it now in flower in the house (No. 6) at Kew is a pretty object among other Cape bulbous plants.

ODONTOGLOSSUM CRISPUM.—Of this variable Orchid we saw two wonderfully fine varieties this week in flower in Messrs. Shuttleworth and Carder's nursery, Park Road, Clapham. They are totally different from each other, one has large flowers with broad and exquisitely crisped sepals, the lateral sepals are pure white, the other three also pure white, but copiously spotted with heavy blotches of chocolate-red, while the broad labellum, which is likewise heavily blotched on a white ground, is beautifully margined with chocolate-red. The other has flowers of large size, the ground colour of which is white, but each of the sepals and also the labellum are broadly margined

with deep primrose-yellow, and the whole flower is profusely spotted with chocolate. Such is a short description of what are really indescribably beautiful flowers.

FLORENCE CARNATION.—Some beds of this new yellow Carnation are now very fine in Messrs. Veitch's nurseries at Chelsea. It is a good clear yellow without mark of any kind, and possesses the merit of being a perpetual bloomer. It has also been proved to be equally good as a pot plant for winter and spring flowering. In habit it is very free, and seems likely to give us a variety which will make the much-sought-for yellow Carnation more common. Considering the number of years yellow Carnations have been grown it is surprising that they should in most gardens be considered still to be novelties.—J. O'B.

MUCUNA IMBRICATA, a tropical climbing plant of the Pea family, is a very singular object just now in the Palm house at Kew, where a large specimen of it covers a wide space under the roof of the western wing. Its flowers are borne in dense, drooping clusters about the size of an ordinary bunch of hothouse Grapes, and being of the deepest purple-black colour, they more resemble clusters of Grapes than anything we remember to have seen among flowers; indeed, the similarity is so apparent that visitors mistake them for Grapes. It is only suitable for spacious stoves.

LEPTOSYNE MARITIMA is one of the showiest annuals among the Composite now in flower in the herbaceous ground at Kew, and is one that can be recommended for general culture. It grows about 2 feet high, has much divided foliage, feathery in appearance, and the habit of growth is neat and compact. The flowers are almost as large as those of an ordinary single Dahlia. In colour they are of the clearest yellow, and are borne profusely on slender stalks overtopping the foliage. It is a half-hardy Californian annual, of easy culture, requiring a warm position in light rich soil in order to properly develop itself.

ASTILBE RIVULARIS is noteworthy amongst open-air flowers, being elegant in growth and distinct from any other hardy herbaceous plant. It is a near ally to the Spiræa, closely resembling some of the herbaceous kinds. It produces a huge tuft of spreading pinnate leaves, from which arise slender flower-stems a yard or more in height, terminated by branching panicles of small white blossoms. It attains the finest growth in a damp, moist soil in a fully exposed condition, and it seems to have a partiality for a peaty soil. At Kew, in the centre of the herbaceous ground, and also in various parts of Battersea Park, it is just now strikingly effective.

ALONSOA INCISA is one of the brightest little plants imaginable when well grown, and is, moreover, a most useful one, both for conservatory adornment at this season and for cutting from. The neat habit of growth, the elegant foliage, and the profusion of its brilliant scarlet blossoms render it a charming plant, and the fact that its flowering season extends nearly throughout the year increases its value. At Gurnersbury Park it is just now one of the brightest of greenhouse plants, and Mr. Roberts grows it admirably and numerously.

NICOTIANA TUBIFLORA.—This plant has far surpassed my expectations; indeed, it is one of those plants that can scarcely be over-rated. Till this year my knowledge of it was confined to plants grown in pots under glass, but this season I have had it planted out in the open since the end of May. At that time my plants were but small, but now they have tall, branching stems bearing a profusion of flowers, as many as two dozen being expanded on a plant at one time. The flowers, which are tubular, are some 3 in. or 4 in. in length. Both the tube and the outside of the corolla are greenish brown—not at all a pleasing colour, but the interior is of the purest white, and the delicious perfume given off by the blossoms greatly heightens their value. It is essentially a night-flowering plant; the blooms

partially or quite close at daybreak and expand at dusk. A plant of such simple culture and possessing such pleasing qualities needs no recommendation.—G.

ONCIDIUM ZEBRINUM.—Mr. Henry James, Castle Nursery, Lower Norwood, has a plant of *Oncidium zebrium* bearing 220 pretty sweet-scented flowers on a bulb of this year's growth. The flowers are each nearly 2 in. across; petals white, slightly tinged with green, and spotted and barred with chocolate; lip bright yellow and crimson. The plant has the reputation of being shy flowering, but it will no doubt become more manageable when it is better understood. It is worth a little trouble to get such a grand show from it as Mr. James has done. I also noticed a fine spike furnished with over fifty blooms on a moderate sized plant of *Odontoglossum pardinum* and a fine variety of *Oncidium janeirense*, bearing about a score of flower-spikes.—J. O'B.

NOTABLE PLANTS AT BELVOIR.—Being at Belvoir Castle the other day, I took note of a splendid specimen of *Michauxia campanuloides*. It was 7 ft. high, and bearing 127 blooms and buds. Its beauty was unusually conspicuous even in Mr. Ingram's herbaceous borders, with the appearance of which you are no doubt familiar. Other very charming plants were *Pentstemon speciosus*, *Campanula celtidifolia*, *Gypsophila paniculata*, *Buphthalmum*, *Dahlia glabrata*, and some particularly finely coloured herbaceous Scabious. One lovely combination in the garden on the Duke's Walk consisted of *Ceanothus* with *Spiræas*, both rosy and white.—C. S. W.

UTRICULARIA ENDRESI.—This little tropical Bladderwort, with beautiful mauve coloured blossoms, is again in flower at Kew, where it seems to be successfully cultivated in the warm division of the Orchid house. Such an extremely pretty plant, so pleasing in colour and so elegant in growth, is worth adding to any stove or Orchid house for growing in suspended baskets. Its flowers are not so large as those of the better known white blossomed *U. montana*, also in flower at Kew, neither are they borne so plentifully. *U. Endresi* seems to have a particular dislike to the atmosphere of towns, for in them it never thrives well and seldom develops flowers.

ABRONIA ARENARIA is a hardy Californian herbaceous perennial that well deserves to become more generally cultivated. It is a prostrate growing plant with numerous branching stems, which form a network on the surface of the soil, which for several weeks during summer are covered with a profusion of bright yellow flowers borne in dense compact clusters like those of a *Verbena*. Its proper place is a dry, warm, fully exposed position such as could be found in every garden. It is an admirable rock garden plant, as it shows itself to perfection on a warm sloping ledge. The finest plant of it with which we are acquainted is at Kew in one of the ordinary beds. This plant occupies about a square yard of space, and is now covered with bloom.

CHISWICK GARDEN.—Seldom have we seen the Royal Horticultural Society's Garden so bright and full of interest as at present. The various flowers and vegetables under trial, the most useful work the Society does, are alone worth a journey to see, as they are exceptionally fine this season. The houses present a very gay appearance, as, indeed, they generally do. Those specially noteworthy just now are the housefuls of well-grown *Achimenes* and other Gesneraceous plants, tuberous *Begonias*, Zonal and Ivy-leaved *Pelargoniums*, *Solanums*, and *Celosias*, most of which are represented by a vast assemblage of varieties, all to be tested, compared, and reported upon. Among other houses particularly attractive just now is the spacious Rose house, which was until within a year or so ago an orchard house. The Roses (chiefly Teas) are planted out, and are succeeding admirably. Of the fruit houses, the capacious vinery is specially worthy of note; the Vines are carrying a prodigious load of Grapes, as fine as they ever have been. Those who have never seen this vinery, one of the largest in existence, can

scarcely realise what a fine and unique sight such a house as this is. In the open garden there is at every turn something to interest one. The wall trees—*Peaches*, *Nectarines*, &c.—are profusely hung with ripe and ripening fruits, as are also pyramidal *Pears* and standard *Apples* in the open quarters. The rock garden and herbaceous borders teem with seasonable flowers, and in the adjacent part Mr. Barron has lately carried out some bold ideas in growing hardy florists' flowers and the finer types of herbaceous plants. This part looks particularly attractive, the *Phloxes*, *Dahlias*, &c., being specially fine. In other parts of the garden there are extensive collections of *Pelargoniums*, *Marguerites*, *Verbenas*, and hosts of annuals under trial, which, as may be supposed, create a fine display. These are a few of the leading features just now at the Chiswick Gardens, and nowhere could an hour or so be more profitably spent by garden lovers, and particularly by practical gardeners, than here during the next few weeks.

CANNA EHEMANNI.—This beautiful plant may now be seen in perfection in the Horticultural Gardens at Chiswick, where Mr. Barron has several fine flowering plants of it, intermingled in a houseful of dwarf *Banana* or *Plantain*. The similarity in the foliage of the *Canna* and *Banana* conveys the idea that the whole mass consists of the *Canna* with a few plants in flower. The tall slender stems of the *Canna* overtopping such a dense mass of foliage, and terminated by a drooping cluster of brilliant carmine-crimson blossoms, produce a charming effect.

HIBISCUS SCHIZOPETALUS.—For some time past this handsome shrub has been attractively in bloom in one of the stoves at Kew, where it is planted out in free soil in a raised bed running down the centre of the house. Treated thus it is an elegant plant, and produces long slender shoots, from which depend the blossoms on slender stalks about 6 in. in length. The flowers, some 3 in. across, have curiously fringed petals of a bright red colour, which, in contrast with the green foliage, are showy. Though considered a variety of the common *H. rosa-sinensis*, it is abundantly distinct from that of any other variety, and is a plant that can without hesitation be recommended for general culture.

STREPTOCARPUS FLORIBUNDUS, now in flower at Kew, should be grown by everyone who requires a showy and continuous flowering greenhouse plant. It is by no means new, but is not much known generally. It belongs to the same family as the *Gloxinia*, to which it bears some resemblance. The foliage is produced in a flat tuft, from which arise numerous large, tubular, horizontally posed flowers of a purplish mauve colour. It is of easy culture, and may be had in flower almost throughout the year. It is easily raised from seeds, and one-year-old seedlings flower profusely. There is a variety called *biflorus*, which is superior to the type, and there are also other species, such as *Saundersi*, *polyanthus* and *paucifolius*, the latter a pretty white-flowered kind.

PHYGELIUS CAPENSIS, one of the few South African plants that succeed in the open air in our climate, is one of the handsomest of shrubby plants now in flower. The fine specimen of it against the south wall of the Orchid house at Kew is again a beautiful sight, carrying, as it does, a profusion of tall branching spikes furnished with numbers of bright red blossoms. In such a position as this, that is, a warm, southerly aspect, and in a good soil it attains perfection. It thrives fairly well treated as a hardy herbaceous perennial, the stems of which are cut down annually, though thus treated it does not flower so freely or so finely as on a wall. It is a plant that ought to be grown largely in all good nurseries, so that one could procure it cheaply. It is one of the easiest plants to propagate, and moreover one easily grown.

A BEAUTIFUL CACTUS, bearing the name of *Echinocereus pectinatus rufispinus*, is brought us by Mr. Boller, from his Woodfield Nursery, in the

Harrow Road. The plant is an oblong mass about 9 in. high, rounded at the apex, and densely covered with rusty brown stellate spines. The flowers—three in number—produced in a cluster on the top of the plant, are some 3 in. across, saucer shaped, of a beautiful rose-pink colour. The petals shine with a satiny lustre, which adds much to their beauty. It is one of the most beautiful Cacti we have seen, and we are glad to learn that Mr. Boller has a large importation of it.

FUCHSIA DEPENDENS.—This extremely elegant and showy species is a most attractive plant in one of the houses in the Horticultural Gardens at Chiswick. A fine specimen of it trained under the roof is profusely hung with its pendent clusters of blossoms, much resembling in colour and form those of *F. penduliflora*, though somewhat smaller both in flowers and clusters. A fine example of *F. penduliflora* is growing and flowering finely by the side of the other, so they are readily comparable. Two such handsome plants as these are worthy of adorning any greenhouse, and they are, moreover, easy plants to grow, and seldom fail to bloom well. *F. dependens* is still a rare plant in gardens, but a short time ago this Chiswick plant was unique.

TREES AND SHRUBS.

COTONEASTER MICROPHYLLA.

THIS evergreen shrub, with its small neat leaves and profusion of white flowers, opens in April and May, and succeeded by little red wax-like berries is, when either in flower or fruit, very ornamental. It will succeed in almost any kind of soil, and is altogether one of the most accommodating of plants. It will submit to any kind of training, soon effectively covering the fronts of dwelling-houses or other buildings. It will also conceal an unsightly wall or other object, festoon a ruin, or clothe the roots of trees, or blocks of stone in the hardy fernery or wild garden with verdure. If a single specimen of this plant is desired upon a lawn or elsewhere, a stake should be driven into the ground to the desired height, and to this the plant should be trained in the form of a pyramid, or as a standard with a clean stem of any desired height. It may also be grown in the form of a hedge, and as such it has a remarkably neat and attractive appearance. In forming such a fence the best method is to fix a strong wire to the ends of stout stakes driven into the ground at the distance of a few feet from each other; the leading shoots should be fastened to the wire and allowed to grow down the other side until they reach the ground, into which they will soon root, and a substantial hedge may thus soon be formed, which will submit to any necessary cutting or clipping. The plant may be increased by seed, but more rapidly by cuttings; indeed, it roots so freely that whenever a branch comes in contact with moist soil, it soon emits roots into it. Therefore rooted branches may always be had, which, when separated from the parent bush, soon become established plants. P. GRIEVE.

Malus Halleana.—This comparatively new and little known shrub blooms with the Japan Quince. The colour of the bud is that of the Gen. Jacqueminot Rose, but this colour changes to a bright, delicate rose both inside and out. The petals vary from eight to fourteen. It is a far more graceful shrub than the Japan Quince. In this the branches are stiff, upright, and unbending. In Hall's Apple the branches are pliant and gracefully arching. It is one of the handsomest shrubs of the season, and will not disappoint those who try it.—*Rural New Yorker*.

Variegated Tulip tree.—Mr. Dartnell sends us from Messrs. Cripp's nursery handsome leaves of this with the large yellow blotch in the centre. If it stands and does not weaken the tree, this may be a useful variegation, but that is the whole question. Variegations that weaken are really diseases.

MESPILUS GRANDIFLORA.

THERE is no lack of trees capable of lighting up a garden in spring with their beautiful blossoms, but there are comparatively few that carry their flowering season into summer. Among these few one of the finest, and, moreover, one of the least common, is the subject represented by the an-

as hardy as the only other species which we have in cultivation, viz., *M. germanica*, the common Medlar. It is generally propagated by grafting it on some of the commoner kinds of *Crataegus*, a genus to which it is closely related—so closely, in fact, that some have actually classed it with the Thorns. There are some fine specimens of this

ORNAMENTAL KINDS OF SUMACH.

WHEN lit up by the rays of the setting sun there are few more striking objects than a large bush of the Venetian Sumach (*Rhus Cotinus*). Under such circumstances a fine specimen of it came under my observation a short time since, and a more beautiful object it has seldom been my lot to see. In the sunlight its upper portion appeared to be



Flowering spray of Mespilus grandiflora; flowers white (natural size).

nexed illustration, which is probably as well known by the name of *M. Smithi* as that of *M. grandiflora*. It is a medium sized tree, growing about 20 ft. high in this country, and forming a smoothly rounded, wide-spreading head. About the end of May and first weeks of June it is covered with a profusion of large snow-white blossoms which, contrasted with the large deep green foliage, are highly ornamental. The general aspect and habit of the tree admirably fit it for planting singly on lawns, on which it never looks untidy. It is quite

tree in several parts of the country which must have been planted many years ago when the love of tree planting was more general than it is at present. There are some fine examples of it at Kew, Syon House, and Fulham Palace—the latter being long remarkable for the great variety and beauty of the trees and shrubs which its grounds contain. The native country of this Medlar was long a matter of doubt, but Boissier, in the "*Flora Orientalis*," states that its native habitat is the Western Caucasus, at high elevations. W. G.

of an intense crimson colour. This Sumach is a very old inhabitant of our gardens, having been introduced more than two centuries ago from Southern Europe, where it is found scattered more or less through a large tract of country. The leaves are smooth, shining, bright green, and differ from those of the others in being simple instead of pinnate or trifoliate, as in *Rhus Toxicodendron*. The autumn tints of the foliage are at times very bright. There is no difficulty in increasing the Sumach, as if a branch be layered it soon roots, besides which shoots may often be detached in that condition. The Stag's-horn

Sumach (*Rhus typhina*) is far removed from the preceding, being altogether different in general character. The leaves are pinnate, from 2 ft. to 3 ft. long, and the plant, even if not more than 8 ft. or 10 ft. high, is in appearance a real tree. The stem is more or less crooked and twisted; the branches also, which are but few in number, have the same character, and are each terminated by a cluster of ample foliage, from the centre of which at this season the flowers are produced. This Sumach has a very singular appearance just as the flower-spikes become prominent, that is when they are in the form of crimson-coloured velvety masses standing out conspicuously from the clusters of leaves. As a fine-foliaged plant alone it would be very ornamental, especially when young and vigorous. Under the name of *Rhus viridiflora* there is at Kew a Sumach with very deep green, long, pinnate foliage and large open panicles of greenish flowers. The whole plant is but a few feet high and in the form of a bush, but very distinct from the others. Besides the above there are *Rhus glabra laciniata*, a plant often used in the sub-tropical garden, and very beautiful it is, the leaflets being all much divided, thus giving it a very light and elegant appearance, especially when from 2 ft. to 3 ft. high, confined to a single stem, and clothed with foliage down to the ground. Other kinds are *R. Osbeckii*, a native of Japan, with large distinct foliage, and *R. succedanea*, which is smaller than any of the other pinnate foliaged sorts, but remarkable on account of the intense crimson hue of the leaves when decaying; in fact, some small specimens of it in the temperate house at Kew last autumn were so vivid in colour as to be quite striking. All the Sumachs are readily increased by root cuttings divided into pieces about 4 in. or 6 in. long, and inserted perpendicularly in light soil in a sheltered and somewhat shaded situation. A cold frame is very suitable for the purpose. The top of the cutting should be about 1 in. below the surface, but if out of doors double that depth is preferable. The best time to take off the roots is in winter or in spring, when planting operations are in progress, as they push up much more freely when put in in spring than at any other season. H. P.

ANCIENT YEW TREES.

CURIOUS and historic trees are never wanting in districts where the Yew abounds. We have no tree longer lived, none which is and has been from the beginning of history more venerated and none which is more liable to live on through a long old age in a state of wreck and ruin than the Yew. Any writer who treats in detail of historic trees cannot fail to give a list of well-known Yews; and any traveller, pedestrian, and lover of trees who has known the delight of rambling much in his native land, and visiting its retired villages, will recall with pleasure the Yew trees of the churchyards, each historic in its own place, though perhaps unknown to fame. The Yew is an undoubted native of these islands, but precisely how it came in the beginning no man knows. The Fortingal Yew is said to be 2500 years old, and De Candolle estimated the age of the Brabourne Yew, in Kent, at 3000 years old. As a sapling it had 1200 years to wait for the landing of Caesar. The Darley Yew, Derbyshire, is believed to be 2000 years old; the Crowhurst Yew, Sussex, 1400 years old; the Fountain's Abbey Yews, Yorkshire, sheltered the builders of that great monastic establishment, and its founders held a council under their shade in A.D. 1132. The Yew Grove of Norbury Park, Surrey, was standing at the time of the Druids. The Yews of Kingly Bottom, on the Downs near Chichester, stood there at the landing of the Vikings in Kent and Sussex. The Ankerwyke Yew witnessed—speaking metaphorically—the signing of Magna Charta in 1215, and three hundred years later it heard the vows of Henry VIII. whispered in the ear of Anne Boleyn in the bower beneath it. The Yew in the churchyard at Harlington, Middlesex, is more

than 850 years old. But these are comparatively modern records. In Wales, where I have counted six Yew trees in one churchyard, this tree and its associations carry us into pre-historic times where speculation must take the place of evidence. All the churchyards of old date in Wales are furnished with a Yew tree, and some of them are made grim by the number of these trees of dark foliage within their bounds. The churchyard at Mahmilde, Monmouthshire, contains thirteen Yews, or almost as many as that of Hayling Island, Hants.

Mr. Edwin Lees mentions a curious habit of growth in Yews in Wales, which is certainly unusual in sheltered districts, and is occasioned by blustering gales of wind on the coast. The tree when thus exposed breaks up into several boles, which might each be taken for a distinct tree, though they all spring from one parent stock. There is a specimen of a tall, but meagre Yew of this kind, divided into four boles, in a churchyard near Borth, Cardiganshire. There is another specimen at Llandrilla, North Wales. A great Yew at Llanfoist, near Abergavenny, measures 32 ft. in girth at 4 ft. from the base. With regard to dimensions, I may mention that Mr. Loudon described an avenue of Yews 160 years old and 2 ft. in diameter; Mr. Lees measured felled Yews 96 years old and 1 ft. in diameter, and Professor Henslow suggested an average increase in diameter of one-eighth of an inch for the whole period of growth, while De Candolle based his calculations of the age of Yews on a slower rate of growth. But when the full growth of a Yew has been attained, and it has gone far into decay, it frequently exerts a power of renewal, and the tree is reinstated by a new growth enclosing the original bole. Not one of our other forest trees possesses the same marvellous power of clinging to life. St. Augustine and his mission, arriving here in 596, wisely forebore to destroy the Yew trees which, at that time, stood around our churches as trees of long endurance and of association, objects of beauty and of interest highly prized by the people. Retaining the churches, too, as Protestants did at the Reformation, he doused the church walls and Yew boughs with holy water, and handed down the buildings and the trees to future generations so long as the timber living or dead endured. The Yew is a noble tree; it has but one defect—for slow growth with corresponding endurance can hardly be esteemed such—its leaf is poisonous to horses and cows, though not so to sheep and goats. It has been a sacred tree and is so still. The great Yew in Fortingal churchyard spanned the pathway with its gaping trunk, and the funerals of Highlanders borne to the grave passed through the opening under an archway of overshadowing foliage. In the South Down village of Wilmington, between Lewes and Eastbourne, there is a great Yew close to the church, whose spray has swept many a passing bier. The Yew may not now be a very useful plant, except in hedges for the sake of shelter, but is there any other tree so entwined, leaf and branch, with our fondest memories and affections? It is quite an error, though not an uncommon one, that Yews were planted in churchyards for the production of bows. It was indispensable to the fine grain needed in the wood used for bows that it should be grown in plantations like the Beech of the Chiltern Hundreds, which is used in the manufacture of chairs. There is just such a plantation at Midhurst, where more Yew wood of good quality might be obtained than anywhere else, so far as I have seen on the same extent of land. It should be added perhaps that the English bow, according to statute, might be of Yew, Wych Elm, Ash, or Laburnum. The last named was the customary wood for the bow abroad and the first named in England. The Yews of Kingly Bottom are said to have been planted to commemorate the death of Sybert, King of the West Saxons, who was stabbed in this deep vale among the Downs. It is quite as probable that Nature, whose hand formed the hollow by the agency of water, laid down Grass for a carpet, clothed the steep hillsides with Thorn trees, and sent the blackbird to the spot to

sing and the tawny owl to hoot at night, planted the Yews here in clumps and single specimens, so that landscape gardeners might be furnished with a perfect model of their art. One might say of each old Yew in Kingly Vale:—

What scenes have passed since first this ancient Yew
In all the strength of youthful beauty grew.

Distribution of Yew trees.—I believe that great "Village Yews," growing generally in churchyards, are most numerous in those parts of England which have been longest settled; but Mr. Edwin Lees has given precise information as to the distribution of the Yew in the west. He speaks of them as growing everywhere among the hilly woods of Worcestershire and Herefordshire, and adds: "Yews are scattered through the wide extent of Wyre Forest, and appear in great force in the woods at Shatterford, on the borders of Worcestershire and Staffordshire, as well as fringing the brook with solemn gloom that flows from thence to the Severn. The hills of Wichbury, Abberley, and Ankendine, in Worcestershire, have all Yews growing upon them; and in the parish of Berrow, near the southern end of the Malvern chain, and on the sides of the Ridgeway, at the western base of the Herefordshire Beacon, one of the Malvern Hills, are dense groves of Yew. Besides these, in a rocky wood at Cradley, Herefordshire, I not long since counted thirty Yews growing. The rocks at Symond's Yat, close to Dean Forest, nourish clumps of native Yews, and there are a fine assemblage on the Wind Cliff, not far from Chepstow. The Yew may be followed into Somerset and Devon, where there are a great number on the cliffs near Coomb Martin, in the latter county; and Aubrey, in his quaint 'Natural History of Wiltshire,' says, 'Eugh trees grow wild about Winterslow.' I have myself seen the Yew growing on a precipitous rock near Pont Nedd Vechan, in South Wales, as well as perched on the limestone rocks of Dovedale, Derbyshire. So that, in fact, the Yew is by no means uncommon as an indigenous tree in Britain. Wordsworth has celebrated the Yews of Westmoreland and Cumberland particularly—

Those fraternal four of Borrowdale,
Join'd in one solemn and capacious grove;

while one spot in Scotland, the Yew Tree Island, in Loch Lomond, is said about thirty years ago to have furnished 300 Yews for the axe, and a number of fine trees yet remain there." As a general rule the Yews of Sussex, Surrey, and Kent are by far the largest. In many parts of England the Yew never reaches the size of a large Oak; in the counties just named it does so habitually. It is nowhere larger than in the neighbourhood of "Sylva" Evelyn's beloved Wotton. About four miles from Wotton, in the Downs between Newland's Corner and Merrow racecourse, there is a nature-planted park, well known to the inhabitants of Guildford, viz., Albury Park, where a number of great Yews, sheltered by many acres of jungle, or native forest of Thorn and Furze, stand in what would be called in America a "wood opening." A bit of primeval forest covers this secluded part of the North Downs; the lesser native shrubs and trees are sprinkled freely round—the Butcher's Broom, Ivy, Holly, Elder, Birch, Maple, Hazel, Crab, Sloe, Bullace, Thorn, and hedge fruits, and the Mistletoe, with Oaks and Ash trees. They are all natives, and although Mr. Martin Tupper, of Albury, made up a pleasant story of the planting of these Yews along the ridge, as natural sign-posts for pilgrims travelling to Canterbury, it seems far more probable that Nature was their planter. These Yews also are in a sheltered site, known as the "Yew Tree Vale." They are by far the noblest plantation of great Yews that I have seen for size and number. Many of them are remarkable, as specimens of rejuvenescence which the Yew is capable of displaying beyond all other trees, a power to which its long life may be attributed. Several of the trees have grown younger in appearance during the past thirty years, having more life in them, more young wood and bark, more leaf and branch than they had thirty years

ago. I remember one very aged tree whose immense hollow trunk had a fire lighted in it by mischievous persons thirty years since, and for several years it stood a mere shell of wood which hardly seemed able to support the head of branches above. At the present time the charred marks of the fire have disappeared, and a fresh growth of bark and wood has more than repaired the damage to the tree; it has very much strengthened its trunk and given to the giant a new lease of life with a fresh crop of branches. It was formerly the practice for ingenious shepherds of the downs to fashion such small keepsakes as nutcrackers, cups, or snuff-boxes with their pocket-knives while tending their flocks in the summer months. In carving these small articles they preferred Yew wood, which they used to obtain by sawing a slab from the living tree. Many of the giants of Yew Tree Vale had lost a portion of their bulging trunks at the hands of shepherds in past years, and at the present time the effort of rejuvenescence has almost closed the wound by a new growth extending from their edges. In some cases the unhealed part of the trunk still exhibits the marks of the tool upon its surface, and there is evidence that the removal of the slab may have occurred several hundred years ago. The power of renewing the growth of bark and wood is greater in the Yew than in the Apple or Oak, and I remember several patriarchs of this family of trees standing near the farmhouses in Surrey, which appear to the eye fair green trees, but which upon closer examination and the thrusting of a stick through eyelet holes in the trunk reveal the fact that the tree, looking young and green, is a ruin, a mouldering mass within, a mere shell without. A thousand years must have passed since some of these old Yews lost their hearts by the decay of the inner wood. Just such a Yew, strong and tough in appearance, the trunk covered all over from the base upwards, with a bush of young branches, stands in the churchyard at Hurstmonceux, Sussex, and the former rector, Archdeacon Hare, lies buried beneath it. His fame and his famous friends Stirling and Carlyle, and the "Memorials of a Quiet Life," have brought numerous visitors to this spot, where Pevensey Marsh, stretching fair and green to the sea, is not greener than the old Yew. But the aged evergreen was a dotard once, and hides a thousand years beneath his green exterior. This tree measures 22 ft. 6 in. at 4 ft. from the ground.

The Crowhurst Yew, in Kent, was mentioned by Evelyn as being 30 ft. in circumference. A hundred years later, in 1788, it was reported to be in a state of rapid decay. But Yew trees are a long time dying, and in 1835 the tree was described as still hanging on, though "shaky." The Sussex Crowhurst Yew had become shaky too, and in 1876 Mr. Papillon bound the trunk with a band of iron which he afterwards loosened, because, as he expressed it, the tree appeared to be uncomfortable through being pinched. There is a great deal of life in the old Yew yet, and much living wood as well as dead timber, and in all probability it will still be several hundred years in dying. The Yew at Tisbury, Dorsetshire, is larger than either of the above, and may be older, who shall say? It is quite possible that a Saxon and heathen place of worship stood on the site of the present church, and that this was one of the trees which St. Augustine sprinkled and purified 1500 years ago, treating it in a much more liberal spirit than the Vicar of Selborne did the show Ash which Gilbert White mentions his having cut down to put an end to the superstitious feeling which the people entertained for trees of that sort. There is a very fine specimen of a Yew, old and large, in the churchyard at Hayling Island, standing, as usual, on the south side of the church. Three of the original Yew trees remain near the ruins of Fountain's Abbey, in the little valley of the Skell, a beautiful site for the grandest and most extensive ecclesiastical ruins in Great Britain. The valley is now a charming shrubbery attached to Studley Park, the residence of the

Marquis of Ripon, well watered by a sparkling stream, from which the monks took the spotted trout that are native to this pure water, and planted with many shrubs, Yew hedges, and close-clipped Laurels the steep ground, with a sweep of lawn and water in the hollow of the valley. I measured some of the specimen trees—a Hemlock Spruce, planted in 1720, was 7 ft. round and 60 ft. high; and a Norway Spruce, with branches drooping on the ground, 12 ft. in girth and 132 ft. high. The boles were measured fairly 5 ft. above the ground. The ruins are higher up the valley, though still sheltered by its natural wall of sandstone and magnesian limestone, and the shelter has screened some fine shrubs and trees which could not exist here without it. A fine *Cupressus sempervirens* stands close to an ancient Yew in the lower part of the grounds, uninjured by a severe winter, which almost destroyed that exotic in some other parts of Yorkshire. The Yew attains its greatest size in warm or sheltered situations, and when it reaches large dimensions and the trunk has become hollow, it frequently bears

A second tree within its bole.—Mr. Edwin Lees states that the Yew rarely grows as an epiphyte, though he has found it growing on a Willow, and in one curious example it had foisted itself on an Oak. This occurred in the parish of Ribbesford, Worcestershire, near the edge of Wyre Forest, and the Ordnance surveyors marked the spot on their map as the "Yew in the Oak." The girth of this pollard Oak is 17 ft., and the hollow cylinder of the trunk was filled up with the bole of a Yew tree to a height of 8 ft., where it branched, the head and foliage of the two trees mingling together with singular effect. Mr. Lees well describes the phenomenon of a tree within a tree in the following words: "A Yew berry must have in this case been dropped by some bird on the swollen-out top of the pollarded Oak, and there vegetating, its roots progressed to the ground, and once firmly fixed there, what had been originally root became in time the bole of the Yew, that had thus acquired an independent existence, and at my examination was 7 ft. in girth. Whether the fissure in the Oak where the Yew had established itself was the result of age, or whether it was occasioned by lightning, was not evident, but in its struggle for existence it was widening the aperture in the Oak annually, so that in the course of a few years it seemed probable that it would entirely separate from its foster-parent." A gale of wind, however, subsequently prevented this prediction from being fulfilled by overturning both the Yew and its "foster parent." Mr. Lees also describes an old hollow and half decorticated Oak growing near Abergavenny, Monmouthshire, within which a Holly berry had germinated and the young plant had taken root. A singular specimen was produced of a Holly bush growing in the arms of a dead Oak. Although the Yew, as Mr. Lees observes, is rarely an epiphyte, I can recall several cases where it has offered hospitality to an epiphyte, especially to the White Beam. In Yew Tree Vale one great fellow bears aloft above its head a tree of this species, whose white foliage occasions such a contrast as that of "January and May" in wedlock, but in this case the older tree bears the greener leaf. Other examples might be given of White Beams, sowed perhaps by starlings, flourishing in similar positions.—H. E., in *Journal of Forestry*.

Fremontia californica.—I can quite endorse what Mr. Ewbank says about this beautiful shrub. I do not think it likes a hot place, and it certainly does not like the knife. I had a good specimen of it on a south wall and lost it. I fancy it is a short-lived plant under any circumstances, and that may account for the apparent failures; but if I get another plant I shall put it in a sheltered spot, and not nail it to a wall.—HENRY N. ELLACOMBE, *Bitton Vicarage*.

The purple Oak.—Mr. Dartnell sends us this and praises it for its good colour. Being perfectly hardy, it is useful in many places where the Japanese Maples, with the coloured foliage, will not stand without suffering.

FRUIT GARDEN.

ALPINE OR FOUR-SEASON STRAWBERRY.

WHEN one takes into consideration what a popular fruit the Strawberry is, one may reasonably feel surprised that no serious attempt has hitherto been made to extend its fruiting season. As a fact, Strawberry time is far too short, coming to an end just when a good supply of fruit would be most acceptable; and what makes the matter even worse is that the best late kinds are not so prolific as one could desire. Take, for instance, the British Queen, the finest flavoured variety we have, and yet few grow it, simply because it is so exceptional in its requirements as to render it of but little value for general culture. The same remarks also apply to Frogmore Late Pine. What we need is a variety that would come naturally into fruit in the latter end of July. Some few years ago it really appeared as if in Perpetual Pine we had secured just what was required. It was soon found, however, to be too shy a flowerer to be of much use, for although it maintained the



Four-season Strawberry.

perpetual bearing character given it, it never yielded fruit enough to make it a paying kind. It might, however, be made the means of obtaining for us what we need if crossed with some free-bearing kind, such as *Vicomtesse Héricart de Thury*, which evinces a strong tendency to produce fruit late in summer and in autumn, or perhaps Sir Harry, which exhibits a like inclination to flower successively throughout the summer.

Failing a large-fruited, well-flavoured productive kind, we have the little Alpine or what the French fittingly term the Four Season or every month Strawberry, and if we can get rid of the notion that a Strawberry may be wholesome and refreshing without being large, we shall find that this small-fruited variety will fulfil all our requirements as regards a supply from the time our main crops are over. In French gardens the Four-season Strawberry is held in high estimation, fruit of it being obtainable all through July, August, and September, whilst to the market gardener it affords a welcome source of revenue at that time of year. So great is the love of the French for Strawberries, and so constant is the supply throughout the season, that the Strawberry man is as familiar a figure and as much an institution in French towns as the Watercress man in the streets of London making his rounds in early morning with his fruit neatly packed and temptingly displayed in large baskets having many compartments, so that it comes to the purchaser in a fresh, unbruised condition. This is certainly one thing they do better in France than in England, a fact we should do well to recognise, for certain it is that a good supply of Strawberries in August and September would be appreciated by all classes in this country.

The culture pursued in France for the production of late summer and autumn crops is simple enough, as by cutting off the flower-stalks which appear in spring, varying the time somewhat, so that the whole of the beds are not cut over at once, the fruiting season of the plants thus operated on is thrown back a month or more. The best practice, however, consists in taking the first of these late crops from the established plantations, planting out good runners in October for succession, as these are found to be more free and productive in late summer than such as have previously yielded fruit; whilst the autumn gatherings are taken from seedling plants raised early in March in warmth, and pricked out in cold frames until large enough for the open air. The beds for these young plants are very carefully prepared, being well stirred and made very rich by the addition of old hotbed manure. Generally the beds are about 4 ft. wide, as this affords convenience for weeding and watering, and also gives great facility for gathering the fruit. If during dry weather abundance of water is given, the plants will make free and rapid growth, and will yield abundantly till late in autumn. I should mention that there exists a variety which does not differ from the true kind as regards fruit and habit, but which does not produce runners.

JOHN CORNHILL.

SEEDLING OR "KERNEL" APPLES.

Of these we have many, and their existence may be accounted for as follows: Some few come from the cider mill must, which is spread on the land or left in some out-of-the-way place, but the greater part are found in the woods by men cutting coppice or otherwise at work there. The pips are carried to the woods by birds, notably wood pigeons, which are very fond of Apples in the autumn. There is generally someone in the neighbourhood whose occupation is pruning fruit trees in winter and grafting in spring. He usually collects stocks for grafting. Some growers also have a few stocks in their gardens for that purpose, but which frequently escape the operation, and are planted out in the orchard as they are; others again have the grafts blown off, and the stock pushes forth its own shoots, instead of the graft, and keeps on growing. These reasons are, I think, sufficient to account for the seedling Apples, so many of which are in existence in this county. As far as I can ascertain, most of them are the result of mere accident, there being no one who raises them systematically from seed.

We have several varieties of what are called "kernels." They are all of a brisk acid flavour, good cooking Apples, and very good for sauce or jelly. Some of them will keep good until the end of January. They are mostly of second size and of a pale lemon colour. The trees are strong, mostly upright, vigorous growers, and good bearers, rarely missing a crop. We always gather the finest of the fruit for kitchen use. All the trees of this class are remarkable for clean, vigorous growth; whether it is owing to their being seedlings or not, it is rather difficult to say, but most of them are undoubtedly seedlings. I have not known any grafts taken from them. They are not varieties suitable for market, their produce not being large or showy enough, nor pleasant to eat, and not the kind most sought after for cider fruit. I think the subject of raising some of the varieties from seed that are generally admitted to have lost some of their old vigour might be carried out with advantage. It is quite possible that some of the good old sorts might be resuscitated in this way. I may mention the noted Foxwhelp amongst cider Apples as an example. All cider makers admit its superiority over all others, and the fact that it is decaying is deplored. I was told by one of the principal nurserymen last autumn that it was most difficult to obtain healthy grafts of the true variety, and I did not doubt the statement. The Ribston Pippin is not the vigorous grower it used to be, but possibly the late wet seasons have something to do with its deterioration in this respect. I sowed

some of the pips this spring (some of which are up and growing) in order to try what effect trees direct from the seed will have on the growth and quality of the fruit, and I intend sowing more largely next season to follow up the system. Nothing can be lost by doing so if the pips are taken from the best and finest fruit. I was struck this spring with the rapid growth made by some self-sown Apples (now 7 ft. high branching from the ground) in an ornamental plantation. It is five years since the trees and shrubs were planted, and the ground was taken in from the park, so the seed could not have been growing previous to the time of planting the trees.

W. N.
Hereford.

Strawberry culture.—As many may now be thinking about renewing their Strawberry beds, the following may not be without interest: August is the best month in the year in which to plant Strawberries. The soil having been deeply cultivated, and young plants prepared by layering in small pots in July, plant in rows from 2 ft. to 3 ft. apart according to the variety, and give a good soaking of water; stir the surface soil now and then to keep down weeds, and cut off all runners as they appear. In November put a coat of half rotten manure on the surface. This not only works into the soil and thereby encourages root growth, but it also affords considerable protection to both roots and crowns when frost is very severe. In February it may be lightly forked into the soil, and in March or April a good coat of rough stable litter may be put all over the surface. This keeps down weeds, retains moisture in the soil, and forms a clean dry bed for the fruit to rest on when ripe. Anyone following this plan I feel sure will have as good results as I have for many years invariably had. Get well-rooted runners from fruitful plants to start with; they can be got for about 5s. per 100.—JAMES GROOM.

The Strawberry crop has been an exceedingly good one with us this year, and two of the sorts I would strongly recommend as fulfilling all requirements as regards cropping, size, and flavour, viz., Vicomtesse Héricart de Thury and Maréchal MacMahon. Bed of each of these have furnished us with a dish of good sized fruit daily since the 12th of July, and they are likely to do so for a week or ten days yet, besides occasional pickings for cream. The two sorts named with President are sufficient for our use, and are the only sorts worth growing on our light gravelly soil. Sir Harry is another that does well; too well, in fact, as I have been trying for the last two or three years to stamp it out altogether, for it is astonishing how it comes to get mixed up with others, appropriating their place and finally killing them out in a short time. It is the greatest cropper, but will not stand wet, and runs so strongly that I have decided to get rid of it. I have a belief that it seeds freely, as I cannot otherwise account for its presence amongst others, notwithstanding the greatest precautions when selecting the young plants. The system I pursue, and one often met with in places hereabouts, is growing them in 4-ft. beds, three or four rows being planted in each bed and the runners allowed to cover the whole space, top-dressing with soil and manure in winter. They are mostly planted in autumn, which gives a chance of a fair crop the following summer, and are trenched down the third or fourth year, according to their vigour. Weight for weight, as good results are given by this system as by single plants in lines, and mulching is not so much a necessity.—R. STEVENS, *Paston, Northumberland.*

SHORT NOTES.—FRUIT.

Strawberries.—What are the best Strawberries for planting? not British Queens, but other kinds that are good and large. R. F. C.

Ascot Citronelle.—A nice Grape like a Sweetwater outside, but with a good high flavour. It is grown at Heckfield, and I should like to know if generally it proves a good free-bearing sort.—J. H. C.

GARDEN FLORA.

PLATE CCCL.

ONCIDIUM CUCULLATUM GIGANTEUM.*

ONCIDIUM CUCULLATUM is one of the prettiest of dwarf mountain Orchids, and that it is also Orchid-like and so variable to some extent is perhaps an additional charm. It is found rather widely distributed through New Grenada, Ecuador, and Peru. *O. nubigenum*, which may be considered as an outlying form, is found at an elevation of from 12,000 ft. to 14,000 ft. being perhaps the most elevated of all Orchids, and one of those which occupy the coolest natural temperature of all epiphytes, if we except *Epidendrum frigidum*, which does not hesitate even to approach the snow line. The collector Wallis, who travelled in Ecuador for M. Linden, tells us that *O. nubigenum* grows densely on the branches of low shrubs and scrubby trees, but that *O. cucullatum* only occurs singly or in isolated groups of a few plants, and these little colonies at wide distances apart.

One of the finest of all forms of this group of mountain Oncids is *O. Phalaenopsis*, which years ago used to be quite an autumnal and winter feature in the cool Orchid house at Ferniehurst. It has flowers as large as those in the annexed illustration, but of a creamy white colour, the sepals and petals being heavily blotched or barred with ruby-purple, and the lip nearly pure white, richly speckled with ruby markings. At the base of the lip are three long ridges of gold, which light up the pale ruby spotted flower amazingly. It is quite a gem in its way, and, like all the other forms belonging to this type, its blossoms keep fresh and beautiful for ten or twelve weeks together. There are two other varieties both beautiful and rare, even in good collections of cool growing Orchids. The first, *O. cucullatum Dayanum*, is a little beauty, having pure white flowers blotched with violet in a way suggestive of *O. Phalaenopsis*. As a variety it is, however, distinct. The second form alluded to is *O. cucullatum andigenum*, a pretty little Orchid with ochre-coloured sepals, petals and lip spotted with purple. The crest of the lip is orange, which contrasts strikingly with the darker colours.

Culture and position.—All the slight varieties of *O. cucullatum*, such as inevitably occur in the imported lots not unfrequently sold by auction, are well worth culture. They succeed best in a cool house along with cool *Odontoglossums*, moisture and moderate shade being essential. They may be grown on blocks with a little living Sphagnum, but better in pots or pans of crocks surfaced with peat and moss, and suspended near the roof. So treated they grow freely, but heat or drought is ruin to their health and beauty. During hot, dry summer weather a light dew-like syringing twice a day assists them much, being in some respects a substitute for the moist rain clouds which so often sweep over them at home on the Andes. Although even the most beautiful of the forms of *Oncidium cucullatum* are not showy when compared with *Cattleyas* or the best of the *Phalaenopsis*, yet they have a quiet beauty of their own and a neat, graceful habit which adds much to their interest. Lovers of beauty, apart from mere size or intense colour, will admire them on their own merits without for a moment comparing them with the Anoks of their race.

F. W. B.

* Drawn from a plant in Mr. F. A. Philbrick's collection, Oldfield, Beckley, in June last.



ORCHIDS.

ORCHIDS AT Highbury.

THE Right Hon. Joseph Chamberlain in making his new place at Highbury, near Birmingham, enjoyed many advantages which some others extending their gardening under glass have not possessed. His former experience in Orchid growing, together with his observations respecting other collections, enabled him to avail himself of the most recent improvements in ventilating, heating, &c., and the whole has been well conceived and properly carried out. All the plant houses and offices belonging to them may be said to be under one roof; that is to say, once in the corridor, there is no need to go into the outer air to visit any of the houses or sheds. This is an advantage in many ways; it saves the plants from chills when removed for potting or other purposes, it affords visitors more comfort, and it renders the place more compact. This is particularly noticeable at Highbury, which though on high ground and fully exposed to view, not an unsightly shed or outbuilding is to be seen. Connected with the drawing-room is a spacious conservatory, 25 ft. in height, planted with Ferns, Camellias, and ornamental plants, the side stages bearing a gorgeous array of Achimenes, Clerodendrons, Fuchsias, Allamandas, and some of the largest and best bloomed *Eucharis amazonica* I have ever seen, some of them 5 ft. across (these have since been awarded a first prize at Birmingham). There is a similar structure laid out as a Fern rockery, with a large marble and alabaster fountain at the side; out of this runs the corridor, nearly 200 ft. in length, on each side of which the houses are arranged. There are thirteen long span-roofed houses of different sizes opening into the corridor on the right, and the very large lean-to cold houses and sheds on the left. The corridor is gay with flowers, and the roof and sides are also well furnished with bloom from the good collection of climbing plants. Noticeable among them were *Bougainvillea glabra*, which acquires a fine colour in that sunny place; *Plumbago capensis*, *Heliotrope*, white and red *Lapagerias*, *Passifloras*, *Tacsonia Van Volkemi*, *Bomarea conferta*, *Fuchsia penduliflora*, and *Lonicera semperflorens*. This last is one of the most beautiful plants we have for the roof of a cold house. The corridor, fernery, and conservatory are all arranged for the convenience of visitors, and are used as a promenade, ample space being found on the broad tessellated pavement for that purpose. The first house is used as a general stove, with *Dendrobes* on the roof; here Mr. Cooper, the gardener, whose heart is with his Orchids, grows his plants of *D. Falconeri*. He says that this *Dendrobe* puzzled him for a long time until at last he found this place for it. He syringes the plants two or three times a day while they are growing, and when the leaves turn yellow he removes them to a cool dry house. They are in pans in *Sphagnum Moss*, and are suspended about 2 ft. from the glass. Thus managed, they grow and bloom very freely.

The second house contains some good *Vandas*, *Aerides*, *Odontoglossum Roezli*, some very fine *Dendrobium Wardianum*, and other *Dendrobes*. The third is the large *Cattleya* house, in which are some good plants of the distinct-looking *labiata Percivaliana*, most of the fine varieties of *C. Trianae*, *C. exoniensis*, *C. Sanderiana*, &c., and here another instance of the benefit to be derived from persevering in finding the right place for a plant occurs; here in a cool, still, and rather moist corner is a nice little batch of the lovely *Vanda cœrulea*. The plants are furnished with dark, fleshy green leaves down to the pots, and are sending up from one to three flower-spikes each. What a pretty sight this *Vanda* will be when in bloom! Few plants are so soon carried off by dry heat and want of air as this; but where a moist healthy spot can be found for it in the intermediate house it is a grateful subject to handle. The fourth is the *Phalaenopsis* house, containing a general collection, but these are the worst managed plants on the place; they have a generally unhappy look about

them, which speaks to the experienced Orchidist as plainly as words could do that there is something wrong. They seem to say our place does not suit us, and we have been often shifted without finding a better. It is the old story with *Phalaenopsis*; there is no difficulty in growing them if one can only find a suitable place for them; but if not, cultural skill is simply thrown away in regard to them, and one had better be without them. I believe in nine cases out of ten they fail through being overheated in winter and from having the fire taken off in summer when the weather outside is sometimes warm and sometimes cold. Among nurserymen Messrs. Veitch, of Chelsea, grow *Phalaenopsis* best, particularly the rarer kinds, and they aim at keeping them at 65° in winter and with just enough heat in summer to keep the air from getting stagnant. The fifth house is the Orchid show house. Here, mixed with Maiden-hair and other fine-fronded Ferns, are some good specimens of *Odontoglossum vexillarium*, *O. Roezli*, *O. Alexandre*, many varieties of *Cattleya*, *Oncidium*, *Saccolabium*, *Cypripedium*, &c., all in full bloom. The plants are arranged on a groundwork of Ferns, due regard being paid to their different colours. Thus managed, and by means of the aid of a few good baskets of flowering Orchids suspended from the roof, the effect is charming. Houses six, seven, eight, nine, and ten are occupied by large *Camellias*, *Azaleas*, New Holland plants, *Zonal Geraniums*, *Tuberous Begonias*, and small stove ornamental plants for house decoration in the order in which they are named, and all are neat and in good condition. In the large *Azalea* house there is a specially good arrangement, whereby the whole roof can be lifted up about 1 foot in summer, thus allowing the plants to get all the air they require without being removed, and consequently without running the risk of getting parched up as they do sometimes when placed out of doors. Number eleven contains the smaller *Cattleyas*; twelve, the *Odontoglossum vexillarium*, *Masdevallia Chimera*, *Celogynes*, and other plants usually associated with them; and thirteen is wholly *Primulas*.

On the other side of the corridor a long lean-to cold house is furnished with some hundreds of the favourite *Odontoglossum Alexandre* and its numerous fine forms and hybrids; also *O. Pescatorei*, *O. Rossi majus* (one plant of this had sixty blooms on it at once last year), a good collection of *Masdevallias*, *Oncidium macranthum*, &c. Of this a very distinct form is in bloom; instead of having the usual straggling spike, it produces its flowers on an upright branched spike only 18 in. in height, stout and self-supporting. Mr. Cooper says its spike only rose 1 ft. last year. In habit it is a decided improvement on the species. There is a good sprinkling of bloom on *Odontoglossums*, *Masdevallias*, and *Epidendrum vitellinum*, which used to be considered so difficult to flower, but which everyone manages well now; it is kept cold and wet. *Maxillaria venusta* and some fine varieties of *Odontoglossum vexillarium* and *Nanodes Medusæ* give a cheerful appearance to a healthy lot of plants which are grown under strictly cool treatment.

Three good vineries and three long Peach and Nectarine houses complete the house accommodation of a place of which Mr. Chamberlain may well be proud. JAMES O'BRIEN.

Harrow-on-the-Hill.

Red spider.—Clean water I find to be the best remedy for red spider, a pest that is often very troublesome on trees growing on old walls, as there it has every chance of lurking in the crevices and joints, from whence it issues forth and attacks the leaves as soon as they form. Red spider is often brought on by dryness at the roots; these insects are always in the wake of poverty, and trees heavily laden with fruit are always liable to them, as the load tends to weaken their energies. To prevent Peaches and Nectarines suffering when they are bearing and ripening a crop there is nothing like mulching, which keeps the fierce heat of the sun off the ground, and maintains it in a more

uniform condition as regards moisture. For mulching, any long, half-rotten, littersy manure may be used, as it lies light and shades sufficiently, without obstructing too much the air and causing the soil to turn sour.—D.

ROSE GARDEN.

ROSES EVERY MONTH IN THE YEAR.

To pick a Rose out-of-doors every month in the year is an exceptional feat in England, but I have succeeded in accomplishing it in mid-Suffolk, not only from *Gloire de Dijon* or common China (which I have not got), but from several of the choicer varieties. Anyone who has Roses on a south wall as well as in the open ground may be supplied with blooms, in an ordinary season, from May to November. I generally reckon on getting the first Rose about the middle of May, and on cutting two or three fair blooms in the second week in November. Last year I cut my first Rose (a *Gloire de Dijon*) on May 12, and was supplied with it up to November. The first two weeks in November the Roses were no better than usual, but during that month they improved instead of coming to an end, and I cut better ones at the end of the month than I had at the beginning. Of December I will only say that two days before Christmas I cut more Roses, both Hybrid Perpetuals and Teas, than I could carry in one hand. January was more extraordinary still. On the 10th of that month I cut a bunch of Roses, among which were a lovely *Devoniensis* and three astonishing blooms of *Dupuy Jamain*. These were not knocked-about flowers which had been half out for weeks, but thoroughly expanded, glowing blooms, which came out fully in two or three days. And these were by no means the only Roses I cut in January. In February, of course, they were worse; but on the 16th I picked a bunch of half-open buds, among which were some of *Rubens*, which were at all events good enough to be worn at a ball by ladies, and were much admired. March, I thought, would do me. In a neighbouring parish a gentleman picked a fully-expanded *Maréchal Niel* about the middle of the month, but mine were not so forward. *Rêve d'Or* came to my assistance on the 20th with a fully-expanded Rose, though it was not a very good one. I had also, two days before, a fair bud of *Souvenir d'un Ami*. On April 21 I picked the first Rose of this season, a splendid *Rubens*, and I had several *Maréchal Niels* and other Roses nearly out. I call the *Rubens* of April 21 the first Rose of this season, because all the others were delayed dormant buds of last year; the wonder is they remained so good. I think it will be some time before we see so many winter Roses, for I consider that other circumstances, besides the very mild winter, helped them. We had a very hot, dry July, which ripened the first growth exceptionally well, and the subsequent rains made the second growth and show of buds particularly good. Being delayed by want of sun, these would naturally have bloomed in October, but that month was cold and wet and rainy, and the consequence was that in November, instead of Roses being at an end, every plant was a mass of buds. A great many of these, of course, perished from wet and want of sun, but sufficient survived to give us such a winter crop of Roses as I never saw before. —A. F. M., in *Field*.

The old double yellow Rose is one of my earliest recollections; it grew and flowered freely, although many of the buds degenerated into a hard green core which we called "canker." A sucker from this Rose—sent to a friend in Norfolk—was planted in a choice situation, where it was luxuriously fed and carefully tended; but although it grew vigorously and produced plenty of buds, not one of them opened properly—all "cankered." After several years' trial the gardener was ordered to turn it out of the border and plant it elsewhere. He accordingly dug a hole in a gravel path adjoining a wall, where he stuck in the Rose

and left it to its own devices. Next year it grew freely and produced a good many buds, several of which expanded into perfect flowers; and thenceforth it continued to furnish a large supply of beautiful blooms, although many of the buds still "cankered." The moral which I draw from this lesson is, that this Rose requires a spare diet and a little wholesome neglect.—G. H. W., *St. Mary Church, S. Devon.*

OLD GARDEN ROSES.

I LIKE Roses in gardens even better than a garden of Roses. The latter at times affords little poetry or pleasure in comparison with a few Roses here and there in the garden. Any garden will do—the kitchen garden often better than any other. There, at least, the Rose will mostly find two things it loves—shelter and rich soil. It is impossible to over-estimate either. Who shall gauge the sufferings of the Rose through being placed for effect in the teeth of the wind? It is mostly a mistake to mass Roses for picturesque effect, or for the clothing or enrichment of the landscape. The Rose does not readily lend itself to such purposes. It is the friend and close companion of man, and thrives best beside or among his Cabbages or sweet herbs, or fringing the close skirting sides of his well-sheltered daily walks. The loveliest Mosses, most Velvet Damasks, purest Maiden's Blushes, and white Uniques, and most fragrant Roses ever seen, were those rising out of groups of Cloves flanked with Mignonette—that grew in old-fashioned kitchen gardens. The fragrance of the Rose was not then wasted on the desert air. Neither were the delicate petals riven into ragged fragments. No; the few Roses cultivated were well grown and carefully sheltered. The soil of those old mixed borders was also good. It was not only rich, but light, and, notwithstanding all that has been said about the advantages of a stiff soil for Roses, there can be little doubt that most of the so-called garden Roses thrive best and flower their freest on a light soil. In a word, the soil that grows the best Cabbages and Celery will also grow the best Roses. Roses in the kitchen garden had also a less severe struggle for root food than many of those planted in roseries, or shrubberies, or other borders, in more open situations. True, the roots of trees and bushes used at times to greatly impoverish Roses in kitchen gardens; but the annual dressings, diggings, &c., tended to keep up the feeding properties of the soil sufficiently for the well-being and well-doing of the Roses. No doubt many of the older varieties were weaker growers, and consequently took less out of the soil than those we now possess. There were few or no giant Roses in those old days, but the dwarfs were at least sweet and beautiful, and sure to be forthcoming in their season. The rage for size and for mixed blood had not then given us a brood of tender Roses, of which, whatever may be their merits, it may truly be said we never know how or where we shall find them at the end of March. Roses then were stable, lasting, hereditary heirlooms; probably those who had a stock of Roses seldom thought of planting more. Nearly all were on their own roots—multiplication by suckers had to be checked rather than fostered. All this is changed, on the whole, no doubt, vastly for the better; and yet one clings fondly to the old garden Roses, and they ought to be restored to every garden throughout the kingdom. Surely, amid the ever-widening area devoted to Roses, space may be found for the old favourites, most of which possess the substantial merits of sweetness and hardiness. Perhaps no better place could be found for them than a 3-ft., 4-ft., or 6-ft. border on one or both sides of the main walk in the kitchen garden. One of the sweetest and most welcome revivals of the olden times would be the old Roses in their old places, supported with Gillyflowers, Cloves, Carnations, Pinks, Polyanthus, Primroses, Auriculas, Rockets, Larkspurs, Indian Pinks, Pæonies, Phloxes, Hepaticas, Squills, Windflowers, Tulips, Hyacinths, Crocuses, Snowdrops, Narcissi, Snowflakes, and Mignonette.

Singularly enough, though these borders were mostly so crowded, the Roses seldom had a starved or stunted look. It also seemed as if the other occupants helped rather than hindered their growth; they appeared to foster as well as shelter them, and the variety and distinctness of their odours seemed to impart even a new sweetness to the Roses.

While many of our best show Roses, such as Duke of Edinburgh, Alfred Colomb, Marie Baumann, Charles Lefebvre, Marie Rady, Sénateur Vaisse, Edouard Morren, Maurice Bernardin, Beauty of Waltham, La France, Victor Verdier, Maréchal Vaillant, &c., are also the most useful Roses, yet it must be confessed that many of the old favourites have unique charms of their own, and that those who grow them chiefly are delivered at once from the trials, excitements, drawbacks, and rewards of exhibitions. Besides, there is room enough in many gardens for all the old Roses in their old places. First among these should be found the pink Provence, or old Cabbage, as well as the crested, white, and striped varieties. There were also the choice crimped, clustered, and single varieties, as well as a brighter sort called the Red Dragon, besides several others. Among Damask Roses, a semi-double crimson was the most common; and there were also red, pink, and white, and variegated, single, and semi-double, and the famous York and Lancaster red, irregularly splashed or variegated with white. These were quite different from the more modern so-called Damask Roses Bachelor, Madam Hardy, Blairi, Madame Soetmans, &c. Of these and the Cabbage Roses there were also several miniature or pompon forms that still seem popular in France, though seldom seen in this country. The chief difference between the Moss Rose and the Provence consists in its mossiness, and this appendage has always been highly esteemed. Fewer changes and improvements have been effected among this class than any other, though this charming addition would vastly improve the finest Roses, such as, for example, Maréchal Niel, Souvenir d'Elise Varden, and the Duke of Edinburgh. The common or old, the crested and white—both are still the most popular Moss Roses—Lanei, Celini, Gloire des Mousseuses, Luxembourg. In the newer class of Perpetual Moss Roses, James Veitch, Madame Edouard Ory, and the Perpetual White Moss are perhaps the best.

Among the finer old French or Gallica Roses Boule de Nanteuil was one of the finest and most popular. Among others of the finest of this class are Kean, rich purple-crimson; Ohl, dark crimson, scarlet centre; Paul Ricaut, deep crimson; Perle des Panachées, white, striped with rose; Guardsman, purplish crimson, and many others; though it is doubtful if so many can be found in modern collections. The Maiden's Blush Rose, once so popular, but now seldom met with, is doubtless a seedling from the native species, *R. spinosissima*, and used to be found in great variety, varying much in colour and in degree of doubleness. It is now generally superseded by the *Rosa alba* class, which contains such useful and showy varieties as *Félicité*, *Perpetuelle*, Madame Vidot, La Seduisante, &c. Such showy, vigorous garden Roses as *Blanchfleur*, La Calapte, &c., are also closely related to these.

The classes of Hybrid China, and Bourbons, &c., filled an important place in old gardens. It seems but yesterday since the writer first made personal acquaintance with *Acidalie*, Beauty of Billard, Brennus, Juno, Chené-dolé, Fulgens, Madame Plantier, Coupe de Hébé, Paul Perras, Paul Ricaut. The double yellow Provence, or Cabbage Rose, was also comparatively common in old gardens. It is still to be found, but seldom flowers. The Persian yellow, Harrisoni, and the bronze Persian were also common, and made a fine display. These can hardly be said to be superseded by such magnificent yellow Roses as Maréchal Niel, Triomphe de Rennes, Céline Forestier, Gloire de Dijon, and others.

In most of the old gardens there were also found Macartney and Musk Roses, as well as

quantities of Scotch, Ayrshire, evergreen, and Boursault Roses. These were used for walls, arches, pillars, &c. One of the most popular old pillar Roses was *Russelliana*, a crimson-purple, of free habit and great beauty. The white and yellow *Banksias* were also very generally grown alike on walls in the open air and on the roofs and walls of greenhouses.

Bourbon, Noisette, China, and Tea Roses also filled important places in old gardens. Among the former it is pleasing to find *Souvenir de la Malmaison* nearly forty years ago, and *Charlemagne*, Dupetit Thouars, George Cuvier, Minoux, Paul Joseph, Sonchet, &c.

Among Noisettes *Aimée Vibert* is still one of the most useful garden Roses, as are also *Lamarque* and *Solfaterre*. Among the sweet-scented Tea Roses not a few of the old varieties still hold their own. Among these Adam, Bougeré, Eliza Sauvage, Niphotos, Souvenir d'un Ami, Vicomtesse de Cazes are conspicuous.

Among Chinese Roses, Mrs. Bosanquet, Cramoisi Supérieure, Fabvier, and Madame Bureau, the latter a pure white—a rare colour in this class—did excellent service in the old beds and borders.

Neither were the old gardens without their Hybrid Perpetual Roses—a section that now threatens to absorb or swallow up all the others. Auguste Mie, Caroline de Sansals, Baronne Prévost, Comte de Nanteuil, Duchess of Sutherland, Géant des Batailles, General Castellane, General Jacqueminot, Gloire de Metz, Jules Margottin, La Reine, Lord Palmerston, Lord Raglan, Louise Peyronny, M^{me}. Ducher, M^{me}. Laiffay, M^{me}. Masson, M^{me}. Vidot, Souvenir de Leveson Gower, William Jesse, &c., did noble decorative service, in conjunction with Moss, Cabbage, Damask, Bourbon, and China Roses and Briers, for in those days a double scarlet and also a double pink Sweet Brier were frequently met with in gardens.

Those who wish for a considerable variety of Roses in their gardens—without converting the latter into a garden of Roses—may make a selection from these old sorts, few of which will disappoint them; or they may select from the following free-growing all-round most useful Roses: Coupe de Hébé, Charles Lawson, Gloire de Dijon, Madame Plantier, Madame Hardy, Harrisoni, Bourbon Queen, Queen of Bedders, Gloire des Rosomanes, Céline Forestier, Aimée Vibert, Triomphe de Rennes, Safrano, Rêve d'Or, Devoniensis, Homère, Madame Lambert, Madame Margottin, Madame Willermoz, Madame Van Houtte, President, Rubens, Niphotos, Souvenir d'Elise Varden, Anna Ollivier, Innocenti Pirola, Cheshunt Hybrid, and the old crimson and pink China monthly Roses, with three or more varieties of the evergreen or fairy Roses, which are pomponed monthly of much interest and beauty. Gracilis and elegans are perhaps the best climbing Boursault Roses; Thoresbyana, Splendens, and Dundee Rambler the best Ayrshire; Félicité Perpétuelle and Banksiaflora the best white evergreen; and Princess Marie and Spécialité the best pink evergreen Roses. *Russelliana* and the Garland are also excellent climbing Roses. There are likewise four varieties of the *Banksian* Rose now in the trade—the *Alba* or white, and *Lutea* or yellow, also the *Fortunei* or larger white, and *Jaune Perin*, with flowers larger as well as deeper than the common yellow. For tall bush or pillar Roses in the garden the *Gloire de Dijon*, climbing *Devoniensis*, Cheshunt Hybrid, Madame Trife, and Belle Lyonnaise are among the best. There is also a climbing *Aimée Vibert*, which, with the Maréchal, Rêve d'Or, Lamarque, and Céline Forestier are among the best climbers. Among the Noisettes the climbing Charles Lefebvre, Victor Verdier, Edouard Morren, and Jules Margottin; and the following strong-growing Hybrid Perpetuals are well adapted for pyramids or rough bushes: Baronne Prévost, Duke of Edinburgh, Annie Wood, Glory of Waltham, Paul Perras, Sultan of Zanzibar, Coquette des Blanchés, Maréchal Vaillant, Madame Clémence Joigneaux, Madame Lacharme, Madame Victor Verdier. Add to these Baron Gonella, Madame Barriet, Coupe

de Hébé, and Charles Lawson, from the Bourbon or Hybrid Bourbon classes.

It is difficult to select the best garden Roses from the Hybrid Perpetuals, inasmuch as almost the whole deserve to be included. But the following are sure to give satisfaction: Anna Alexieff, Baronne de Bonstetten, Centifolia rosea, Beauty of Waltham, Duc de Cazes, Duke of Wellington, Duke of Edinburgh, John Hopper, General Jacqueminot, Jules Margottin, La France, Madonna, Charles Wood, Madame C. Crapelet, Madame Stour, Madame Hippolyte Jamain, Madame Hector Jacquin, Madame Victor Verdier, Mademoiselle Eugénie Verdier, Maurice Bernardin, Prince Camille de Rohan, Perle des Blanches, Souvenir de la Reine d'Angleterre, Xavier Olibo, Victor Verdier, Boule de Neige, &c.

No doubt this leaves out many good Roses; but with a tithe of these included, and well grown, there seems every reason to hope that the Roses in the garden will equal, and even a long way excel, those of the olden times, when every garden had its Roses as surely as its sweet herbs and its Gilliflowers. D. T. FISH.

PROPAGATING.

THE various Pelargoniums of the show, French, or fancy section that have finished flowering will be by this time cut down, and any that are wanted for purposes of propagation, even if still in flower, should be so treated without delay, otherwise the cuttings will not have time to become established before winter sets in, and their growth at best will be but weak. A good way is to set them out-of-doors a few days before they are cut down, in order that the wood may acquire a firmer texture and be less liable to decay than if used full of sap. This precaution is especially necessary if the plants have been fed up with stimulating manures, as in that case, unless they are ripened off before being cut down, a certain amount of risk is incurred that may be avoided. In making the cuttings, choose good clean, stout, growth, discarding at the same time all portions that contain nothing but undeveloped flower-buds. Such portions consist of part of the top of each shoot, and should be thrown away, but the rest of the upper part, as a rule, furnishes the best cuttings of any. In cutting them up sever each one immediately below a joint, which should form the base of the cutting, but do not remove more leaves than is absolutely necessary, as those not required will drop off in a few days without inflicting the check that would be caused if they were cut off. Five-in. pots are a very suitable size to put them in; should be filled about one-third with crocks before the soil is added. A good soil should consist of two parts loam and one part of both leaf-mould and sand, the whole being pressed moderately firm. After the cuttings are put in, water them and place them in a good light position, shaded but little, if any, from the sun, and freely exposed to the air. A shelf in a greenhouse or some such place will suit them admirably. After they have been put in about a week, if gone over carefully, it will be found that a great many leaves can easily be removed. Such should be at once done, otherwise their decaying stalks may communicate infection to the stem, and thus destroy the cutting. In putting them in keep to the edge of the pot, as so placed they strike best. Plants struck in this manner are always stouter and more vigorous than those kept close and shaded when in the cutting stage.

The above remarks do not apply to Pelargoniums of the Zonal and Ivy-leaved section, as these strike better where slightly shaded and kept rather close. Of course, when large, firm cuttings are obtainable, they strike well either in or out of the sun; but where the number is limited, as in the case of new varieties, it is often necessary to make the cuttings very small, and such being the case, they are unable to withstand exposure, while, if protected a little, they root quickly. In the case of the Ivy-leaved kinds it is unnecessary to leave a joint at the base, but in Zonals

that should be done. Those pretty little tuberous rooted kinds, commonly called Cape Pelargoniums, represented by such sorts as Echinatum, Spotted Gem, Ariel, Pixie, and Beauty, often fail to strike satisfactorily. I have succeeded best with them by repotting the stock plant and keeping it in a growing temperature; then when the shoots are long enough, take them off, when they will strike readily. If very succulent, allow them to lie by for a few hours after cutting them off and do not overwater them when put in.

Where it is desired to increase plants of the different greenhouse varieties of Yucca, such as aloifolia variegata, quadricolor, and filamentosa variegata, it will be found on turning them out of their pots, even if small, that some are pushing out large roots or underground stems against the side of the pot. These may be carefully cut off in lengths of 2 in. or 3 in. without disturbing the ball of soil, and put in a perpendicular position in pots or pans of sandy soil and at a sufficient depth to be covered $\frac{1}{2}$ in. If assisted with a little heat they will push up strongly, and when sufficiently rooted can be potted off. The advantage of this method is, the stock plant is in no ways injured or distressed by it. T.

GARDEN DESTROYERS.

INSECT PESTS.

Aphides.—Prevention, it is said, is better than cure, but how are we to prevent the attacks of insects? To keep them from houses is not difficult—that is, if the houses are wind and weather-tight, as the insects can be assailed with tobacco smoke. Outdoors, however, where smoke cannot be applied, aphides give great trouble, as, left to themselves for only a very short time, they cause the leaves of the plants they are on to curl in such a way that it is almost impossible to get at them. To be successful in battling with them, the thing is to attack them before the foliage gets into the state just named, as not only do insects cause the leaves to curl, but they cripple the growth to such an extent that it is a long time before the infested plants gets over the check. The trees most liable to aphides are Peaches and Nectarines, and these will require close watching now, as it is when we get cold winds and little sun that these pests do the most mischief. The reason of this is, the shoots cannot make progress and get away from them before a fresh colony is founded. Insecticides there are in any quantity; but, unfortunately, most of these are dangerous—not, however, in regard to their action on the leaf, but on the fruit, especially that of the Peach, which, owing to its woolly coating, is easily injured. If liquid insecticides are used at all, they should be those made chiefly from tobacco, the juice of which, properly diluted, is perfectly safe, and is perhaps as cheap, and certainly as effectual in destroying aphides, as anything that can be had. Although tobacco liquor is sold, the best way is to buy common cheap tobacco and soak it in boiling water; if a couple of ounces or so of soft soap and one of soda be added to each gallon, these will increase its strength and potency, and form a mixture that no green fly can withstand.

Another good, simple, and safe insecticide is soft soap and Quassia, the latter of which should be boiled in water for some time, so as to extract the bitter, and the soap may be added afterwards while the water is hot. The quantity of Quassia necessary to make the liquor strong enough is about 4 oz. to the gallon, and 2 oz. or 3 oz. of soft soap to the same quantity of water is sufficient. One great advantage in using liquid insecticides is that they can be applied with the syringe, or shoots may be bent down when they are long enough and dipped into the liquid. This is the best way of dealing with Cherries. Roses, the young shoots of which are not very pliable, must be syringed; but, by a dexterous use of the syringe, the liquid may be ejected in so fine a manner as to bedew the plants, which, if all parts of the foliage are moistened, is just as effectual

in ridding it of insects as it would be to deluge it with the mixture. The best time to apply either the tobacco juice or Quassia extract is late in the evening, and then wash off early in the morning. This should be done by the use of a garden engine, as, with the force of water that may be sent on from it, a thoroughly cleansing of the leaves is effected. In using the engine, care is necessary not to drive the water hard enough to knock or bruise the shoots against each other, as in the case of Roses the spines are so sharp now, that the foliage becomes lacerated and torn. Peaches and Nectarines should be washed and cleansed in the same manner, and by a frequent and continuous use of clean water, trees of these may be kept free from aphides all through the summer. One of the greatest checks to aphides is timely disbudbing and pinching off the useless shoots, operations which cannot well be taken in hand too soon, as by doing the work early, the strength of the trees is directed in the right channel, and the aphides have nowhere to lodge. Early stopping makes short, close spurs; and with Plums and dessert Cherries this is of the greatest importance, as it keeps them close at home near the walls, where the blossoms can have shelter and protection from harm. D.

The Laurel Insecticide.—Bravo, "Sylvestris!" That is a very good idea about killing the insects with Laurel, because the plan will enable us to kill the Laurels, too! The way they are overdone in many gardens is sad to see, but 40 lbs. of leaf pounded up now and then may reduce their numbers. It will indeed be a good thing for the gardener if he finds he can get rid of his insects in this simple way from home-grown "stuff."—J. H.

KITCHEN GARDEN.

ONIONS AND THEIR CULTURE.

Selection.—From long observation and some little practical experience I incline to the belief that all culinary roots are more improved by



The Queen Onion.

selection than by hybridisation or cross-breeding, and if we could but be content with fewer varieties, and persistently select year after year the most perfect types of each for seed bearing, we should, I think, be nearer attaining perfection than we are ever likely to be so long as we continue the search after novelties, which in the long run benefit no one except the seedsmen. With the exception of Peas, perhaps, Onions are more improved by selection than any other culinary roots, but then it is well to remember that there are Onions and Onions, and what one approves another may disapprove; or, again, we require Onions for pickling, Onions for roasting, boiling, &c.; hence it follows that we must have them of various sizes and flavours. All these requirements must be kept in view in making our selections, and when once made the aim should be the perfection of the favoured type or types by year after

year selecting the most perfect for seed bearing. This much as to selection; now a few words as to some of the

Varieties.—And first I may say that my notions as to fewness of these would appear inconsistent if I did not add that the accompanying cuts were sent to me from THE GARDEN office with a request to say something about them. All the varieties are the best of their respective classes, and beginners in the work of selection would do wisely to start operations with any of the types that are likely to suit their purpose. The small Paris Silver-skin is the best of all the pickling class, matures early, and takes up but little space.

a word that, used in this connection, should more frequently be interpreted in the opposite direction.

Cultivation.—How apt are we gardeners to imbibe and retain a given set of notions as to the cultivation of various crops—fruits and flowers as well as vegetables. What I mean is that there are people who, having heard that Mr. So-and-So—years ago it may be—grew grand crops of Onions on heavy but well drained land, at once infer that his system of culture and the like description of soil are essential conditions to ensure good Onions; but never was there a greater fallacy or one that has done more injury. There is, in fact, no mode

difference that I would advise, when having to deal with a heavy soil rather than a light one, would be, that just before sowing the former should be raked over only, but that light soils be made as firm as can be by treading or rolling, as this compression in some measure makes amends for the lightness of the soil. As to time and mode of sowing, I prefer the middle of February for the spring sowing, and early in August for that of the autumn. Drills from 12 in. to 15 in. apart according to the sort is the best way of sowing, as this plan admits of easy after culture, such as thinning, hoeing, and weeding. Farmyard manure is the best for working in with the soil, and as sur-



Small blood-red Onion.



Small Paris silver-skin Onion.



Giant Zittau Onion.



Pyriform brown Spanish Onion.

The Queen Onion is one of our latest new varieties, very early, mild in flavour, and in a general way does not grow too large for pickling; it is also one of the best keepers. The Giant Zittau is another new kind; it is very handsome, has a deep straw-coloured skin, firm flesh, large in size, and is also one of the best of keepers. Another is the pyriform brown Spanish. This is the large imported Spanish Onion of the shops; it is not a desirable kind for growing in this country, as it will not keep—I suppose through lack of sunshine to fully mature the bulbs. The small Blood Red Onion is a red-skinned kind possessing all the excellent qualities of our best English grown white Spanish Onions known under the various synonyms of Banbury, Reading, Nuneham Park, Bedfordshire Champion, &c., every seedsman having his pet strain bearing his name, to which is sometimes added the dubious word "improved,"

of culture that has a monopoly of excellence, as those will find who are willing to throw away the crutches belonging to other people and trust to their own legs. That there is a best soil for all crops I do not dispute, but as we cannot always command this soil, we ought manfully to face the difficulty by the determination to do our best with such soil as we have. The usual stereotyped phrase as to the best kind of soil for Onions is that it should be "a deep loam of medium texture." I have never yet been fortunate enough to have this description of soil to deal with, but by deep tilth and high manuring I have managed to get good Onions from clay, peat, light sandy loam, and a soil very little removed from gravel. Given these two conditions, *i.e.*, deep trenching and heavy manuring, combined with good drainage, no one need be afraid of a failure as regards growing Onions. The only

face stimulants during the growth of the crop, soot and wood-ashes are invaluable. W. W.

Tomatoes in the open air.—My Tomatoes make plenty of wood and leaves, but bear few or no fruits. They are in highly matured soil, to which I occasionally give a dusting of guano.—W. W. [You treat your Tomatoes too liberally. Thoroughly manured soil and dustings of guano would suit Vegetable Marrows, which are sure to be fruitful, but Tomatoes need a certain amount of restriction either by keeping them in pots or planting them in hard, poor soil, or a crop of healthy leaves, but no fruit, will be, as in your case, the result. Tomatoes should be starved or pot-bound before they are planted out, the fruit should be set, and the pots should be placed so that the roots can escape into the soil, or if

planted out, place them in poor unmanured soil. As soon as a good quantity of fruit is set and swelling, top dress or give liquid manure. It is surprising the quantity of fruit a Tomato plant in a pot will perfect if its roots get plenty of liquid food. The season has been too cold and sunless for Tomatoes out of doors this year. The only way to get Tomatoes to repay the labour bestowed on them is to raise the plants early under glass, so as to have them fit for immediate fruit-bearing when put out in April. Sow in February, pot off as soon as the young plants are large enough to handle in 2-in. pots, and shift into 4-in. pots in March. Keep them near the glass in a cool house; they will then be sturdy plants, bearing bunches of embryo fruits in April, which, with careful attention, cannot fail to ripen. Hathaway's Excelsior is a first-rate sort.—JAMES GROOM.

LETTUCES AND THEIR VARIETIES.

WHERE salads are wanted all the year round, Lettuces form one of the principal items. A good salad may be formed of Lettuces, well-blanchend Endive, white Mustard used in quite a young state, curled Cress, curled Chervil, the young tender leaves of Burnet, Tarragon, and, during the winter, the young leaves of Chicory. The last, when blanched, form one of the best ingredients for giving salads a nice crisp taste and white colour. Good coloured Beet is also always a great acquisition, both in giving to a salad a nice appearance when dressed ready for table and in improving the flavour. Several sorts of herbs are also used, according to taste. Some employ Cucumber thinly sliced, and, in vinegar salads, even young Onions are made use of. The Cos variety of Lettuce is the most desirable when required for table with the leaves whole. It is crisper than the Cabbage Lettuce, but the latter is equally good when cut up.

To have a good supply of Lettuce during winter, a sowing must be made the second week in July, choosing an open piece of ground, which requires to be deeply dug and well enriched with good rotten manure. When dug and raked finely with an iron rake, the rows may either be sown 9 in. or 12 in. apart, drawing them 1 in. deep. The seeds may then be sown: beat them into the furrow with the back of the rake, and level the ground. As soon as the plants are large enough thin them out from 7 in. to 9 in. apart in the row. The young seedlings can be used to form a plantation if required, planting them 12 in. row from row and 9 in. from plant to plant. The ground must be kept free from weeds by frequent hoeings, and waterings must be attended to during dry weather, using liquid manure once a week. Before the approach of frost the plants must have some protection, for when full grown and ready for use, of the two the Cos sorts are most easily damaged by frosts, the Cabbage kinds being hardier when fully grown. Pits or frames are the most convenient places in which to winter the plants. If at disposal, frames in which Cucumbers or Melons have been grown will be found a convenient place to store the plants in, as they may be planted in the soil in which the previous crops grew. The day previous to lifting the plants give them a good soaking of water, when they will lift with good-sized balls of earth adhering to their roots, and will feel the effect of being transplanted but little if carried carefully to the frame in which they are to be placed; use a hand barrow, or, if at hand, a barrow with springs will do. When ready, commence at the top of the frame, cutting a trench deep enough to hold the roots of the plants; after putting in the plants and filling in the trench, firming the soil well round the plants, give each a good soaking of water as the planting proceeds, and continue the same until the frame is filled. The distance between the plants must depend upon their size; a small space between each plant to allow a circulation of air between them, so that the leaves will not damp off during dull weather, will be sufficient.

The Cos varieties may be tied up a few days previous to being required for use, so that they

may be properly blanched. The Cabbage sorts will be fit for use when fully grown. When well watered at first, they will require but little for some time afterwards. Plenty of ventilation on all fine days must be afforded, and all decayed leaves must be picked off the plants as soon as observable, for if left they will soon cause damp. The frames will require to be covered over with either straw or bast mats during severe frost, for if once nipped the plants soon begin to decay. Lettuce plants may even be protected in ordinary hand-lights by covering them over with loose straw during frosty weather. Large numbers of Lettuces are often wintered in cradles formed of wood, and covered at night with mats; and some use wooden frames covered with thatched hurdles, which make good protections.

A small sowing may be made the first week in August, the produce of which often comes in useful late in the spring; and if the winter has been mild they will keep growing and come in before the main outdoor crop is ready. Another sowing must be made the second week in August. If good strong plants, they may be planted upon a warm border, where they will stand the winter and come in early. As soon as convenient in the new year, seed should be sown in boxes filled with light soil, using some leaf-mould or light vegetable matter to keep the compost open. As soon as the young seedlings are large enough to handle, prick them off into boxes, and place them in a warm house or pit in which there is a temperature of about 50°, when they will soon make fine plants. If an empty frame is at hand, make up a slight hotbed, place 9 in. of light soil upon the bed, and prick out the young plants on it. If well cared for, they will soon make good-hearted material fit to cut. Where an orchard house or a cold frame can be used, a sowing should be made early in February, the produce of which will make plants for the early summer crop. Prick them out singly as soon as they are large enough under hand-lights. The first sowing outdoors should be made about the second week in February, and successive sowings every three weeks during the summer—a routine which, if well carried out, will give a plentiful supply of Lettuces all the summer and until the approach of frost, when care should be taken to have all Lettuces intended for winter use under cover.

After several years' careful observation, I find the following varieties give me a constant supply of good crisp Lettuce, when sown and transplanted at the different times which I shall mention. Those sown in the second week of July are Giant White Cos, one of the largest and most delicious Lettuces in cultivation, and one which requires no tying—a great acquisition when planted in frames, as Lettuces requiring to be tied during the dull autumn months often rot in the heart. Kingholm Cos, large and crisp, requires tying. Of Cabbage sorts, I grow Tom Thumb and All the Year Round, both well-known varieties. The sorts sown the first week in August are Ivery's Nonsuch Brown Cos, a hardy variety, which stands the damp well after being tied up in early spring, either out of doors or indoors. In pits or frames I grow Tom Thumb and Hardy Hammersmith Cabbage. The varieties sown about the middle of August for spring and early summer use are Ivery's Nonsuch Cos, the hardiest variety which I can find for planting in September. It will withstand the severest frosts and snow; in the winters of 1880 and 1881, when all our other varieties which were planted beside this one were killed, scarcely one plant of Ivery's Nonsuch suffered, and they made good-hearted Lettuces early in summer. Of Hardy Hammersmith, Tom Thumb, and All the Year Round Cabbage varieties, it is well to plant a number of seedling plants in a frame or hand-light, to plant out upon an early border, which will come into use before the plants which have stood out all winter. The young seedlings of this sowing must be planted upon a warm border as soon as they are large enough to be transplanted. The varieties which I find most suitable for sowing early in boxes, and which come soonest to perfection, are Tom Thumb and London White

Cos. For the general crop out-of-doors, for summer use, Giant White Cos is one of the best, and it requires no tying to blanch it. Kingholm Cos is one of the best summer Lettuces; it needs tying one week before it is fit for use. Paris White Cos is a good hardy variety of Cabbage Lettuce for summer use. I find nothing equal to Tom Thumb. All the Year Round, Stanstead Park, and Victoria, American Gathering is a curled Lettuce of dwarf habit, intermediate between the Cos and Cabbage varieties, has a hardy constitution, standing the winter; it forms nice crisp heads, resembling a well-blanchend head of Endive, but it has the flavour of a good crisp Lettuce. I think this will make a good Lettuce for spring and early summer use. W. C.

NEW MODE OF TREATING TOMATOES.

MY practice is to excavate in the early spring time as many flat Turnips as are needed, and having filled the cavity with earth, plant two or three seeds in it, selecting the best plant, when 2 in. or 3 in. high, to remain, and pulling out the others; when it is time to set them in the garden, place the Turnip, with its contents undisturbed, in a hole deep enough to cover the Turnip 2 in. or 3 in. Setting out in this way, there is no cutting away of the roots and little need of water, as the plant has not been in the least disturbed, especially if injured to the air out of doors for a week or two before being set in the garden. I have started Tomatoes so early that the plants were in blossom several days before being set out, not being at all checked or retarded in growth thereby. Cucumbers started in the same way I have had in bloom when sent out with the same result. After being put in the ground the Turnip soon decays, furnishing a little food for the plant. If the Turnips are to be kept long in the house before setting out, it will be well to put them in boxes, filling the interstices with Moss, sand, or earth, kept moist, as too lone exposure to the hot air of a warm place will cause the Turnips to wilt—the earth in which must be kept moist, whether the Turnip is in or out of a box. Another point is that instead of being at the trouble of procuring, sharpening, and setting stakes, and pulling and taking care of them at the end of the season, I started into growth some Sunflower seeds. To prevent too much shade I cut off the leaves of the Sunflower as far above the Tomato plant as is necessary to give it all the air and sunlight desirable. The Russian Sunflower, because of its very tall growth, is the best for this purpose. The Sunflower makes the best and most profitable stake, because it is so easily obtained—no loosening in the ground or breaking of stakes when loaded with fruit, and the seeds of the flower, which are better than corn for poultry, abundantly pay for all the time and labour in caring for them. The leaves of the Sunflower also make good fodder. The Russian Sunflower also makes an excellent Bean pole, though it is not necessary to start them so early as for Tomatoes, as a growth of 1½ ft. by the end of June (Bean-planting time) is all that is needed.—Country Gentleman.

SHORT NOTES.—KITCHEN GARDEN.

Melon leaves.—A. R.—There is nothing in the way of a fungus or insect on your leaves. The spots look like scalds produced by the sun shining through drops of water, thus making the drops burning glasses.—F.

Mildewed Peas.—I have several rows of Peas, of different sorts, in different parts of the garden, badly attacked with mildew. It came on very suddenly. Can any one tell me the cause, and if there is any remedy? I have used sulphur. Will the Peas do for seed?—S. H.

Scarlet Runners.—Can anyone tell me the cause of the flowers of my Scarlet Runners dropping? The plants grow well, and produce plenty of flowers, but they all drop, and the result is, of course, no pods. They are kept in good condition as regards moisture.—B.

Cauliflowers running to seed.—My Cauliflower make good, firm heads till about 4 in. or 5 in. in diameter, after which the heads open and spread and appear very much inclined to become seedy. Can anyone give me a few hints to improve their growth?—T. C.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J., SURREY.

MAGNOLIA GRANDIFLORA, too strongly scented for living-rooms, is beautiful for hall or ante-room; three or four of the grand blooms, in different stages of expansion, with their accompanying foliage, have a magnificent appearance in a silver or gilt bowl. A delicately coloured bouquet is of pale flesh-coloured Stocks, mostly single with a few double, the double grouped together; a few tips of Chrysanthemum foliage, the greyest that can be found, suit them perfectly. Single Stocks are of great value for cutting, though they make little show in the garden; their grey-green buds, that in the larger outdoor space rather take away from the effect, become beautiful indoors when every flower is seen in detail. Tea Roses, Safrano and Madame Falcot, form a large loose bunch with bronzy leaf-sprays of Banksia Rose. Tall spikes of Gladiolus, pale pink, salmon, and soft scarlet, are in a tall glass with leaves of Globe Artichoke. These large leaves and others of the same class, such as Acanthus and the great Thistles, so useful with important flowers, are apt to flag if picked on a hot day and arranged at once with the flowers; it is best to pick them an hour or two beforehand and plunge them overhead in a tank or bath of water, when they will come out stiff and lasting; this applies to all leaves with thick succulent stalks. A pretty decoration for a small dinner-table is of single flowers of full pink and scarlet Gladiolus in a number of small glasses with foliage and flowers of wild Clematis.

FLORAL DECORATIONS.

J. HUDSON, GUNNERSBURY HOUSE.

AN excellent selection of comparatively hardy shrubs and climbers for decorative purposes could be made from the interesting collection of cut specimens exhibited by Messrs. Veitch at the last meeting at South Kensington, the names of which are given in THE GARDEN (p. 153). These should be grown by all who have much floral decoration to do, saving as they would do to a great extent the relying on indoor exotic plants for the supply at this season of the year. Those of them which do best with the protection of a wall could in most cases have that accorded to them to a greater or less extent. But why, may I ask, are we allowed to have any bare walls? In the garden certainly these should not be tolerated. Sometimes great pains are taken to hide them with tall shrubs, such as common Laurels. Why not plant climbing plants instead, making the selection to suit the aspect, and giving such as the Ceanothus, Escalonia, and more tender Clematises the most favourable and sheltered positions? If these were once tried, I think they would be more extensively planted than they are, yielding as they do an abundant crop of bloom that is always useful for floral decorations. The shrubby Spireas come in well for this purpose, and their spikes can be cut with a good length of stem.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Solanums.—There are numerous varieties of these, but the tender annual fine-foliaged species are the only kinds that can be used in the flower garden, and to these only the following notes apply. Their names are giganteum, laciniatum, macrocarpum, marginatum, pyracanthum, robustum, and Warszewiczii. Their seeds should be sown on a hotbed in February, and be grown on in a warm house till the beginning of May, when they may be gradually inured to bear full exposure, and may then be planted out at the end of that month. All the varieties make fine self beds in the sub-tropical garden; when two or more kinds are planted in the same bed, the tall ones, such as giganteum and macrocarpum, should be in the middle, and pyracanthum and robustum in the

outer line. Those having to do sub-tropical garden work, and stunted as to room in which to winter large plants, will find in these Solanums a ready way out of a difficulty, as they can be raised so easily, and are as effective as many of the rarer sub-tropicals. They require a rich, well-drained soil and plenty of water all through the early part of the season.

General work.—Propagation should now be proceeded with as opportunity offers. Pelargoniums have made rapid growth of late, and there are plenty of cuttings, but they should be taken off carefully in order that the beds may retain their effectiveness after the cuttings have been selected. Our best bedding kinds are scarlet—Bonfire, John Gibbons, and Vesuvius; pink—Master Christine, Lady Byron, and Amaranth; rosy crimson—Walham Seedling; light purplish crimson—Lord Palmerston; white—Madame Vaucher, still the best. Our best fine foliaged kinds are Sophia Dumaesque, Maréchal McMahon, May Queen, Mrs. Laing, and W. T. Radcliffe; others equally good might be named, but these are the best for general bedding effect, and it is much better to grow a few reliable varieties than numerous doubtful novelties. Flower beds need repeated going over anent the removal of bad and seeding flowers. Violas and Calceolarias, generally the first to succumb to heat and drought, never fail, even on our light dry soil, and the only reason, next to having good supplies of water, why they do not is that old flowers are regularly picked off them. The same rule is applicable to all free flowering plants. To keep Lobelias in full blossom we occasionally clip off a portion of the tops with sheep shears; the plants at once throw out fresh shoots, and thus the flowering season is extended. Of course such work requires to be done cautiously and with discernment, taking care that sufficient flowers are left to last till new ones make their appearance. Fine foliaged plants in beds of geometrical design now need going over once a week to keep the outlines true to pattern, but though this is advised, it must not be supposed that evenness of plants or table-like flatness is meant, but rather that the plants should be allowed to grow naturally; the effect is then much more pleasing, and the labour needed to keep them in order less. In such beds we always use what—for want of a better term—we call “dot” plants, and these are kept in shape by ties, stopping, or curtailment of growth, according as the character of each demands. Our best plants for such a purpose are Grevillea robusta, Chamaepeuce diacantha and C. cassabonae, Abutilons, Fuchsias, small Dracenas, Aloes, and Agaves. The best basket or large vase plants of the season are the single Dahlias and Marguerites—white and yellow. Of the former Paragon, Alba, and Juarez are three of the best; their flowers, unfortunately, do not last long, otherwise such plants are a great acquisition. Tying up these and tall sub-tropicals are also just now important items of labour.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

IT is necessary now to attend well to the general stock of winter-flowering plants. These are mostly quick growers, and as the roots fill the pots which they occupy, it is needful to supply the soil well with manure water, otherwise the strongest growers are sure to suffer. If the propagation of the various plants, such as Begonias, Salvias, Euphorbia jacquiniiflora, Poinsettias, Eranthemums, Plumbago rosea, Thysanacanthus rutilans, Sericographis Ghiesbreghtii, Aphelandras, &c., was carried out at the time recommended and due attention has been given to them since, the greater portion will be fast approaching the requisite size, after which in most cases they should have more air, less shade, and a somewhat lower temperature so as to discourage exuberant growth, and to solidify and mature that which is made. There are some things amongst winter-flowering plants, such, for instance, as Poinsettias, which, if started sufficiently early to get them big enough before cold nights come on,

are none the worse for being kept a few weeks in an unheated house or pit, or even in the open air for the last two or three weeks in August if the weather is warm. The finest heads of Poinsettias I ever had, 20 in. in diameter from point to point of their bracts, were from the previous year's struck plants, headed down in the beginning of April and grown on in good-sized pots with single stems, which, when they had reached a height of from 4 ft. 6 in. to 5 ft., were turned out the beginning of August under a south wall and kept there until the end of the month. They were then taken inside and subjected to heat by the middle of September. This treatment stops all disposition to make further growth, and has the effect of hardening the tissues and enabling the plants to concentrate all their energies in the production of flower-heads. For general purposes medium-sized heads are the most useful, but where employed for the decoration of a large structure, large heads have a most telling effect; to secure them the plants must be both tall and proportionately strong, and have all their strength directed to the production of a single head. The majority of these winter-flowering subjects are comparatively little liable to the attacks of insects, yet care must be taken that red spider or any other pest which will thrive upon them is not allowed to go on unchecked, or the appearance of the leaves, as well as the flowering capabilities, will be seriously affected.

Summer blooming Heaths.—These may consist of such as flower through June and July. Immediately the flowering is over remove the dead flowers, so as to stop the production of seeds, which sadly tax the energies of the plants and impede growth. Vigorous healthy plants treated as here advised will often produce a perfect sheet of bloom year after year in succession; whereas if allowed to seed there is little flower, except in alternate years. Early in spring and sufficiently early in the autumn, say September, are the best seasons for potting Heaths; in many cases the latter is preferable, and wherever Heaths are at all cramped at the roots preparations should at once be made for repotting. All specimen Heaths out of doors should be looked over twice a day whilst the present dry weather continues to see whether they do not want water, and on the least trace of mildew becoming apparent at once apply sulphur. Winter blooming Heaths should now be exposed to the full rays of the sun where they will get plenty of air, as on this depends their growth being thoroughly matured. However full of roots the pots may be, it is not well to resort to the highly stimulating manures often applied in the autumn season to this section of Heaths, by which means extreme vigour and luxuriance is frequently gained at the expense of flowers that rarely are forthcoming proportionate to the growth where this over-exuberance exists.

Oranges and Citrons.—These are best kept wholly under glass where means can be found to accommodate them, but where, as is often the case, they have to make way for other things in summer, there is no course but placing them outside. This affords an opportunity of giving them a thorough cleaning from scale insects to which they are so much subject. If time can now be spared, an effort should be made to eradicate these pests. The plants ought to be well attended to with water, and if at all under-potted, and the foliage shows by assuming a yellow hue that the soil is poor, manure water should be given. Any plants of this family, about which there is the least doubt that the drainage of the pots or tubs which they occupy is at all defective, should at once have means taken to rectify the evil, otherwise the soil becomes sodden, and the roots are certain to perish.

Pelargoniums.—Plants of the early flowering kinds, such as are now so extensively cultivated by the Covent Garden Market growers, and also the earliest bloomers of the show and fancy varieties that were cut back a short time since, and which have now broken, should at once be shaken out and repotted, removing most of the old soil and somewhat reducing the roots. They

ought to be placed in pots a size or two smaller than those in which they have flowered. It is well to remind beginners that this section of the Pelargonium family requires to be harder potted than soft-wooded plants generally, for unless the soil is rammed hard with the potting lath, so as to make it quite solid, it holds more water than the roots can bear during the winter months, as the young feeding fibres, especially of the fancy kinds, are extremely sensitive of anything approaching a wet, spongy condition of the soil, and the strongest growers amongst the large-flowered sorts always run over much to leaf if the soil is in a condition to hold much moisture. As soon as potted place the plants in a pit or frame, where they can be kept close for a week or two, until the roots have begun to move, but they must also be where they will get a full share of light, otherwise the young leaves will be drawn, a state which must be carefully avoided. Head down such as have been kept on flowering the latest as soon as the wood has got hardened up by exposure in the open air in the way recommended for the earliest batch, first letting them get quite dry at the roots.

Mignonette for late spring flowering is best grown in small pots, say 6 in. or 7 in. in diameter. Half a dozen seeds should be sown in 4-in. or 5-in. pots, sufficiently drained and filled with good loam, to which has been added a little sand, leaf mould, and rotten manure. The pots should then be placed in frames, raising them near the glass, and keeping them close until the seed has vegetated, when the lights ought to be removed so as to keep the plants short and stocky; they should be thus exposed until there is danger from frost. When so treated they will be in the best condition for standing the winter.

Potting soils.—This and the next month are the best for securing peat and loam for the ensuing year's potting. At first sight it might be supposed that soil for such purposes could, with equal advantages, be dug at any time, but this is by no means the case; the fibrous matter furnished by the roots of the native plants, Grasses, and Ferns, that occupy the land from which the turf is dug are a most important element in potting soils; such as possess this fibrous matter in the greatest quantities are immeasurably the best for by far the greatest number of plants. When collected it should be stacked in the open air; on no account put it into sheds or under a roof of any kind except a short time before use, as where thus placed out of reach of rain it gradually gets dried up unnaturally, and when reduced to this condition a great deal of its fertility is irretrievably lost. Where peat and loam have been subjected to an unnatural drying process I have found that the plants afterwards potted in them invariably failed to thrive as they ought to have done.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Cucumbers.—The weather we have lately been having has favoured frame Cucumbers, as it has enabled us to give more stimulating food to the roots, and plenty of atmospheric moisture after closing with strong solar heat for the day. It will not, however, be well to allow the heat from linings to decline, as nights will soon counterbalance days, and lack of bottom-heat will tell upon the quantity and quality of the fruit. As few plants so quickly resent neglect, see that the thinning out, stopping, and removal of surplus fruits receive the proper attention at least three times a week. Peg down the joints, and pack with pieces of fresh turf wherever fresh roots can be induced to work on the surface, and while keeping the frame well filled with fresh, healthy foliage, guard against over-crowding with old leaves, which often become the starting-point for red spider and mildew. From this time forward the sowing of seeds of Telegraph and other favourite winter kinds must be regulated by the periods at which the different compartments, now occupied with Melons, will be at liberty, and the same rule will apply to cuttings, as in each case

it is better to throw away pot-bound plants and start with fresh, young stock than to run the risk of fostering insect pests from the outset. Where the yearly supply of fruit is obtained from one or two efficiently heated houses, now is a good time to clear out one. Cleanse, paint, scald, and lime-wash preparatory to a new start, as this opportunity may not again occur before next spring, and everyone knows how fresh and vigorous young maiden plants go away with everything clean and sweet about them. Where home-grown seed is in demand, a given space should be devoted to its growth, and clean, healthy fruit should be selected and carefully fertilised with the male blossoms. When ripe, wash out the seeds, and if progress is the first consideration, discard all that do not sink in the water.

Orchard houses in which the fruit is now ripening may have all the ventilators left open, as highly flavoured Peaches and Nectarines cannot be obtained without a free circulation of air. Pay particular attention to the watering of trees in pots in all stages of growth, never allowing them to feel the want of this indispensable element, and syringe freely twice a day wherever clean water can be applied without wetting the ripe fruit. Always make a point of gathering the fruit when dry and cool, and before it is ripe enough to fall from the trees, otherwise it will lose its sprightly flavour, and the slightest touch will hasten its decay. When all the fruit has been gathered from the most forward trees, remove them to one end of the house or a separate compartment to be potted or top-dressed and cleansed, and re-arrange later kinds, so as to give them the benefit of more light and air. Where trees are fairly cropped, but little pinching or stopping will now be needed; but any sub-laterals which start may be kept in check, and old leaves, where they overhang the fruit, may be turned or tied aside to let in the sun. Where Figs are grown in the ordinary orchard house the trees will now be in full bearing and capable of taking plenty of good food, both in the liquid and solid form. When large trees in medium sized pots are not plunged it is a good plan to set them in saucers and to feed the crock roots every day with diluted liquid or guano water; but where plunging can be practised the trees will give a maximum of fruit at a minimum of cost in labour, they will continue much longer in bearing and the fruit will be finer and better in quality.

Pines.—As the summer fruiters are cleared away and space can be gained, a few of the most promising Queens should be collected together and plunged in a steady bottom heat of about 85°, with their heads near the glass in a light, airy pit to ripen up their growth before the dark dull days set in. It is easy enough to grow a large plant in a very short time; but unless the growth can be properly matured, and the roots can be kept in a temperature of 75° to 80°, the chances are greatly in favour of such tender kinds as Queens throwing up small or deformed fruit. The object, therefore, should be the production of stout, stocky plants which can be thoroughly ripened by October, and rested through the dead months in a temperature that will not chill or starve the roots, while the steady warmth is too mild to cause them to throw up prematurely. The general stock of plants now growing freely must be encouraged with stimulating food, plenty of atmospheric moisture, and early closing to save fire heat, and, with the exception of rootless suckers, which will require protection from very bright sun, shading of the lightest description only must now be used for a short time through the middle of the day. Where there is only one fruiting pit, and it is thought desirable to keep recent starters in a moist growing atmosphere to get them well on before winter, all summer-swelled fruit may be lifted out and placed in a dry, airy vinery to ripen up, and when properly coloured the plants and fruit can be stored away near the light in a cool Grape room. See that that valuable, but much neglected Pine, the Black Jamaica, is not overlooked, as it enjoys a strong and does not object to a dry bottom-heat. It also grows and

swells off fine fruits in very small pots, which cannot be excelled, if equalled, by any other winter Pine in cultivation. Where plants are now throwing up fruit, if mixed with other kinds, they should be drawn together and plunged at the warmest end of the house, or in a small compartment to themselves, with just sufficient head room to keep the crowns, which are apt to become large, from touching the glass.

Successions and suckers.—Follow up the irregular system of potting up suckers as they are detached from the plants and get them quickly rooted in a strong bottom-heat from fermenting leaves or tan. Shift into larger pots if they require more room, in preference to allowing them to remain pot-bound all the winter, and plunge close to the glass in a light, airy pit where they will keep growing through the winter. Examine successions that were passed over at the last potting, shift if necessary, but guard against over-potting after this period, and keep the plants growing until they start into fruit next spring or early summer.

Vines.—Let the Vines in mid-season houses be well cleansed with the engine or hose as they are cleared of fruit. Examine internal borders, and give them repeated waterings where they have been allowed to become at all dry, as no greater mistake can be committed than that of allowing the internal roots to feel the want of liquid food after the crop is gathered. If trained on the close-spur system, shorten back the young wood to five or six buds, and take out the lower laterals to plump up the pruning eyes. Carefully preserve all the old foliage from injury, as future shows depend upon the way in which the leaves complete their functions, and from this time onward leave the house fully ventilated by night and by day. Cover up the external borders of early and late vineries with some light material for checking evaporation, but guard against using it to the exclusion of solar heat, as, owing to the cold, sunless character of the season, the ground has never attained its proper summer warmth, and on this account the roots should not be too much shaded from the influence of the sun and air. The principal crop of Muscats now colouring fast will require more light and as much air as can be admitted consistent with the maintenance of a temperature, ranging from 70° at night to 85° by day, and when properly coloured, as will be the case by the middle of September, the Grapes will keep for several months if the external roots can be protected from the direct influence of cold autumnal rains. Where incessant firing has fostered spider, and the old foliage has suffered and become thin, it is a good plan to tie down a few of the laterals, and stop them at various lengths, so as to insure an even spread of foliage, which answers the twofold purpose of assisting the Vines and shading the delicate fruit from the direct rays of the sun. Muscats that are quite ripe will require some very light material drawn over the roof, to prevent the sun from scorching the berries. Haythorn's netting answers well, as it excludes insects and does not interfere with the free passage of light and air. Proceed with the lifting and relaying of the roots of Vines in early houses before the leaves fall and lateral growth ceases; keep the house close, moist, and shaded from bright sun; use good turfy loam, lime rubble, and crushed bones in a dry state; give a little water to settle the soil about the roots and mulch when all is finished. If vigorous young Vines intended for next year's forcing do not show a disposition to ripen up their wood, apply fire heat every morning, shut it off in the afternoon, and keep the house dry through the night.

KITCHEN GARDEN.

R. GILBERT, BURGHEY.

We are now very busy with the first Mushroom beds for autumn bearing. We generally have our beds in some out-of-the-way place, as they are anything but ornamental, and the site is allowed to grow wild during the summer, except that we mow down the weeds to prevent them from seeding.

The object is simply to get a semi-turf to consolidate the manure, as at this season the manure gets dry. We first adze up the turf and put it to the manure, then add turf, watering at the same time with strong liquid manure, making all solid as the work proceeds, turning it about twice or thrice, when all is ready for building the beds. Spinach should now be sown, also Cauliflowers; I do not always drive the Tripoli Onions late. Cabbage and Lettuce should have timely attention. Take especial note that Celery should not be allowed to flag; give it good soakings of water, putting the spout of the can close to the surface to prevent any scalding. All late Peas should also be mulched and well watered; if a little manure water is at hand mix a pailful of it with 36 gallons of clear water; this will add to the welfare of the crop. Leeks and all strong feeders must have due attention, otherwise the crops will be lost. Young seeds now just up should be hoed as soon as the plants indicate the rows; this hoeing has a tendency to keep off slugs or other vermin. If you make the leaves distasteful, and by hoeing cause a certain amount of grit to stick to them, you will find that they will not be troublesome. Keep all garden walks clean and trim.

GARDEN IN THE HOUSE.

TUBEROUS BEGONIAS IN WINDOWS.

THE increasing popularity of these proves their great value as decorative plants; but, much as they are cultivated, they deserve to be still more known, for, not only are they of great service for the embellishment of conservatories and green-houses, but they are also useful for bedding, and among the best things that can be had for windows in dwelling houses, where they succeed well, and flower in the greatest profusion. Plants in windows generally get killed by over-kindness in giving too much water; but with these Begonias there is no fear of that, as they are moisture-loving subjects, and, unless they actually stand in saucers of water, they can scarcely be kept too wet, especially when they become pot-bound and are blooming freely—a time when there is a great demand on the roots. Besides their adaptability for window culture, they are not subject to insects like other plants—a circumstance greatly in their favour; and when once they begin to flower they keep on, and last in beauty the whole season through. As they are apt to draw if put in windows too early, it is best to start them, and get them forward in cold frames, where they should be placed on a cool moist bottom, and have a little shade during the sunniest part of the day. Thus treated, their progress will be rapid, and they will keep sturdy and strong. If wanted large, the points of the shoots may be nipped out, which will cause them to break back and become well furnished. If wanted for bedding, seedlings may be purchased cheap; but as these are small, it is advisable to get year-old plants, and pay a little more for them, as they fill the beds sooner, and give the most satisfactory results. In preparing the beds, plenty of well-decomposed manure and leaf-mould should be dug into them, and, after turning the plants out, it is necessary to shelter and shade them for a few days. This may easily be done by sticking a few Laurel or evergreen branches among them, and these will keep off sun and wind sufficiently to enable them to start fairly and get a firm hold. Although Begonias will do very well in exposed positions, the situation that suits them best is a partially shaded one; but wherever planted, it is important that they be mulched, so as to keep the ground shaded and the plants moist at the roots. This can best be done by the use of Cocoa-nut fibre, a good non-conductor of heat; but, failing the fibre, sifted leaf-soil or broken-up horse droppings answer the purpose nearly as well. To encourage Begonias to grow and bloom freely, they must be supplied with water regularly when the weather is dry; and if they get a soaking of liquid manure occasionally, it will be a great help. Late in autumn, when the flowering is over, the plants should be

lifted and laid in cold frames, where the tubers can be covered with dry soil and preserved from frost, or they may be buried in sand or dry earth in a shed, and wintered in the same way as Dahlias. Those grown in pots are best left undisturbed in the soil till the spring, when they may be shaken out and divided, and afterwards repotted and grown on again. Tuberous Begonias may also be increased by cuttings made from the points of the young shoots; but these should be put in as soon as they can be got after this. If placed in sharp sandy soil in deep pans, and set under handlights in a shady spot, they root freely provided they have only just enough water to keep them from flagging. S. D.

Window plants.—Even in windows, under difficulties as regards soil, plants will thrive when tended with loving care. If one cannot re-pot (and many plants do not require so much root disturbing as they often get) they can at least be kept well supplied with water, and sometimes a little liquid manure. I have lately seen some large windows filled with Ferns, Cactuses, Fuchsias, Pelargoniums, &c., which, although in small pots, were in luxuriant health. They are cultivated entirely in windows (*i.e.*, without glass structures) the whole year round, and by a little ingenuity in having a succession of plants in the shade of a hedge, the windows are kept continuously gay. Musk and similar plants will live almost on water, and it is surprising what a small quantity of soil will keep plants in health if the drainage is perfect and an abundant supply of soft rain water is given at the root and overhead occasionally.—J. G.

Cut flowers.—We have all much to learn about the beauty and best use of cut flowers. Many of the fairest of blossoms are best when cut as soon as their buds have attained full size. So cut and arranged with their own foliage it is a revelation to see their fairest beauty born as it were before our eyes—born in peace, untorn by wind, unspotted by rain. Lilies, Iris, Daffodils, Narcissus, Water Lilies, Jasmine, Gladiolus, in fact all endogenous and many exogenous flowers grow fairer and larger when cut in this baby stage and brought indoors than if left to open fully on the plants ere they be cut. Again, the thoughtful marriage of sweet-scented leaves and flowers opens up a new region to the appetite for blossoms on the table indoors.—F. W. B.

Moss culture.—The use of moss impregnated with bone dust or other fertilising material for plant growing, introduced by Mr. Peter Henderson, has proved a great success. Efforts are being made in some quarters to turn the idea into a sort of patent nostrum affair, and “fertilising moss” is being sold in Europe as something very wonderful. Not only are the “bells” at work in its interest, but a “bear” movement against plants in rooms grown in earth, also in the interest of “fertilising moss,” is apparent. We may actually catch malarial fever from sleeping in a room with a flower-pot full of earth in which a plant is growing. And, wonderful to think of, all this terrible suffering can be avoided if you will only buy, for a few dollars, a few cents' worth of “fertilising moss.” How natural it sounds to the regular reader of “medical” advertisements.—*Gardeners' Monthly*.

SHORT NOTES.—GARDEN IN THE HOUSE.

Dressing epergnes.—I have an epergne with a tall trumpet in the centre, three lesser ones round it, and three smaller ones round them, with a glass dish at bottom. I want to dress it with flowers for a show; can any of your correspondents give me an idea as to colours of flowers and arrangement?—AMATEUR.

Aquatic plants indoors.—Will you kindly give me the names of two or three aquatic plants—hardy, or nearly so—that will live in a shaded sitting-room, the plants always requiring to stand in saucers of water?—H. G. [*Calla aethiopica*, *Aponogeton distachyon*, *Houttuynia cordata*, *Thalia dealbata*, and *Cyperus alternifolius* may possibly answer your purpose.]

NOTES OF THE WEEK.

APPOINTMENTS.

- Aug. 22.—South Kensington—Meeting of Fruit and Floral Committee meetings.
- 23.—Burton-on-Trent Second Summer Show.
- 24.—Reading Autumn Show.
- Cirencester Annual Show.
- 25.—Stranraer Annual Show of Wigtownshire Horticultural Society.
- Exeter Second Summer Show.

NEW BOOK ON VINES.—The chapters on “Vines and Vine Culture,” by Mr. A. F. Barron, superintendent of the Royal Horticultural Society's Garden at Chiswick, which appeared in the *Florist and P. mologist*, are, we learn, to be published in book form. Such an excellent work as this will supply a real want among cultivators, for a thorough treatise on the varieties of Vines and their cultivation has long been a desideratum. Mr. Barron's long experience and exceptional advantages specially befitted him for giving us such a book, the practical instructions in which are sound and concise, the descriptions of the varieties clear, and the value of the book enhanced by the numerous woodcuts which are copiously interspersed throughout the chapters.

WHITE LILAC FACTORIES.—Factories, says the *Revue Horticole*, is the title that should be given to those large market-gardening establishments which make a speciality of the white Lilac if one wishes to realise the immense amount of this flower produced in them during six, eight, or even nine months in the year. All are not, however, of equal importance, four of them, although unequal, being of the first rank. These are the establishments of the Messrs. Moynet Laurent Brothers, at Paris, and M. Delaunay Moynet, Rue du Centre, Montreuil, the most important of these, as regards production, being that of M. Moynet; that which comes nearest to it, but which is superior in organisation, being that of M. Delaunay, where the general arrangements for carrying out the work are more perfect. This large forcing ground, where the Lilac, Guelder Rose, and the Rose are made specialities of, requires about 7000 ft. of hot-water piping to maintain the necessary warmth. The transformation of red Lilacs into white takes place at Paris from September to June, and if any profit were attached thereto, it might be practised the whole year round.—J. C. B.

NEW BOMAREAS.—In the July number of the *Journal of Botany*, Mr. Baker, of Kew, gives an enumeration of the collection of Bomareas made by M. E. André when travelling in New Granada and Ecuador. About eighteen species are enumerated, of which no fewer than ten are new and fully described by Mr. Baker. The names of these are: *B. podopetala*, *polygonatoides*, *lanceifolia*, *Hartwegi*, *dissectiflora*, *pachyphlebia*, *longipes*, *goniocalyon*, *Kalbreyeri*, *Andreana*, and *diffRACTA*. These include some very handsomely flowered species, and if they can be introduced in a living state would be good additions to garden plants. *B. conferta*, *oligantha*, *edulis*, and *Caldasiana*, which are already in cultivation, are also enumerated in the list. M. André's specimens, Mr. Baker says, are excellent, and accompanied by careful notes made upon the living plants as regards general habit and colour of the flowers.

THE FLOWER GARDEN at Gunnersbury Park includes one of the most beautiful combinations of plants in one mass that we have yet seen. The bed, a capacious one, is circular and margined with a dense miniature hedge of Box. The group is composed of *Hyacinthus* (*Galtonia*) *candicans*, *Salvia patens*, *Lobelia fulgens*, and *Gaura Lindheimeri*. The tall white spires of *Hyacinthus* rise stately above the other plants, and the clear blue *Salvia* and the brilliant scarlet *Lobelia* intermingle in a charming way, producing a harmonious combination of colour and form. The *Gaura* being of lower growth is a sort of carpet, from which the other plants rise. This is one of the few ways in which Mr. Roberts endeavours to deviate from the orthodox style of “bedding out.”

MUSHROOMS.

BY W. DELISLE HAY.

THE name of Mushroom is usually applied in this country to that single species of agaric which English people regard as wholesome eating. It is derived from the French word *mousseron*, the name by which a totally distinct species (*Agaricus Georgii*) is known in France. A better use of the term has been suggested, namely, to call all such fungi as are edible Mushrooms, thus using the title generically. Similarly, the opprobrious epithet of Toadstool can be given generically to uneatable fungi. Champignon is the French term for all kinds of Mushrooms and Toadstools, though by a limited number of people it has here been applied to one species only—a mistake which there is no need to perpetuate. Most educated people are aware that there are other edible species of fungus besides the field Mushroom and the Truffle, although they do not know them, or feel sufficiently interested in the subject to make any effort to know them. But among the general rustic population of the United Kingdom there seems to be an entire absence of knowledge regarding this family of plants. Most people can differentiate the field Mushroom from other species, but not all can do so, while everything else they stigmatise as Toadstools, and firmly believe to be poisonous. This unwarrantable prejudice even extends itself among those who ought certainly to know better. Country gentlemen and their families are quite as much prejudiced against fungi as are their less well-informed neighbours. I have several times met with grievous disappointment in the houses of friends of mine, where cook, mistress, master—the entire household, in short—conspired against me. Not only would they refuse to touch or taste the delicacies I had gathered, but would go so far as to prevent my having them dressed for my own consumption. Among peasants, the prejudice is so strong as almost to be insurmountable. Whilst eating in a labourer's cottage some Boleti I had gathered and cooked, I found that even my example was insufficient to convince the goodwife. Her theory was that they were "horrid nasty things;" her father and mother had told her they were poisonous, and in spite of the evidence in rebuttal of both ideas, which I was quietly putting before her, she was firmly determined to persist in her evil opinion of all fungi but field Mushrooms. Such instances, of which I could quote a number, are laughable enough. There is no need to view them in a serious light, since there exists no absolute reason why we should try to force on people a kind of food for which they have no fancy, however delicious and nourishing we may ourselves know that food to be. But it makes one sad sometimes to see a rustic family in poor circumstances—half-starved perhaps—while hundredweights of good edible fungi are suffered to rot in the woods and fields around. During the year when famine was so severe in parts of Ireland a fungus-loving friend of mine was over there. He informed me that many species valuable as comestibles were to be seen growing everywhere in abundance, yet the starving people were not only ignorant, but afraid of them. He said that an Irish peasant would much sooner die of starvation than live by eating Toadstools, and that no amount of persuasion could induce him to give up his almost superstitious belief in the poisonous and evil nature of these unhappy plants.

The whole family of fungi is very extensive, including as it does mould, mildew, and many microscopic species; and of the kinds which come under the designation of Mushrooms or Toadstools, whether growing on the ground, on trees, or in other situations, there are some hundreds of species of which examples may be found in this country. Of these species, half a hundred or more are fit for food, some of them being indeed dainties. Yet in England only one kind is commonly used for the table, and that kind not the most plentiful nor the best flavoured. Why British prejudice against Mushrooms should be so strong as it is is a mystery. It has been so since the earliest days of our history, and seems likely to continue, although

I have noticed in recent years a little weakening in this prejudice here and there. But the antifungoid superstition of Britons—for it may be verily so described—does not extend to other countries. The ancient Greeks and Romans have left us numerous references to prove the high value they set upon sundry fungi as edibles. Recipes for cooking them, instructions for gathering, epigrammatic or poetic praises of their virtues are constantly met with in classic authors. What we have called "loathsome Toadstools," they designated "the best of eating" and "the food of gods." And this appreciation has come down through centuries to the present time, when, in every country of Europe but our own, various species of Mushrooms are commonly recognised, gathered, and eaten. We confine ourselves to that one species (*Agaricus campestris*) which in Italy they regard with suspicion, appreciating other kinds more. Probably the Chinese make use of a greater number of varieties for food than other people. Having such an enormous population, they are careful to utilise every good thing that the earth produces, while practical botany, as well as horticulture and agriculture, is part of the education of the masses of the people. Not only in China is fungus-eating usual, but also throughout Asia. From the shore of the Arctic Ocean to Cape Cormorin, from the White Sea to the Malay Peninsula, many sorts of Mushrooms enter into the general dietary of the various nations. We learn that Finns, Lapps, Koriaks, and the races of Siberia use Mushrooms very largely. Some tribes even make their favourite intoxicant from a Mushroom—a truly poisonous kind this, and to be more correctly styled Toadstool. In Cashmere and Afghanistan the people eat fungi, the Morell in particular. In Indian bazaars sundry Toadstools are to be seen for sale, and so also in the remaining countries of this division of the globe. To go further afield, the late Charles Darwin found some new species (*Cyttaria*) in Terra del Fuego and South America which were an essential part of the natives' food. Recent travellers to Central Africa report that the negro populations are accustomed to gather certain species of fungus in the forests, and to use them as a much-appreciated article of diet. In New Zealand, Tonga, and Fiji I found that several of the Mushroom tribe were used as food by the aborigines. In some parts of the United States our cousins would seem to have given up the prejudices they may have inherited from us, and to have taken to fungus-eating almost as kindly as French, Italians, Germans, or Swiss. I might go on multiplying instances to show how universal is the favour extended to these plants as comestibles, and how exceptional is British prejudice in this respect. Still, as a Briton I must allow that we have a perfect right to cherish our aversion to "Toadstools" if we please; only we must not vaunt our good sense in doing so.

The study of fungi has been designated mycology, but no deep scientific knowledge is required to enable anyone to learn the commonest edible and poisonous varieties. I suppose that nearly everybody can distinguish an Oak tree from a Beech, or a Cabbage from a Cauliflower. No greater exertion of intelligence than is required to do that is necessary for differentiating the Mushroom species. Once that all the "points" of any particular kind have been noted in the memory, that kind will always be readily recognised in future. Of course, there are people who could not even be trusted to gather a salad, lest they should put Hemlock or Poppies into it; and these, it is unnecessary to say, had better leave Mushrooms alone.

There is no golden rule by which we can distinguish edible fungi from poisonous ones. Each species must be known, and, once it is known, there need be no fear of mistaking another for it. The difference between nearly allied species is sufficiently well marked to admit of being readily determined by a practised eye. Now and then we read of cases of poisoning by Mushrooms; but if we inquire into these cases, we always find crass stupidity or profound ignorance at the bottom of them. I am not aware that there is any golden

rule for determining the wholesome or unwholesome species among any class or division of plants at all. Why, then, should there be one for such an extensive family as the fungi? Yet in cookery books and domestic cyclopædias—English ones, of course—may be found all sorts of plans recommended by which esculent Mushrooms are to be distinguished from others. Poisonous sorts are supposed to turn a silver spoon black, to grow in the shade in woods, to have lateral stems, equal gills, to be deliquescent, and so forth; while wholesome kinds have opposite characteristics. These are altogether blind guides, knowing evidently nothing whatever about the matters they profess to advise on. There are absolutely no such general signs by which poisonous Mushrooms can be distinguished or edible ones determined. As we have to do in the case of any other family of plants, so we must do in this—we must learn to know one species apart from another. What dweller in the country or possessor of a garden but can tell one vegetable or pot herb from another, one flower from another, one tree from another? What lady dabbler in botany but can identify at least a few species of Ferns or Mosses? The art of distinguishing one kind of Mushroom from another is no more than this. It requires no more intelligence, no greater circumspection or profounder powers of observation. And if this branch of botany possesses little attractions to most as a special study, at any rate the acquisition of a slight acquaintance with it will bear the reward of many a dainty dish of nutritious food. And now let me speak more particularly of

Certain species.—Of course, in England the greatest interest attaches to the fungus which is commonly eaten, and which is more or less known to everybody. This is the ordinary field Mushroom (*A. campestris*). It exists in several varieties, some of which are popularly rejected, though all are really quite wholesome. The first variety is that best known, small (not more than 3 in. across), flat, and open, with white glistening cap and pink gills, growing in pastures. The second is the "button," really the first in its young state, found in the same localities. These are usually thought to be the best and safest kinds of Mushrooms, but decidedly a large dark brown, brown-gilled, and reddish-juiced variety, which is found in wet pastures and usually kicked aside, is of far richer flavour. This third kind was extremely plentiful last year. A fourth variety is found under hedges and on the borders of woods, and is hence called "Hedge Mushroom." It is light brown or buff on the cap, and pallid brown or grey in the gills. It is hard, and grows in clusters. This variety cannot be unwholesome, for I have frequently eaten it, but it certainly possesses much less flavour than any of the others. It is dry and tough, too, and therefore probably indigestible. Besides these are two other varieties, popularly known as "Whitecaps," "Horse Mushroom," or "Ox Mushroom," and which some mycologists have even regarded as a distinct species, and have named *Agaricus arvensis*. These grow in open pastures or under the shade of trees indiscriminately, often amid rank clumps of Grass and Nettles. The first is snow-white, with greyish pink gills. When young it is a "button," and both then and afterwards when it opens into a parasol it is often of huge bulk. So, too, is the Ox Mushroom, which only differs from the preceding in being of a rich reddish brown colour, both of cap and gills, the former being scaly or shaggy. These two kinds are usually regarded with suspicion. Country-folk have often warned me that they were "not right;" but, notwithstanding that, I have made many a hearty meal off them, and can cordially recommend them. These are the chief varieties into which the common field Mushroom deviates, but it occasionally takes other forms as well. With but trifling experience, however, the true *Agaricus campestris*, in any of its varieties, can always be differentiated from alien species. It is most abundant during the autumn, but may sometimes be found earlier.

According to popular belief, the Mushroom springs quickly during the night, and shrinks or melts like dew in the sun. Hence Mushroom gatherers sally forth at daybreak. Both ideas are, however, erroneous. The field Mushroom grows best in the daytime and when the sun is shining; nor is its growth so magically rapid as many suppose. *Agaricus campestris* flourishes throughout both temperate zones, north and south, and from the extreme north of Lapland to Morocco and Tunis. It grows alike in Canada and in Chili. Its use as an esculent is pretty universal; only in Italy, I think, is it totally rejected. This is rather curious, for Italy makes perhaps more use of a fungus diet than any other European country. Thirty or forty species of Toadstools are eaten by Italians, rich and poor alike; but our Mushroom—the “pratiola,” as they call it—is regarded as poisonous, though its true quality would seem to be no other than in Britain or anywhere else. The extraordinary abundance in which this Mushroom will sometimes appear is well known. But the most exceptional instance of this that I remember occurred in the north of New Zealand some years ago. It was on a rough bush farm, that was in process of being won from the wooded wilds, and just at the end of a long, hot, dry season, when some few showers had begun to sprinkle the dried up earth. Within the grassed clearings that were in use as pastures there suddenly sprang up a profuse crop of Mushrooms, the true English field Mushroom (*A. campestris*). So thickly did these Mushrooms grow, that, from a hill-top three miles distant, I saw the paddocks gleaming white, as though snow-covered. The total yield of the crop must have been many tons in weight; and as men, pigs, and insects encroached upon the supplies, more Mushrooms kept on coming up, though sparingly, until, some three weeks later, heavy rains fell and “drowned” them.—*Field*.

FOREIGN FRUITS AND VEGETABLES.

“DELTA” is a curious negative genius. Nothing can or should be done, particularly as he did not say it could! We are all to sit still and see our markets occupied by the foreigner and say nothing! Be it so; but what is the good of preaching what is practised already? What is the good of even publishing a journal if all things are exactly as they ought to be? Melons are ripening in France, therefore we are wrong to say Potatoes could be grown here! But would “Delta” say who ever recommended Melon growing in the open air here? The question of Melons was never raised; it is the far more serious one of enormous quantities of produce the south of England could produce as well as any country in the world with which we have to deal. When “Delta” cannot help dealing with a thing like Lettuce, which does not want to be grown in the Tropics, he says, “Lettuce is not a necessity of the English dinner;” therefore we suppose no one buys the quantities that come to our markets! He goes on to add, “the market will not bear more than it at present receives.” Just so; once let others supply a market, and it is not easy to supplant them. “He feels persuaded that we cannot hope to compete with the foreigner in those early productions for which his climate is so much more suitable.”

Whoever said we could? He is knocking down a house of cards here. Precious as Melons or Pine-apples or Oranges may be, there are other things belonging to cool countries much more valuable and much more in demand. We have no doubt “Delta” is so fertile in reasons for doing nothing, that he could prove the futility of growing our own Horse Radish, our own Apples, our own Plums, or our own Asparagus, all of which come in enormous quantities from abroad at seasons when they are in condition in this country. It may be all right, but only one person seems sure that it is so, and that is “Delta,” who “entirely denies” that the “market gardeners round Paris make more of their ground than we do.” He is “entirely” wrong here. He should have proved his proposition by showing how a man and his family can

live out of an acre of ground by making less of it per acre than those who cultivate from forty to one hundred acres. The question of whether small or large gardens are best for a country is a separate one, but the statement as put forth by “Delta” is “entirely” untrue. The amount of money paid by us annually for produce that might be grown at home is almost inconceivable—equal to the revenue of a rich country. It is well over a hundred millions of pounds sterling! At the present time there are fine farms waste or nearly so even in Kent, “the garden of England.” These things, according to “Delta,” are of course all very right and natural. TRAVELLER.

MATERIAL FOR ROCKWORK.

I OFTEN feel it needful to write on subjects about which I ought to know something: after just fifty years’ daily experience in such matters, but every day brings some more pressing duty to perform, and so I am prevented. It may well be said to Mr. Lascelles that he had better let rockwork alone, for it is with difficulty we manage to teach men to make it look natural, and correspond with its surroundings, and at the same time fulfil the requirements of plant life. As to materials being few, let us first take tufa, a light material, generally used inside; we rarely, however, find the weight of material to be of any importance, beyond the carting, as in most ferneries, conservatories, and of course in the garden it rests on the ground, or if not it ought to do so. There is rarely a place in which there is not some water, which of course would be fatal to a wood floor; whilst on an arched floor, on which it is sometimes built, weight is of little or no consequence. As to burrs, bricks, or clinkers, we often use them where stone would be too expensive; but our artificial rocks are so perfect as to be mistaken for real stone, as in the Brighton Aquarium and elsewhere. In many parts of the country, however, we find sand or limestone; indeed the following are the only counties in which I have not found suitable material, viz., Suffolk, Middlesex, Herts, Essex, Hants, Rutland, and Beds. Mr. Lascelles’ concrete is very good, but for rock formation scarcely good enough. In his horticultural and other buildings he has, as you say, work enough for his fertility of invention without rockwork. JAS. PULHAM.

Broxbourne.

SOCIETIES.

Royal Botanic.—The forty-third anniversary meeting of this society was held on Thursday last in the Gardens, Regent’s Park, Dr. H. A. Pitman in the chair. The annual report gave a very satisfactory account of the finances of the society, the receipts of the year having exceeded the expenditure by over £306. The number of new subscribers joining during the year exactly corresponded with that of last year, and was above the average of the last twenty years. In addition to the usual flower shows, exhibitions of special groups or classes of plants had been undertaken. These were thought useful, as enabling amateurs and others to compare in one view the many varieties of the same class of plant. Above £800 had been awarded in prizes for plants, flowers, and fruit, and so large had been the collections of exhibits sent in, that much difficulty was experienced in finding accommodation for them—in fact, the great strides made of late years in the cultivation of plants and flowers might be almost compared with the general manufacturing energy of the country. Another feature, showing the public utility of the society’s operations, as gleaned from the report, was the assistance afforded to medical and other students, artists, and others, whose pursuits had any connexion with the vegetable kingdom, by the issue of free admission tickets of from one to six months each, and the distribution of cut specimens. Of these 827 tickets had been applied for and issued, and nearly 37,000 cut specimens distributed. A catalogue of the tropical, medicinal, and economic plants living in the society’s garden

had been published during the year. The society by these and other operations was thus carrying out its objects as set forth in its charter of incorporation and in its lease of the gardens, viz., “For the promotion of botany in all its branches, and its application to medicine, the arts, and manufactures.”

Canon Hole writes that Madame Gabriel Luizet is the belle of the Queen’s Court this season.

Pontederia crassipes.—This plant flowers in the College Gardens at Dublin, and is very effective, bearing erect spikes of from ten to thirty lavender-coloured flowers, having a dark blotch in the centre. It is grown in a large pot of sandy loam, the hole below being blocked with cement. The base of the pot rests on the top of a warm flue, the plant itself being within 2 ft. of the glass roof of the propagating pit in which it is grown. So cultivated, the plant acquires an erect habit without developing the characteristic “floats” or swollen petioles. I believe it never or rarely flowers when floating on deep water.—B.

Iris susiana.—“E. H.” (p. 114) complains that this plant does not flower. Supposing that his pots are large enough, well drained, and filled with rich soil, all is done that is necessary, but what probably “E. H.” omitted is to give them a period of absolute rest. I would advise him to plunge his pots close to a south wall, and to put, lean-to fashion, a frame over them from the end of May till the middle of August. The roots will find moisture sufficient, and under a roasting sun good flowering bulbs will be formed.—MAX LEICHTLIN, *Baden-Baden*.

Bocconia cordata.—What a very easy plant this is to increase! I took a few of the thick fleshy roots last spring, cut them into pieces an inch or two long, planted them just under the surface in pots of light soil, and now I have dozens of little plants in bloom, and might have had hundreds if I had required them. Again, early last spring I moved a fine old plant, and in doing so some of the roots were broken and left in the ground, and from the old site, wherever a piece of root was left, a shoot has sprung up, which is now in flower.—E. H.

Ants (D. B. K.).—Try the effect of strewing amongst them some fresh guano, and report to us the result.

Seedling Fuchsia (H. Haskins).—Your seedling we consider is a good one and worth naming.

Seedling Pelargonium (H. H.). The trees you send represents a good double zonal variety of bright colour, but not superior to many named sorts.

Annona Cheirimolia.—Seeds of this were sent to me from Madeira some years ago; the trees produced by them have flowered for three years, but the fruit will not set. Will plants raised from seed not bear? Do they require grafting? and if so, on what stock?—F. N. R.

Names of plants.—H. S. W.—Yellow is *Grindelia squarrosa*; purple is *Aster tanacetifolius*.—J. K. R. W.—“Cannot name your plant without seeing flowers.”—W. Roberts.—*Rhus Cotinus*.—S. E. H.—*Origanum Dictamnus*.—S. Hutchins.—1, *Veronica longifolia*; 2, *Centranthus ruber*; 3, *Reseda luteola*; 4, *Sedum kamschatkense*; 5, *Clematis Vitalba*; 6, *Medicago echinus*; 7, *Aceria Novae-Zelandiae*.—A. C. Saccobolium *Blumei majus* (Burmah), fine variety of *Aceris quinquevulnerum*. Plants received in a crushed box bearing *Gnaphalium postmark*—2, *Miltonia spectabilis*; 3, crushed; probably a *Swansonia*; 4, small leaf of *Pandanus*; 5, *Oncidium* (species); *Dendrobium Farmeri*, no number attached.—J. R. D.—We cannot identify your plant without flowers.—G. A.—*Campanula glomerata speciosa*.—A. J. H.—1, *Francoa appendiculata*; 2, send again; 3, *Tradescantia virginica*; 4, *Limnanthes Douglasi*.—J. B. Field.—Yes; it seems what you say, but larger than we have seen it, the heads like those of a *Eupatorium*.

COMMUNICATIONS RECEIVED.

W. P. & Son.—C. W. D.—B. L. S.—J. C.—Mrs. D.—Max L.—J. R. D.—T. B.—W. H. F.—I. C.—Mrs. Y.—J. S.—H. N. E.—T. B.—E. F.—G. J.—F. N. D.—I. O’E.—W. G.—W. W. H.—T. H. M.—Mac.—T. C.—J. M. C.—A. D.—S. C. C.—W. H. G.—W. C. B.—J. R. E.—J. S. E. H.—G. S.—W. R.—K.—J. K. R.—W. R.—D. W. G.—J. C. B.—J. W. B.—T. S.—D. T. F.—Delta.—J. H.—G. B.—R. G.—W. B.—A. B.—D. N.—J. M. C.—J. S. & Sons.—W. T.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

COLOUR IN THE FLOWER GARDEN.

ONE of the most important points in the arrangement of a garden is the placing of the flowers with regard to their colour-effect, and it is one that has been greatly neglected. Too often a garden is an assemblage of plants placed together haphazard, or if any intention is perceptible, as is commonly the case in the bedding system, the object aimed at is as great a number as possible of the most violent contrasts, with the result of a hard, garish vulgarity. Then, in the case of mixed borders, what is usually seen is either lines or evenly distributed spots of colour, wearying and annoying to the eye, in no way interesting, and proving only how poor an effect can be got by the misuse of possibly the best materials. Should it not rather be remembered that in setting a garden we are painting a picture, only it is a picture of hundreds of feet or yards instead of so many inches, painted with living flowers and seen by open daylight, so that to paint it rightly is a debt that we owe to the beauty of the flowers and the light of the sun. Therefore the colours should be placed with careful forethought and deliberation, as a painter employs them on his picture, and not dropped down in lifeless dabs, as he has them on the palette.

Harmony rather than contrast.—Splendid harmonies of rich and brilliant colour and proper sequences of such combinations should be the main rule; there should be large effects, each well studied and well placed, varying in different portions of the garden scheme. One of the commonest faults in arrangement is a want of simplicity of intention, or an obvious absence of any definite plan of colouring. A difficulty will arise in the case of many people who have not given any attention to this question of colour-harmony, or who have not by nature the gift of perceiving it. Let them learn it by observing some natural examples of happily-related colouring, taking separately families of plants whose members are variously coloured. Some of the best to study would be American Azaleas, Wall-flowers, German and Spanish Iris, alpine Auriculas, Polyanthus, and Alstroemerias, avoiding of course certain abnormal colourings produced in some families of plants by the over-zeal of industrious florists.

Breadth of mass and intergrouping.—It is important to notice that the mass of each colour should be large enough to have a certain dignity, though it must never be so large as to be wearisome; a certain breadth in the masses is also wanted to counteract the effect of foreshortening when the border is seen in any degree from end to end. When a definite plan of colouring is decided on, it will be found to save trouble if the plants whose flowers are approximately the same in colour are grouped together to follow each other in season of blooming. Thus, in a part of the border assigned to red, Oriental Poppies would be planted among or next to Tritomas, with scarlet Gladiolus between both, so that in that part there should be a succession of scarlet flowers, the

spaces occupied by the Gladiolus being filled beforehand with red Wallflowers.

Warm colours are not difficult to place; scarlet, crimson, pink, orange, yellow, and warm white are easily arranged so as to pass agreeably from one to the other.

Purple and lilac group well together, but are best kept well away from red and pink; they do well with the colder whites, and are seen at their best when surrounded and carpeted with grey-white foliage, such as *Cerastium tomentosum* or *Cineraria maritima*: but if it be desired to pass to purple and lilac from a group of warm colour, it may be done through a good breadth of pale yellow or warm white.

White flowers.—Care must be taken in placing very cold white flowers, such as *Iberis coraeifolia*; this may best be used as quite a high light, led up to by whites of a rather softer character. Frequent repetitions of white patches catch the eye unpleasantly; it will generally be found that one mass or group of white will be enough in any piece of border or garden arrangement that can be comprehended from any one point of view.

Blue requires rather special treatment, and is best approached by delicate contrasts of warm whites and pale yellows, such as the colours of double Meadow Sweet and *Eurotia Lamarckiana*, rather avoiding the direct opposition of strong blue and full yellow. Blue flowers are also very beautiful when completely isolated and seen alone among rich dark foliage.

A progression of colour to be recommended in a mixed border might begin with strong blues, light and dark, grouped with white and pale yellow, passing on to pink. Then rose colour, crimson, and strongest scarlet, leading to orange and bright yellow. A paler yellow followed by white would distantly connect the warm colours with the lilacs and purples, and a colder white would combine them pleasantly with low-growing plants with cool-coloured leaves.

Silvery-leaved plants are most valuable as edgings and carpets to purple flowers, bearing the same kind of relation to them as the warm-coloured foliage of some plants does to their strong red flowers, as in the case of the Cardinal flower and double crimson Sweet William. The bright clear blue of Forget-me-not is best with fresh pale green, and pink flowers are beautiful with pale foliage striped with creamy white, such as the variegated forms of Jacob's Ladder or *Iris Pseudacorus*. A useful carpeting plant, *Acæna pulchella*, assumes in spring a rich bronze colour between brown and green, valuable with Wallflowers of the brown and orange colours. These few examples, out of many that will come under the notice of any careful observer, will be enough to indicate what should be looked for in the way of accompanying foliage; such foliage, well chosen and well placed, may have the same value to the flowering plant that a worthy and appropriate setting has to a jewel.

In sunny places warm colours should preponderate; the yellow colour of sunlight brings them together and adds to their glowing effect.

A shady border, on the other hand, seems best suited for the cooler and more delicate colours. A beautiful scheme of cool colouring alone might be arranged for a retired spot out of sight of other brightly-coloured flowers, such as a border near the shady side of any such shrubbery or wood as

would afford a good background of dark foliage. Here would be the best opportunity for using blue, cool white, palest yellow, and fresh green. A few typical plants for such a place would be the great Larkspurs, Monkshoods, and Columbines, Anemones, such as japonica, sylvestris, apennina, hepatica, and the single and double forms of nemorosa, white Lilies, Trilliums, Pyrolas, Habenarias, Primroses, white and yellow, double and single, Daffodils, white Cyclamen, Ferns and mossy Saxifrages, Lily of the Valley, and Woodruff. As a background to such flowers the most appropriate would be such shrubs and trees as would give an effect of rich sombre masses of dusky shadow rather than positive green colour; among these would be Bay, Phillyrea, Box, Yew, and Evergreen Oak. Such a harmony of cool colouring in a quiet shady place could not fail of being a delightful piece of gardening.

Bedded-out plants, in such parts of a garden as may require that system, may be arranged on the same general principle of related, rather than violently opposed, masses of colour. As an example, a fine effect was obtained by bedding with some of the half-hardy annuals, mostly kinds of Marigold, Chrysanthemum, and Nasturtium, all shades of yellow, orange, and brown. This was in a finely-designed garden of the formal kind before the principal front of one of the stateliest of the great houses of England. It was a fine lesson in temperance, this employment of a simple scheme of restricted colouring, yet it left nothing to be desired in the way of richness and brilliancy, and served its purpose well as a dignified ornament and worthy accompaniment to the fine old palace.

Contrasts how to be used.—The greater effects being secured, some carefully-arranged contrasts may be used with good results to strike the eye when passing near, for opposite colours in close companionship are not telling at a distance, still less if they are interspersed, when their tendency is rather to neutralise each other. Here and there a bold contrast well placed may have a charming effect, such as a mass of orange Lilies against Delphiniums, or Gentians with alpine Wallflowers; but these violent contrasts had better be used sparingly as brilliant accessories rather than trustworthy principles.

Climbing plants on walls.—There is often a question about the suitability of variously coloured creepers on house and garden walls. The same principle of harmonious colouring is the best guide. A warm-coloured wall, such as one of Bath stone or buff bricks, is easily dealt with; on this all the red-flowered, leaved, or berried plants look well. Japan Quince, red and pink Roses, Virginia Creeper, *Cratægus Pyracantha*, and the more delicate harmonies of Honeysuckle, Banksian Roses, and Clematis montana and Flammula, while C. Jackmani and other purple and lilac kinds are suitable as occasional contrasts. The large purple and white Clematises harmonise perfectly with the cool grey of Portland stone; also dark-leaved climbers, such as white Jasmine, Passion-flower, and green Ivy. Red brickwork, especially when new, is not a happy ground colour; perhaps it is best treated with large-leaved climbers—Magnolias, Vines, Aristolochia—to counteract the fidgety look of the bricks and white joints. When brickwork is old and overgrown with grey Lichens, there can be no more beautiful ground for all colours of flowers, from the brightest to the tenderest—none seem to come amiss.

GARDEN THOUGHTS.

AMONG THE ROSES.

BY REYNOLDS HOLE.

FIRST and foremost, that

Never sure, since high in Paradise,
By the four rivers, the first Roses blew,

has the Queen of Flowers attained such a complete perfection in one of the most lovely phases of her beauty as in this summer of 1882. I refer to the glorious and abundant display which we have enjoyed for three months, and are still enjoying, of the Tea-scented China Roses. I remember the time when not more than half a dozen varieties of this family, including Adam, Comte de Paris, Devonien-sis, and Souvenir d'un Ami, were exposed, generally on tall standards, with fear and trembling to the perils of winter. If they survived that calamitous season, they gave us some very beautiful Roses, but as a rule they met the sad fate of one of our great Nottinghamshire heroes, that gallant sailor, Sir Hugh Middleton, who was frozen to death in the Arctic seas. Few rosarians, when they had carried out and cremated their dead, had the heart again to expose such delicate and consumptive patients to the same disastrous risk. So we either took up our trees, planted them against a wall, and nailed a piece of matting over their heads—a sorry aspect they wore when we uncovered them in the spring, with a pale, sickly growth, which succumbed not seldom to one of those murderous frosts in May, or furnished a delicious banquet to greedy swarms of the sapbibbing aphids, or we joined in the universal creed of the rosarian, "Tea Roses can only be grown under glass."

Not in our happiest dreams after we had won the cup and lay in an atmosphere of Roses, which smiled on us and breathed their sweetness through our open windows; not in our most sanguine moods, when we peered into the future through the rose-tinted spectacles of hope, did we imagine a time when we should see the Tea-scented Rose no longer a starveling, gaunt, emaciated, weakly as Smeke, shivering an apology for its presence, but vigorous and robust as John Browdie—no longer hardly producing its sparse and sickly shoots, but spreading out in great bushes, pendent with their profusion of beauty! Such a profusion that, loving all flowers far too well to compare one species with another to the disparagement of either, much less two varieties of the same species, I am bound to say that no Hybrid Perpetual in my possession, not even La France, can compete as regards abundance with the Tea-scented Rose.

It may be answered that the Hybrid Perpetual Roses are pruned so much more closely than the Teas, that you might as well compare the bald lady in the advertisement before she rubs in the miraculous Macassar with the same person enveloped, after a few applications, in a mantle of hair, like Lady Godiva, when

Anon she shook her head,
And shower'd the rippled ringlets to her knee;

but all rosarians know, that where the Hybrid Perpetuals must be severely cut to produce their flowers in perfection, the Tea-scented Roses, if only the weak or injured wood be excised, and they have careful culture, will bloom in their integrity from the remaining growth, though it has not been touched by the knife. My meaning is simply this, that under no circumstances can you obtain the same number of perfect Roses

from a Hybrid Perpetual as from a Tea-scented Rose, supposing that they are both in perfect health, and under the supervision of an artist.

This is readily proved by "A Tour round my Garden," wherein the Hybrid Perpetuals have now (the last week in August) but two or three Roses on a plant, and the Teas look like monster bouquets, some with dozens, and some with scores of Roses; Anna Ollivier, with its long, wax-like, fawn-coloured flowers; Catherine Mermet, always lovely in its symmetrical shape and soft, pale, roseate hue; Marie Van Houtte, the most reliable and generous of all, with its lovely primrose, pink-edged petals; Madame Lambard, with its exquisite confusion of pale and vivid rose; Rubens, fair in form and feature as the beautiful Helena, whom Peter Paul took for his second wife, and so often introduced into his pictures. These with Souvenir d'un Ami, constant and true, as friendship should be, still continue in their full efflorescence, and seem as if, like Tennyson's brook, they intended to go on for ever. There are many others as pretty, but not as plentiful—Adam, Devonien-sis, Homère, Jean Ducher, Niphotos, Souvenir d'Elise, and in striking contrast with their surrounding sisters the bright saffron buds of Ma Capucine and Madame François Janin, and the cerise-red flowers of Veitch's Duchess of Edinburgh.

The more gracious and genial winter of 1881-82 has no doubt contributed to the production of the grandest crop of Tea-scented Roses which I have ever seen in England, but henceforth we shall always have a good harvest of them, budded low on the Brier, and well protected with long manure in the winter. All the varieties which I have mentioned survived the two terrible winters of 1879-80 and 1880-81. Hitherto I have grown them nigh to walls and in situations the least exposed, but I am now planting them fearlessly wherever the Rose will grow. They give and receive additional beauty by contrast with the deeper colours of the Hybrid Perpetual Roses, purple, maroon, crimson, carmine, pink, scarlet, and red, and their hardier brethren, like noble knights, not only show themselves to the best advantage, as men ever do in the presence of beauty, but give them some protection from frost, or when that chartered libertine, the wind, visits their cheeks too roughly,

I am well aware that the surer method of producing Tea Roses in perfection is to grow them under glass, because the exquisite purity of their colouring and the symmetrical development of their growth is often deformed by sullen rains, cold nights, rough winds, and hot suns; and I have referred, I think, in the pages of THE GARDEN to the specimens which I received from Eton in the spring as being the best I had ever seen; but few rosarians, even supposing that they have the duke's taste or his gardener's talent, can exercise them on such an extensive scale, and may be well content with the charming Roses which, sometimes as large and lovely as they can be, and always beautiful when the weather permits, may grow *sub Jove frigido* in this climate, cold as it is. But great gardeners are beginning to discover that no range of glass is complete without a house for Roses, and small gardeners are becoming convinced that where only one glazed structure exists it cannot be more profitably or

delectably occupied than by Tea-scented or other Roses.

These other Roses have not, in my opinion, had so good a time of it in this summer of 1882. The comparative mildness of the winter and spring induced an early and rapid growth, and the necessary check which was caused by the pruning knife had hurtful influence on the trees. The "maidens" suffered as usual from some bitter nights in May. It has been, as they say of cereals, an average harvest, but certainly nothing more. At the exhibitions and nurseries which I have visited, as in my own garden, good Roses have been many, but those Roses which cause the three judges suddenly and simultaneously to point the finger, like the three witches in Heath's illustrations of Macbeth, have been very rare. Innocent young people may perhaps remark, "You old fogies are plethoric, blasé, and hard to please," but just as

It stirs the blood in an old man's heart,
And makes his pulses fly,
To catch the ring of a merry laugh,
And the light in beauty's eye.

So the sight of a superexcellent Rose never fails to bring the old rosarian to a ! that is, to a full stop and note of admiration, and he must be indeed "*sans* eyes, *sans* nose, *sans* everything" before he fails to do homage to his queen, and to the last he loves her in his heart.

It may be said, I think, that more Roses than usual have taken a good degree, fewer than usual the highest honours, in the examination of 1882. Mr. Cant's Souvenir d'Elise, at the London show of "The National," appears to have been unanimously selected as Senior Wrangler, but with this and a few other brilliant exceptions the standard of talent has been low—an uniform mediocrity. And, perhaps, when we remember how many Roses in this variable climate fail altogether, and how excellent and plentiful has been the display of the Teas, we may thankfully regard this present season as one of the most successful. How few are the Roses of which we can positively predicate that they are sure to look their best. Even the most constant vary in merit. For example, in the admirable catalogue of exhibition Roses, prepared by the committee of the National Rose Society, "Alfred Colomb" is described as "always good," but I have known years in which it has been scarcely seen at our great shows, and has not attained more than three-fourths of its full development. Were I asked to name the Roses which have never failed in my garden, the list would be a very brief one—Camille Bernardin, Dr. Andry, Dupuy Jamain, Etienne Levet, Fisher Holmes, François Michelin, Jules Margottin, La France, Louis Van Houtte, Madame Clémence Joigneaux, Maréchal Vaillant, Marie Baumann, and Sénateur Vaisse.

Of Roses recently introduced, Alfred K. Williams (whose portrait will shortly appear in THE GARDEN) and Madame Gabriel Luizet still maintain the precedence; but, though they may be regarded as the Knave of Diamonds and the Queen of Spades of our Bezique, there are other trump cards of indispensable importance to those who would hold winning hands, such as Catherine Soupert, Charles Darwin, Countess of Rosebery, Duchess of Bedford, Duke of Teck, Harrison Weir, and May Quennell.

Among novelties not yet in general cultivation, Etoile de Lyon, a Tea-scented Rose, appears to justify its title as the bright, particular star. All papas are partial, and I should have suspected the raiser, Mons. Guillot, fils, of that form of speech which the Greeks call hyperbole, and the Americans hifalutinary, and our Laureate, "mere verbiage, the tinsel of compliment." When he informs us, *cette magnifique variété est une des plus belles Roses jaunes obtenues jusqu'à ce jour*, had I not been assured by reliable rosarians who have seen it that the encomium is just. Perhaps the best testimony to the excellence of this Rose may be inferred from the fact that when I visited the great Rose houses of the Cranston Company, at King's Acre, in the spring they contained more than a thousand plants of Etoile de Lyon, "with power to add to their number." Mr. George Paul speaks of it as "a grand addition to the yellow Roses and hardy Teas;" and Mr. Prince, with it may be, a little of that enthusiasm without which no man can be a true rosarian, describes it as "the best of the Teas."

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I have seen many new Roses, but it is difficult to judge of their merits in the first year of their exhibition. Of Roses from France, I thought that Madame Isaac Pereire, which has some Bourbon blood in its veins, and is a large and beautiful Rose; Rosieriste Jacobs, a globular, deep carmine, "velvety" flower; and Souvenir de Madame Alfred Vy (the lady is described in the French catalogues as "well made, and of a good carriage, with a complexion of Gooseberry-red") were the best. Of English seedlings, I admire Brightness of Cheshunt, whose name indicates its birthplace, very bright in colour, and of symmetrical, though medium, size; George Baker (also from Cheshunt), of which it is enough to say that it resembles Dupuy Jamain, and therefore deserves to bear the name of a zealous and successful champion of Queen Rosa; but with White Baroness, from the same establishment, I am so far disappointed, and fear that, in spite of her title, she will remain single. Mr. William Paul, of Waltham Cross, announces Duke of Albany and Queen of Queens. These I have not seen, but a commendatory notice has appeared in the present volume of THE GARDEN, pp. 161-2. My neighbour, Mr. Frettingham, has kindly given me buds of some very promising seedlings, Lord Frederick Cavendish, Mrs. Henry Frettingham, and Mr. R. C. Sutton, which I hope will do honour to our country.

*

I have a suggestion to make to those rosarians who grow some of their Roses in long continuous beds (some hundreds in a bed) as I do. Place here and there across them, say 20 yards or 30 yards apart, a line of some vigorous varieties, such as Madame Joigneaux, Maréchal Vaillant, Edouard Morren, Paul Neyron, Paul Verdier, or some Hybrid China or Bourbon, Blairi No. 2, or Charles Lawson, and let them grow into a hedge, as they will quickly. They will break very prettily the monotonous aspect of your borders, and they will give shelter to your Roses without overshadowing them.

*

Summing up, as an old judge (of Roses), I would congratulate rosarians upon their many sources of happiness, ever new—new Roses, new exhibitions, new exhibitors, new modes of culture. If increase of appetite doth grow with that it

feeds on, the fool is every year more ample and excellent. I can hardly believe that I have lived in times when the Old Cabbage, Common Moss, York and Lancaster, Denmark, Tuscan, Portland, Céleste, and De Meaux were almost the only Roses in many a great garden, and that I have gloated over Géant des Batailles, price half a guinea, as the *ne plus ultra* of a perfect Rose. Now we linger admiringly amid our marshals and dukes in their gold and crimson glory, amid mesdames, and mademoiselles of wondrous beauty, with all our desires fulfilled, unless it be for a white Charles Lefebvre, and for some such a wind, as that which arose in Egypt in the time of the locusts, to blow all insects which prey upon the Rose into the sea; and as we wander in thankful enjoyment, one of our happiest thoughts is this, that not only have we more perfect Roses, but that, taught by the severities of recent winters, we know how to preserve them as slightly bushes, from those fatal hazards to which, as unsightly standards, they were so long exposed.

INDOOR GARDEN.

BERRY-BEARING PLANTS.

IN winter, when flowers are scarce, berry-bearing plants are of great service, their brilliant colours coming in well for Christmas decoration. They are also more lasting than flowering plants, especially as the latter are so readily injured by even a very brief exposure to sudden changes of temperature in removal to or from the glass structures in which they are reared; and for many kinds of decorations the berry-bearing class of plants is very appropriate, especially at Christmas and early in the new year in connection with evergreens. Foremost amongst berry-bearing plants must stand the Solanums, especially the varieties of capsicastrum, of which Wetherill's hybrid is a good type. These Solanums are easily grown plants, and last a long time in good condition. The treatment which we find to answer best is to sow the seed in heat in January, and as soon as the young plants are large enough to pot them off into small pots, then into 3-in. ones, pinching the points off as soon as they make three or four pairs of leaves, in order to induce a bushy habit. By the end of May they will do well in a frame or old Cucumber bed, where they can be kept moist by syringing when shut up for the day. They may be shifted into 5-in. or 6-in. pots in June, using a mixture of turfy loam, leaf-soil, or decayed manure, and sand. They will rapidly develop into fine bushy plants, and in July and August, when flowering and setting their crop of berries, they must be kept fully exposed to the atmosphere, except in very heavy rain storms, when they are liable to get saturated. In that case push the lights over them, but tilt them up in order to secure a free circulation of air, so as to get a good set. In September they may be taken under glass, so that the berries may be thoroughly crimson by November. They then make excellent vase plants, or work in admirably for indoor or conservatory decoration, the berries being specially attractive under artificial light. There are several varieties of Solanums, but the same mode of culture answers for all. After their fruiting is over they may be cut down close, and started into growth in March in a gentle heat, repotting and growing them on as before. They thus make fine specimens the second season. Of the annual kinds with yellow berries—of which Prince of Wales is the type—there are many varieties. They, however, require more heat in winter than the others; while the hard-wooded capsicastrum will stand for weeks in a cold house in winter if frost is excluded; the more tender yellow-berried sorts will shed their leaves. The same treatment in their early stages of growth as is given to the others will suit them well; but they are best raised from seed sown in February and March, and grown on in frames until Septem-

ber, when they must be taken into an intermediate house, where the temperature is kept about 50°. The best way with this kind is to run them up to single stems and then allow the top to spread out, and when loaded with lemon-coloured fruits they contrast well with the more erect habited scarlet-berried varieties.

Capsicum Little Gem, a dwarf variety, with berries freely produced from the axil of every leaf, promises to become a very popular variety. Its berries are about as large as Currants, and very bright and attractive. Rivina humilis is one of the very best of berry-bearing plants, and easily raised from seed. It requires a stove temperature, a light, rich compost, and heat and moisture. It produces long spikes of tiny white flowers, quickly succeeded by brilliant scarlet berries that glisten as if varnished. Ardisia crenulata is another useful plant, producing scarlet berries, and one variety bears white berries. A compost of peat, loam, and sand suits both kinds well, and they should have a stove temperature, with plenty of moisture. Great care is necessary to keep mealy bug at bay, for if once it gets a lodgment in the bunches of berries, it quickly spoils their appearance. Aucubas of various sorts, if carefully fertilised, make valuable berry-bearing plants if placed under the cover of glass to get the berries of a bright colour before Christmas, when, from their hardy character, they come in well for positions where tenderer plants cannot safely be employed. Iris fetidissima is another of the hardy section, with Rush-like foliage and large seed-pods that burst open and show their brilliant colour, and may be utilised to assist for the winter display.

J. GROOM.

LILIES AS POT PLANTS.

A GREAT deal of mystery, quite uncalled for, still surrounds the cultivation of these beautiful plants. Some years ago I remember a very fine collection that was grown with great success entirely out of doors, except during their blooming season, when they were taken into the conservatory, where, along with Salvias and other autumn flowers, they made a glorious display. Let me, therefore, briefly describe the way in which they were grown. The season to commence the cultivation of Liliums of the lancifolium, auratum, and similar varieties is when the tops have died down and the roots are at rest, and then the earlier potting is done the better. November is a good month for the operation, as the majority of sorts are quite at rest then. Shake away the soil and select all the flowering bulbs for potting, and lay aside all small bulbets for planting in the open air. The soil should be well-rotted, fibry turf, peat, leaf-soil, dry cow manure, crushed charcoal, and sharp silver sand. Good large pots—say 10 in. or 12 in. in diameter—are the best. Put in plenty of clean potsherds for drainage; then some rough soil and a little fine material in which to set the largest bulbs. Five or seven will be plenty with which to make a grand specimen. Put a handful of dry sand over each bulb and just cover with the soil, so that the pots are about two-thirds full, then set them in a cellar or cool shed, but give no water until the spring. If necessary, they may be set in tiers one above the other, by placing a board over every tier of pots to act as a shelf. They will not commence to grow above the soil in spring until all danger of severe frost is past, and I find the best position is on a bed of coal ashes, covering at night with mats or tiffany as long as frost may be expected. In May they will make fine sturdy shoots, and will show the surface roots in a circle just above the ground; then fill the pot up with rich compost, consisting of cow manure and loam in equal parts; these active roots will greatly strengthen the flower-stem. Be very careful with watering, as no plants are sooner injured by stagnant water at the roots than Lilies. Put a stake to each flower stem, but be careful not to pierce the bulb. Lilies as a rule are clean plants; but if green fly gets on them, sponge it off at once, for, the leaves being smooth, they are readily cleansed. If required to make a

long succession of bloom, the most forward now showing flower may be placed under glass, to accelerate their blooming; and by taking in a few every week, a long succession may be secured. Keep the soil moist, but not wet, until the bloom fades and the foliage begins to turn yellow, then watering may cease; and if set out of doors, the pots must be turned on their sides, to prevent heavy rains from saturating the soil. When thoroughly ripened off, they may be removed to a cellar or shed for repotting. I may mention that some, who have no glass, flower them beautifully in window and balcony flower stands, and winter the pots in a cellar. The small bulbs they plant out of doors, in well-prepared garden soil, in rows 1 ft. 6 in. apart, and cover with a thick mulching of litter to exclude frost; after two years' growth they are mostly fine flowering bulbs. It is drying off that renders Lily bulbs scarce, and keeping them out of the soil when they ought to be in it. To those who have failed I would say, try simple rational treatment, and avoid nostrums in the way of soils, manures, &c.; then the Lily will be found fully equal to all that has been said in its favour.

J. G.

Utilising waste heat.—Allow me to offer a suggestion to those who throw most of their heat away, and who have space at disposal. Our climate is, as all are aware, cold and uncertain. We buy at fancy prices fruits, vegetables, and flowers which necessitate the application of artificial heat; and our plant growers, at great expense and trouble, provide this heat, charging the cost on the result. You will see in connection with mills acres of water exposed to the air to cool—surely there can be no reason why the waste steam and waste heat should not be passed through tanks, and these tanks be built over with glass houses for the production of thousands of tons of costly vegetables and fruit. Given a climate under control all the year round, the same space would raise half a dozen crops every year of things which always will command a high price. Any of you who have mill-dams heated with waste steam could let the upper part of them at a pretty high rent, and those who have waste steam could sell it to plant or fruit growers at a price which would materially increase the profits, provided space is available. With glass houses there is always the advantage that they are almost independent of position, provided light is available. Some manufacturers have in a trifling way utilised a small atom of their waste heat in this way; but that is nothing—I refer to Pines, Grapes, winter Strawberries and salads, Tomatoes, Cucumbers, Peaches, Melons, and tropical fruits and flowers of all kinds by the hundreds of tons.—T. FLETCHER, Warrington.

Schizanthuses.—There are several varieties of *Schizanthus* suitable for sowing in the open ground, but they are not all adapted for flowering in pots. *S. pinnatus* Priestli is the one usually grown. The best form I have ever grown I received last year from the Exe Bridge Nursery, Exeter, under the name of *S. pinnatus* Randalli; this is of dwarf, compact habit, growing from 18 in. to 24 in. high, with a nice bushy head that produces 200 or 300 flowers at one time. All the varieties of pinnatus flower equally free, but they are not all of so good habit; our plants generally last in flower two or three months, and I consider them much handsomer than some Orchids. For flowering in the spring the seed should be sown early in the month of August. The most stocky and hardy plants are obtained by sowing thinly in the open ground. As soon as the plants are large enough to handle they should be thinned out, so that every plant may stand 6 in. or 8 in. from each other. At the end of September they should be lifted carefully with a trowel and put into 6-in. pots. Seeds may also be sown in a pot or pan, and when the plants are large enough they can be potted singly in 3-in. pots. Under this treatment they will want the shelter of a cold frame or pit, and will require shifting into 6-in. pots in October. Whichever way a stock of plants is obtained, they must have the shelter of

glass before any frost appears, as they are not hardy. About the middle of December they must be shifted into the pots in which they are to flower; each plant must stand singly in a 6-in. or 7-in. pot. The soil should be equal parts loam and leaf soil, and the plants should be staked as soon as potted. The great point as regards growing *Schizanthus* into neat bushy specimens is to give them suitable winter quarters. If the plants can be kept from frost, they will be better without fire heat than with it. We grow our plants chiefly in an unheated Peach house attached to a division that is heated. When the frost is likely to reach them in the unheated part, they are placed in the other, and brought back to the cool house as soon as the frost has gone. All through the winter the plants must have a position near the glass where plenty of air can reach them. As the *Schizanthus* is such an easy plant to grow, and does not take up much room, I make it a point to grow about two dozen plants. From these I can select in March a dozen of the dwarfest and best formed, and throw the others away. They come into flower in April, and last well into June. When in flower they are very attractive.—J. C. C.

FLOWER GARDEN.

DWARF LILIUM AURATUM.

THE mention made in THE GARDEN (p. 137) of a remarkably dwarf form of *Lilium auratum* exhibited at a meeting of the Tooting Horticultural Society reminded me of the great difference in height that may be observed in these Lilies, a circumstance attributable to the time of year in which they are potted. Taking the case of imported bulbs, for example, those potted as soon as received, attain collectively a greater height than those in which that operation is delayed later; while a number of bulbs laid in Cocoa-nut fibre and which made growth of 3 in., 4 in., or 5 in. before potting, flowered well with me at a height of 1 ft. to 2 ft. From my experience of former years I shall expect when the stems die down to find that the bulbs of these last are almost if not quite mouldered away, probably owing to the fact that the large roots at the base of the bulb receive such a check when potting is delayed so late that they never grow with their natural vigour afterwards; consequently the flower-stem has to depend for its nourishment almost entirely on the rootlets at the base thereof. Besides this a great deal depends upon the after treatment which they receive. Plants plunged out in the open ground are not more than one half as tall as those grown wholly under glass, these latter running up a good deal in their earlier stages. Apart from any peculiarities induced by difference in culture, there, however, undoubtedly exists a wide range of forms, varying more or less in shape, size, or colouring of the flower, in shape and quantity of leaves, and in height. Thus I have noted this season, besides the ordinary type of *Lilium auratum*, the narrow and pointed-leaved kind mentioned in THE GARDEN, which is generally dwarf and bears its flowers on short stout stalks; they therefore form a closer mass than the other. Their colouring is mostly clear and distinct, the spots numerous, the golden band well defined, and the shape of the flowers good.

In direct contrast to this is one that is now imported in much greater quantity than formerly, the petals of which are narrow, the spots few in number and of a dull hue, while the flower-stalk is so long and weak that the blossoms are almost pendulous. It is of but little value as a decorative subject, at least compared with the many finer forms. The difference in the marking of the flowers again is very great, some being densely and others sparsely spotted, while the golden band varies in width and depth of hue to a great extent. Were the same principle carried out with this Lily that seems to be so often followed in the case of Orchids, viz., to recognise as a variety every slight divergence from the normal form, there would be an almost endless list of names; instead

of which there are but two or three well defined kinds so distinguished. In *rubro-vittatum* the yellow band is replaced by a crimson one, the deepest coloured form being known as *cruentum*, which, from the contrast between the two colours is very distinct. The profusely spotted flower, with a streak slightly coloured with crimson is generally met with under the name of *pictum*, but these varied types may all be occasionally picked out from ordinary imported bulbs—not so frequently, however, now as formerly, a circumstance doubtless attributable to their being selected when in bloom, any extra good flowers being reserved or sent as superior varieties. Such are sometimes met with in lots of two or three in the winter sales of bulbs. I find generally that they consist of more or less well marked flowers of *rubro-vittatum*. The spotless (*virginale*) is a beautiful Lily, pure white in colour with a pale yellow band, but in its best type very scarce.

Bulbs are often sold as *virginale* which turn out when flowering to be very different; indeed, such difference is perceptible as soon as the stems are a few inches high, owing to the great width of the leaves, which then bear more resemblance to those of *L. speciosum* than to those of *auratum*. The petals of this variety are broad, short, solid in texture, and sparsely spotted with yellowish brown, so that they lack the purity of the true *virginale*. As the bulbs, when received, have been some time out of the ground, and would in their natural state be rooting vigorously, no time should be lost in laying them in some slightly moist soil or Cocoa-nut fibre. This plan I find better than potting them at once, as decay will sometimes have commenced, and while the bulbs are dry will not be noticed, but as soon as they acquire their natural plumpness will show itself. In potting remove any decaying parts, as the loss of two or three scales will often save the bulb from further decay, and even if it be half rotted away, and a little dry sand or powdered charcoal be placed around it, the bulb will often throw up as fine a spike as if nothing was the matter, although most probably on examination in the autumn the whole of the root will be found to have disappeared. If possible, the bulbs should always be potted as soon as the roots at the base start into growth, which takes place quickly after they are laid in the ground. H. P.

CLIMBERS FOR AN EAST WALL.

"C. M. N." makes enquiry (p. 138) as to the most suitable plants to train upon the east wall of a handsome red brick dwelling-house on the south coast near the sea. There are various ways in which such a wall may be effectively clothed with suitable climbing or other plants. It would not, however, be advisable in such a case to employ plants which would be likely to require much nailing; consequently such plants as the Rose would hardly be eligible for the purpose, as the driving in and drawing out of nails soon disfigure the best of walls. In the situation alluded to, however, such plants as the *Magnolia grandiflora* might be used with excellent effect, and would probably succeed well. They would require but few nails or studs to secure them to the wall. A very pleasing effect might also be produced by planting the *Ampelopsis Veitchii* between each pair of windows. This plant will be found to cling closely to the wall without any assistance in the way of nailing, while over the plant should be fixed to the wall, but not too closely, a piece of ordinary wire netting, which may, as desired, be some 18 in. or 2 ft. wide, extending, if thought proper, to the top of the wall, or to whatever other height may be desired. It may also be made to extend horizontally between the upper and the lower windows, supposing the house to consist of two or more storeys. To this wire netting so secured may be trained some of the many fine climbing varieties of Jackman's Clematis. The roots should be carefully planted close to those of the *Ampelopsis*. The soil which suits one plant will suit the other equally well. The shoots of the Clematis, with its somewhat sparse foliage, being trained to the netting, its beautiful flowers will

necessarily rest upon the splendid foliage of the Ampelopsis, which will have the effect of setting them off to the greatest advantage, while the flowers of the latter are hardly discernable, and, as has already been said, its shoots adhere to the wall without assistance of any kind beyond the little training necessary to induce it to grow otherwise than upright or perpendicular. Both plants are of course deciduous, but the Ampelopsis has a pretty appearance upon the walls even in winter. Neither of these plants is at all particular as to soil, but a moderately rich loamy compost is most conducive to their healthy and rapid development. That portion of wall between the pairs of plants recommended might with advantage be planted with the *Cotoneaster microphylla*, an evergreen plant, perfectly hardy, and admirably suited for the purpose of clothing walls or other objects requiring but little assistance to induce its branches to cling to the same; while its neat, small, white flowers are very ornamental during summer, and its pretty coral-like scarlet berries are even more so during summer and winter.

P. GRIEVE.

IVY AND AMPELOPSIS COVERED WALLS.

Ivy is supposed to be adapted for "growing o'er ruins grey," but objections are entertained against planting it against mansions of the living. The first of these objections is the idea that it causes damp walls, and the second arises from a reluctance to cover good masonry out of sight. There are many noble houses, however, that might with great advantage and good taste be clothed with Ivy or the Ampelopsis Veitchi; and if this was settled upon at the outset, the walls need not be faced with rubbed stone, but hewn only, thus saving much expense. It is a great mistake to suppose that Ivy causes damp. Much of the house here is Ivy-clad, and no ill effects from damp have ever arisen, except when the Ivy was allowed to choke up the spouts or gutters, and that can easily be prevented by annual clipping and pruning—a work that can be done speedily, for the Ivy stands any amount of close shearing, and always looks best and neatest when it is shorn quite close to the wall every April or May. The new foliage grows immediately, and has a much fresher and greener appearance than when allowed to push out from amongst the old, and the clippings effectually prevent sparrows from harbouring in it, which they are sure otherwise to do. It is, however, only the common strong-growing Ivies that need much clipping. The more tender golden and silver variegated kinds do not need it, as they grow closely on to the wall; but these varieties take a long time to clothe a building. Therefore, for general purposes, the common Ivy is the best. It soon runs up, and if planted in a good soil, and afforded root room, it will take care of itself. Mansions with flagged terraces around them are the worst to furnish in this way, for the roots do not thrive under the flags. In such cases good beds may be made for them near to the wall, and covered flush with the flags with iron gratings.

A better plant than Ivy for our purpose, however, is the Ampelopsis Veitchi, only it is deciduous—leafless from the beginning of December till April or May, according to the locality. The leaves are green in spring and summer, and change to chocolate and crimson in autumn, and in fine summers or in good sunny positions it is then a gorgeous plant. In the north it must have a southern or western exposure, and should not be planted on north walls. Ivy will do best there. The great merits of the Ampelopsis are its thoroughly hardy character, rapid growth—pushing many feet in a season, and covering walls 30 ft. or 40 ft. high in a few years—and the fact that it needs absolutely no training, pruning, or nailing whatever. It glues itself to the wall, and always looks as close and neat almost as if it had been pasted on. For churches and similar buildings, rustic cottages, and the like it is a charming plant, not by any means half so well known as it should be. It grows fast in any good garden soil that is well drained, and is readily propagated from cuttings of the last year's wood, struck either

in a slight heat early in the season, or later outdoors. It will attach itself to trees or anything, but as a wall plant it looks best and does best, and no outdoor situation can be too favourable for it. I have never seen an insect upon its foliage; it seems to be quite free from pests. J. S. W.

GLADIOLI IN AUGUST.

I AM a devoted admirer of Gladioli, and as too frequently growers confine themselves this month, when they are in the zenith of their bloom, to simple admiration, permit me to note a few things in addition that I consider necessary if present and future success is a consideration. Before doing so, I would look through my limited collection of about 200 bulbs and ask permission to note half a dozen of the newest and most striking. I shall only refer to those recommended by Mr. Kelway and English-raised, though I have a few dozen French raised for comparison.

LORD NEWPORT is conspicuous even amongst the crimsons of the Meyerbeer type at a considerable distance. It is not as tall as several others, but the prevailing lilac, shading to rose, is very brilliant, neither the reddish streaks nor beautiful white throat being conspicuous until you approach it. The flowers are among the largest.

VISCOUNTSSE GLENTWORTH with me has proved a freer grower, and, what does not always accompany superior seedlings, it has two strong stems from the same bulb. I mention it after the foregoing, as the rose and violet tints are peculiar to both.

AGRIUS.—Were I showing Gladioli I should have this among the preferential kinds. It has a majestic spike, on which I counted twenty-two flowers. The prevailing colour is salmon-rose, with tinted margins and a soft white eye.

MR. DERRY.—I am not sure if I should not have named this first. In height, size of flower, and brilliancy of colouring it is almost unrivalled. The flaking of rosy purple and white is very peculiar and distinct.

LADY BRIDPORT.—Even more brilliant rose, with salmon stripe, and finely flaked on the lower divisions. I am not sure if others have noticed it, but I find some of my best whites the last to open, such as Regina, Reine Blanche, Vesta, and those of the Shakespeare type.

The last, and certainly one of the best and most prolific, is Sir Massey Lopes; though transplanted it is growing robustly.

With a view to robust growth and fine flower-spikes, I invariably use liquid manure. Though it may seem heresy to older growers, I am not at all sure it can be too strong, especially in such dry, warm weather as that which we are now having. I give it to my Gladioli as often as to my Roses, and find it equally effective; and I continue it after the blooming has been completed until fully matured. There must, however, be full exposure and dry clay strewn over the liquid if at all thick. Remove any other large herbaceous plants that interfere with the action of the sun. With shade there will be no proper maturation and no bloom next year. And lastly, remove the seed-pods at once, especially if you don't want them.

Clonmel.

W. J. M.

CAMPANULAS.

ABOUT a month ago we had some fourteen or more Campanulas in bloom. All the forms of persicifolia are good growers, and soon make strong patches, which throw up their stems to a good height and produce plenty of bloom. The single and double whites we find to be excellent for many purposes. *C. carpatica*, blue and white, make grand border plants; being low growers, they are just at home near the walks, and can be easily examined; they flower so finely as to form quite masses of bloom. *C. turbinata* is dwarf and lovely; patches of it look well in rows in borders or on rockwork. A variety named *atropurpurea* is very good in colour. *C. muralis* grows freely in poor dry soil, and keeps long in bloom; its flowers are of a pretty shade of blue, and the plant is very dwarf. *C. garganica*, also a very dwarf grower, is

interesting, blooming as it does freely in the open border. *C. pyramidalis*, blue and white, is excellent for the back of a border; here in good soil both sorts produce spikes of flowers in abundance in pots. Most people who have to keep a conservatory gay during the autumn know the value of this Campanula. *C. grandiflora pumila* is new to me; it flowered for the first time this season; in fact, it is now in bloom in the open border. It is a Japanese variety said to grow from 9 in. to 12 in. high. It is not 1 ft. high here, but that may be owing to its being fresh planted. Its blooms are very large and bright blue. It is the best Campanula distributed lately, and one I can recommend to all growers of hardy plants. A double white kind I had from Bedford deserves notice. It only grows 19 in. high, and is in the way of the Canterbury Bell, but smaller in every way.

Farnborough Grange.

J. CROOK.

BULB GROWING IN HOLLAND.

BY BURNET LANDRETH.

HILLEGOM is our objective point, and to reach it we go from quaint old Amsterdam to Haarlem, through a country of windmills and ditches—water on every side—ditches, canals, rivers, the divisions between fields, not fences, but open ditches, 3 ft. to 30 ft. wide, navigable for long narrow flat boats, waggons being almost unknown. The size of the fields vary from 2 acres to 10 acres, seldom more, principally Grass. Another striking feature is the noble avenues of Lindens; every house of any importance has its line of approach and every town its avenue—sometimes trimmed flat on both sides like a wall, the branches interlaced, at other times standing alone and trimmed like so many columns. Finally we reach Haarlem, a historic city. It gave birth to Coster, who it claims was the real inventor of printing. It was a nursery of art and to-day possesses fine pictures. It is a town of 60,000 inhabitants, and with its suburban surroundings is the seat of residence of large numbers of wealthy merchants from Amsterdam, thirty minutes distant. The business communities speak English very generally, so intimate are the commercial relations with Britain. For two and a half centuries Haarlem has been celebrated for its culture of bulbs. Before Pennsylvania was settled speculation ran wild on Tulips and Hyacinths. It is recorded that upwards of £1200 was paid for a single bulb, upward of £400 being a common price; the Government finally declared such sales illegal, and they were thus suppressed. To-day cultivators frequently pay from £5 to £6 for bulbs of rare new varieties.

Bulb culture is now principally pursued in the vicinity of the town of Hillegom, on the edge of the reclaimed land of Haarlem Lake. To reach it we hire a carriage and drive over a prairie-like country principally devoted to pasturage, windmills in every direction, some devoted to grinding grain, most of them for pumping water from the lower ditches to the higher. Looking from the train, we sighted seventy-five windmills at one time. Ditches one finds on every hand and water everywhere within 2 ft. or 3 ft. of the surface, the soil black and covered with luxuriant Grass. The roads are dressed with sea gravel and sand from the neighbouring dunes, well kept, and without fences. We drive on through hamlets and past fine country seats—long drawn out mansions set in the midst of horticultural embellishments—neath noble trees of Holly, Yew, Lime, and Oak, and in the distant vistas herds of deer; on the lakelets flocks of swans—nothing in comparison with the great show places of England, but occupying a middle ground, and filling the position with a quiet dignity. The Dutchman does not go beyond his means; what he does he does well, and he keeps his place in good form.

The Haarlem Meer was reclaimed in 1840 and gave up to culture 5000 acres of land, now valued at an average of about £80 per acre. It now supports a population of 10,000 people. It is on the borders of this reclaimed land Hillegom is situated, and we must hurry on, or the bulbs will be out of flower. Everyone grows them; if not an acre, a

rod or so. The aggregate area annually under culture is estimated at 800 acres of Hyacinths, 700 acres of Tulips, 400 acres of Crocus, 500 acres of other bulbs. The estimated value of these various bulbs is about £520 per acre for Hyacinths, about £185 per acre for Tulips, about £166 for Crocuses. The crops must needs bring much money, as the expenses are exceedingly heavy, the value of suitable land before preparation being £100 to £160 per acre. After securing the land it must be prepared, and this is a very expensive business; drainage, spading, manure, hauling sea sand and other costs running up to upwards of £100 to about £800 per acre, and then only available for bulbs every fourth year. Thus 9000 to 10,000 acres are in the bulb rotation and all necessarily of this costly prepared land.

Cow manure only is used—they say it is the best, but perhaps it is because they have more of it than any other. A Hyacinth in marketable form is four years old, sometimes five, and has been handled about twenty times a year, or 100 times in all. The various sorts and colours are classified in planting, and the bloom is only allowed to develop sufficiently to prove the variety and colour. It is then cut off. Hundreds of waggon-loads of blooms may be seen thrown into the ditches or piled up for manure. Large quantities of blooms are boxed and shipped to London by steamer from Flushing. The effect during the season of blooming about the 1st of May is most brilliant—fields here and there of 3 acres, 5 acres, 10 acres a blaze of scarlet or a cloth of gold. Everybody grows them; one sees them extending in all directions, field after field or small patches alongside the thatched cottage of the peasant, making it for the time a spot of beauty.—*Gardener's Monthly*.

IN A LAND OF BLOOM.

REDDING, Shasta County, California, is situated on a beautifully undulating height above the Sacramento River, here wide, swift, and clear, flowing south with majestic force. The uplands, dotted with white Oaks and Pines, are in the later days of May clothed with Grasses and wild flowers of many sorts—Godetias, Mimuluses, Cyclobothras, Dandelions, and Buttercups, pink Roses, and snow-white Gilias. The bright and happy-hearted school-children gather them in great handfuls, and dower the stranger with them on the slightest encouragement. Turning eastward from Redding, and crossing at an ancient ferry, we mount again to a plateau of red gravelly land, as yet unpeopled, and well timbered with Oak, Pine, Manzanita, Buckeye, Dogwood, and Redbud. Always in clear sight are the Alp-like peaks of Sierra and Coast Range, white-clad above dark belts of Pine. Fifteen miles' travel over these upland plains brings one to the foothills, and we begin to ascend, past volcanic rock, lava, and scoria, then over green meadows by rippling streams, then beneath tangled forest boughs and in twilight-like shadow. All the beating engines of toil, century-old, that men have wrought in the name of civilisation, but not wholly as yet for human enfranchisement, are lost in a dateless past, and forgotten thus. There are no cities any more, nor complexities of existence, nor long ache of brain; but, instead, are the wonderful spires of Cedar, blue glimpses of sky, and winds murmuring past, cool with the blessing of snow. Then, as one climbs, the real flower-land begins to widen in fragrant waves of soft hues and happy bewitchment. I should like to have the botanists of the world, from Sir Joseph Hooker to Asa Gray, in council on these luminous slopes, so full of colour, the delight of fragrance, and the glory of perfect form. If we could assemble such a congress of the high priests of the floral world, the stately shafts of Libocedrus forming a fitting temple, we ought, I am sure, to forget any talk of science and "specimens," and instead we should ramble and run as children do; we should tremble with delight by the white spires of newly-opened Lilies, and lie on the trailing Ceanothus, with faces buried in its blueness, and watch the glossy bells of *Dicentra formosa* quiver, one by one. In

fits of child-like mischief we should pull tiny buds half open, and should try, in defiance of poison, the wild wood flavours of each leaf and stem. Then, if in our day's toil we had known the soul-departed things that, weirdly labelled, lie between books of porous paper in stately cabinets of museums and colleges—mere ghosts of flowers—we shall, perhaps, almost need an introduction to the shy forest witcheries of these maiden-like blossoms, hiding in the deep cañons, nestling in the breezy hollows, dotting the pleasant slopes with winsome colonies, first scarlet or purple Brodiaeas, then mountain Lilies, cornelian-hued (*L. Humboldtii*), then Gilias, Nemophilas, Leptosiphons, Collinsias, and hosts of others. This is the realm which is, after all, the fairest heritage of California. When the broad valley beneath is a swarming, many-cited hive of human industry, the glad shall climb hither to grow more glad, and the weary to forget their burdens. Green slopes and rushing rivers, blue mountain lakes, and forest aisles, great and reverential, and springy turf, jewel-sown with flowers that nowhere else bloom in such perfection—these charms shall keep their enchantment while sunlight and starlight last. CHARLES H. SHINN.

Niles.

Dictamnus Fraxinella.—Although this frequently ripens seed, yet the general complaint is that it is difficult to increase. Those who are not aware that its seeds often lie in the seed-pans for two years before germination may have made the mistake of throwing them away, thinking they were useless. Everyone knows the difficulty of increasing it by division—the probability of many deaths, and the necessity of two or three years' growth for those which remain before they are at all worth looking at. I put in a few cuttings of flowerless shoots this spring, and am happy to find about 80 per cent. rooted and growing nicely. —T. D. H.

Campanula nobilis alba.—"F. W. B." speaks (p. 154) of this *Campanula* as if it was dwarf in habit. I should be glad to know if his is a dwarfier form than usual, as the ordinary form in damp situations will attain a height of nearly 3 ft. Referring to *C. Hosti alba*, I have been somewhat puzzled with respect to it. With me it flowers later than *C. rotundifolia alba*, and makes a good successional plant; the leaves forming the tuft are undeniably those of *C. rotundifolia*, those of the flowering stems being linear and much darker green. This latter, and the fact of its flowering some three weeks later, seem to me to be its greatest distinctions, flowers, height, and general habit being the same as those of *C. rotundifolia alba*.—E. JENKINS.

Iris susiana.—If "E. H." (p. 114) will refer to a note of mine in THE GARDEN for May 27 (p. 371), he will find some information about this plant which may be, to some extent, satisfactory to him. There is a misprint in it, the plants having been in the ground "for the last three years," not "months," as therein stated. This obviously makes all the difference, and proves to some extent that the *Iris* may become under some conditions a genuine garden plant, and not merely a pot or frame plant, as M. Max Leichtlin evidently considers it as alone capable of being treated. By the way, he would confer a favour if he would state in THE GARDEN what he considers the right "resting" or "absolutely dry" season for *Iris iberica*.—J. C. L.

Hardy plants at Hull.—I send two stems of *Picotee*, one named variety, and the other a common garden one, both showing a peculiar sport of the *Dianthus* tribe. Of course, this is not an uncommon thing, but I simply send them as being so decided a colour. Spring flowers here appear to show signs of abnormal growth. We have *Anemone sylvestris* and *A. japonica* (Honore Jobert) flowering side by side; *St. Bruno* Lilies are also blooming, and the *Auricularia* indoors and out and other *Primulaceæ* are to the fore. Again, we have *A. coronaria* still flowering; these have been in bloom more or less for five months. In this district we have had a deal of wet for the

last three days with marked improvement in the garden. I have never seen *Gladiolus brenchleyensis* on finer form than now. We have it planted in the large rockeries amongst the *Rhododendrons*; it appears quite happy. Some of the flower-spikes measure over 18 in. long on plants little more than 2 ft. high. *G. Colvillei albus* (The Bride) is just now going out of bloom after a month's succession of flower. Why do we not see this used more frequently than it is in herbaceous borders, or even amongst dwarf shrubs? It is a gem for cut flowers for bouquet making.—WILLIAM HENRY BROWNE, *The Laurels, Aldborough, Hull*.

Calceolaria amplexicaulis var. albescent.—As I sent the original plants to the Newry Nurseries, and am answerable for the name, I think it may be well to say a few words of explanation. I procured this very pretty variety between two and three years ago from Mr. Cannell, of Swanley, under the name of *C. amplexicaulis alba*. As it certainly is not white, but shows a tendency to become so, I took the liberty of altering the name to *albescent*, and sent it as such to Newry. I do not know whence Mr. Cannell procured it, or how it originated.—H. HARPER CREWE, *Drayton Beauchamp Rectory, Tring*.

Violas of different colours.—I am pleased to see "J. C. C." writing in such a kindly strain of *Viola Vestal*, sent out from here a few years since. Both in habit and in floriferousness we have found it to be the best of the white section, its flowers having the finest form and very good in substance. If "J. C. C." wants a first early yellow kind for spring bedding, he will find *Yellow Boy* to be the best. It is a true *Viola*, dwarf and wonderfully free, the very earliest of all the yellows, or, indeed, of any *Violas*. Of blues I can find nothing earlier than *Blue King*, especially where the plants are put out strong in the autumn, and I think *Blue Beard* to be much more effective than *Holyrood*, because whilst this latter has a violet-shaded hue, *Blue Beard* is of a rich blue tint; in fact, one of the bluest *Violas* we have. It is a capital summer kind. In the mauve or lilac section none excels the pretty dwarf *lilacina*. This is indeed a charming kind, the hue soft and very pleasing, and yet very effective in the mass. *Violas* have done so well this season, that it is quite pleasant to find them getting a renewal of the recognition they so well deserve. In plum or purple kinds we have hardly beaten the old *Cliveden Purple* for earliness, but none of these dark kinds are very early. Besides that one, *Mulberry* and *Duke of Perth* are two very effective sorts; the former for summer blooming is perhaps the very best of its class. All reddish, striped, or blotched forms seem to be of very little service for bedding purposes. None of the *Violas* have brilliant hues, and therefore want to be seen in a good mass to produce striking effects. They are all so hardy, and may be propagated so rapidly that a large stock may soon be worked up. No plan is better than cutting over a number of plants to induce them to throw up base growth, and then in the autumn pull them to pieces and dibble them out thickly.—A. DEAN, *Bedfont*.

SHORT NOTES. FLOWER.

Dahlias (R. L.).—*Dahlia* flowers growing back to back are not uncommon. It is simply a case of early adhesion when the tissues are young and soft.

Gladioli (R. K.).—Your seedling *Gladioli* are what we should call good garden varieties, but we cannot speak of their merits as florists' flowers from single blooms only. Nos. 4, 5, 6, 10, 12, 14 we think remarkably fine as regards size, form, and colour.

Plumbago capensis. One does not often see this used as a bedding plant. I, however, saw a large bed of it the other day at Wickham Lodge, Beckenham. The plants, which were struck last summer and grown on in 5-in. pots, were planted out last May and pegged down. They have flowered finely all summer, and keep making a quantity of new flower shoots which rise from 10 in. to 12 in. in height, and are very effective. A. I.

PLANTS IN FLOWER.

WORMIA BURBIDGEI.—This is a plant which even when out of flower is of a very decorative character, resembling *Theophrasta imperialis* in leaf and habit. Its flowers, which are about 2 in. across, are produced in bunches; they are bright lemon yellow, and resemble large Buttercups in shape.—J.

BOMAREA FRONDEA.—This is one of those beautiful things for which we are indebted to Messrs. Shuttleworth, Carder & Co. It produces large bunches of bright yellow flowers spotted with black. The individual blossoms are large, and resemble those of *Alstromeria aurea*. Near by I also noticed good plants of *B. conferta* and *B. Shuttleworthi*, likewise new.—B.

DIPLODENDRIA BREARLEYANA.—This may now be seen in fine form in one of Mr. Scott's plant houses at Elmstead Grange, Chislehurst, where it is bearing some fifty trusses of flowers, and as many as three and four flowers in each truss. The individual blooms, too, are very large and fine in colour. To flower *Dipladenias* to perfection it is no doubt the best plan to give them much cooler treatment and less water when they are at rest than they usually have.—A. I.

ODONTOGLOSSUM WILCKEANUM.—A very fine plant of this rare Orchid is just now in bloom in Messrs. Shuttleworth, Carder's nursery, Park Road, Clapham. It differs slightly from the type in not having the pink tinge on the segments at present, but it is nevertheless a grand *Odontoglossum*. This is not the first *O. Wilckeanum* which this firm has had the good fortune to flower, and if one may judge by the bulbs they will have a fair quantity soon.—J.

PENTSTEMONS FROM SCOTLAND.—These, admirably grown, come from Mr. John Forbes, of Hawick. We have not seen them so full of vigour before; the separate flowers are very large and open, and finely marked, but, above all, the size of the flowering shoot is very remarkable. Mr. Forbes would, we feel sure, help some of our readers by telling us how he grows them so well, and enumerating a good selection of kinds now in cultivation. They are excellent plants when so well grown, and only require care in culture and association to make them a valuable aid to the gardener in very many districts.

FINE ALLAMANDA HENDERSONI.—At Holme-wood, near Henley-on-Thames, a plant of *A. Hendersoni* planted on the north side of a span-roofed stove on the 24th of January last, having at that time four shoots, each about 5 ft. long, which brought it to the roof, now covers a space of 28 ft. by 14 ft., and several of its shoots are 20 ft. long. It commenced to flower the first week in June, and between then and the 15th of August 2350 blooms have been cut from it or have dropped off. Even now there are 450 fully expanded blooms hanging from the roof, and every point being full of bud, it seems likely to continue in beauty for some time yet.—A. B., *Caversham*.

STUARTIA PENTAGYNA.—Some beautiful flowers of this extremely rare shrub come from Mr. C. R. Scrase Dickens, Coolhurst, Horsham, under the name of *Stuartia virginica*. There is a great similarity between the two, but nevertheless each possesses well marked characters. The leaves in *S. pentagyna* are more oval than those of *S. virginica*. The flowers are about the same size, but the petals are crimped and notched at the margins instead of being smooth; the stamens, moreover, are white, and the anthers yellow; whereas *S. virginica* has purple stamens. The most important distinction, however, is the fact that *S. pentagyna* is much harder than the other, and forms an elegant low-spreading tree from 10 ft. to 20 ft. high. The blossoms are some 3 in. across, the delicate petals being creamy white, inside tinged with red exteriorly, and produced abundantly on every twig in August. "This shrub," says Mr. Dickens, "though seen seldom, is well worthy of cultivation, flowering as it does

freely every year, and it is perfectly hardy." He adds, "Can anyone tell me the best way in which to propagate it? I have tried cuttings and layers, but without much success. I wonder if grafting would answer? Our plant is a very old one, and has been covered with bloom this year." It is certainly a beautiful shrub—no less beautiful than *S. virginica*, which, like it, is far too uncommon. Both are North American species, *S. pentagyna* being a native of the mountains of North Carolina and Tennessee, while, on the contrary, *S. virginica* inhabits swamps and shady woods in the South-eastern States. *S. pentagyna* is also and more generally known as *Malachodendron ovatum*.

SINGLE DAHLIAS have been sent to us rather numerous this week from various sources, a circumstance which indicates that their culture has become popular. In a collection from Messrs. Cheal, Lowfield Nurseries, Crawley, there are some with very distinct colours; one with the florets of a fiery orange-scarlet at the base, tipped with satiny amaranth is particularly fine, and as worthy of naming as any we have seen. Another with a sort of an orange-buff tint, too, is remarkable, and both sorts have what is called well-formed flowers, that is, large and with broad flat ray florets or petals, as they are incorrectly called. Mr. Christison, The Rookery, Bromley, also sends admirable collections of them, we should say the pick of the finest varieties lately sent out—pure whites, clear yellows, brilliant scarlets, fiery reds, and delicate mauves are represented among them, and altogether make an attractive gathering.

BERBERIDOPSIS CORALLINA.—Some flower-laden sprays of this beautiful Chilian shrub from Sir George Macleay's garden, at Pendell Court, show how finely Mr. Green grows this plant there. The sprays sent bear broad, healthy foliage, similar to that of some varieties of Holly and quite as green. The flowers, like globules of crimson coral, are produced in long racemes from ten to twenty together, and owing to their stalks being slender they hang in a most graceful manner. The Pendell Court plant is growing against a sheltered north wall, and its vigorous health and the profuse crop of flowers which it carries every year sufficiently indicate that it is at home under such circumstances. Usually it is cultivated as a greenhouse plant, but under glass, unless where the house is cool and airy, it seldom does well. It is remarkable that such a beautiful wall shrub as this is not more common than it is, especially as it is so distinct from every other with which we are acquainted.

SNAPDRAGONS.—A beautiful gathering of these come from Mr. Christison, The Rookery, Bromley. They are as fine as any we have seen this season and extremely rich in variety. The selfs—pure whites, yellows, and crimsons—are particularly fine. Others are variegated with various colours in an almost grotesque manner. Truly the Snapdragon is one of our finest open-air flowers, and deserves to be grown as well as Mr. Christison grows it. Its value both in the garden and in a cut state can scarcely be over-rated. On the same day we also received a beautiful series of flowers from Messrs. Stuart and Mein, of Kelso, which show to what perfection the *Antirrhinum* is grown in Scotland. The flowers sent represent a very fine strain, characterised by spotted, freckled, and streaked flowers as well as by some fine self-coloured varieties. Some fine beds of these are said to be one of the brightest features at present in the Kelso Nurseries.

DEVONSHIRE GLADIOLI.—An extremely fine collection of *Gladiolus* blooms has been sent to us by Mr. Reginald Kelly, from Lifton, which plainly shows that the *gandavensis* varieties reaches their utmost perfection in the sunny counties on the south-west coast. In the neighbouring county of Somerset, where Messrs. Kelway, of Langport, have so long made a home for the *Gladiolus*, it develops to perfection, but these Devonshire blooms are quite as fine as any we have seen from Langport. Mr. Kelly says: "I find that the highest flower-spike is 3 ft. 4 in., and

I have a large number with perfect blooms throughout the stem measuring 2 ft. 4 in. I have also a certain number with perfect blooms throughout the stem measuring 2 ft. 6 in." There are no names attached to the flowers sent, hence we infer they are seedlings; their flowers are not only large, of fine substance, and good in form, but their colours are also very fine, some being as rich and glowing as the others are delicate. It would be interesting to know how Mr. Kelly grows his *Gladioli* so finely.

ORCHIDS AT KEW.—It is a pleasant thing and also a matter of considerable importance to be able to say that the Kew Orchid collection has greatly improved in health and general appearance during the last year or so. The better accommodation and management accorded to the cool house Orchids lately has raised a scattered and rather insignificant looking collection to one of real importance, and all the specimens are in a condition to promise further improvement and a better supply of flowers in this department than hitherto. Among other things, the improvements may be attributed to the clearing away of some old partitions, and to giving the collection much more air than formerly. In few places are the Orchids so airily grown as at Kew at present, and the treatment which they receive there is fast driving away the "spot" which had been steadily gaining ground. The following rare plants are now in bloom there as well as an interesting lot of better-known kinds, viz.: *Spathoglottis Fortunei*, a pretty Hong-Kong terrestrial Orchid, growing about 1 ft. in height, and bearing upright spikes of bright yellow flowers, each about 1½ in. across. The blossoms resemble a little yellow *Phalenopsis* at a distance; and *Houlletia chrysanthra*, a plant for which much rubbish has been sold, but which is still uncommon. It wants growing in a basket like a *Stanhopea*, which it somewhat resembles in habit. The flowers are about 2 in. across, borne on spikes sent downwards, and resembling those of an *Acineta*; colour bright golden yellow, profusely spotted with brownish crimson.—J. O'B.

BONAPARTEA JUNCEA IN FLOWER.—There is now in flower in Mr. Pettit's garden at Broadwater, Oatlands Park, Weybridge, a fine specimen of this plant. A recent note in *THE GARDEN* respecting it stated the flower-stem to be 7 ft. high, but since then it has increased to 14 ft., and will in all probability add another foot or two to its stature, as it is still growing freely. The plant in question is an admirably grown specimen measuring 4 ft. across, is in fine condition, the foliage exhibiting that dark shade of glossy green which renders this curious plant so peculiarly attractive when in perfect health; competent authorities have declared this particular specimen to be of the rare variety *plumosa*, and I may mention that some years ago a London nurseryman offered £25 for it. It is much to be desired that seed should be obtained from it, but having outgrown its quarters it has been placed in a cool conservatory, and although many of the flowers are expanded, there is hardly time for the seed to ripen without constant warmth in autumn, which can hardly be applied to it where it now is. There is one point in connection with this plant to which I would direct attention. *Bonaparteajunceaj* is regarded as a cool house subject, and as a fact it will bear draughts and a considerable amount of ill-usage without apparent suffering; for this reason it is highly prized by Continental florists, as it is found so useful for room culture, and would be more largely employed for that purpose were there not some difficulty in maintaining a stock of young plants, and the considerable period which must elapse before it can be brought into a state large enough to allow of its use for decorative purposes. But what I wish to mention as tending to remove the last-named drawback is that Mr. George Cornhill, who has grown the plant under notice from a young stage, has treated it as a warmhouse subject, with the effect of bringing it into specimen size in much less time than if cool culture had been resorted to. Moreover, the luxuriant health of the plant plainly in-

dicates that the treatment followed has suited it. In fact Mr. Cornhill thinks that this *Bonapartea* is much happier in constant warmth than otherwise. Be this as it may, we must go by results, and when a plant makes more free growth, and at the same time retains its natural robustness under a certain kind of treatment, it is evidently the right sort to practise, and I would certainly advise all having young plants which they may wish to bring quickly to decorative size to keep them warm at any rate when young. Few market growers would think of making a speciality of this *Bonapartea*, but I knew a Parisian grower who did so. When I visited his establishment I saw a row of frames full of young plants of it set out in free rich soil, and they were grown along in this manner until large enough for sale. These little *Bonaparteas* made a curious and interesting display, and I have never since seen anything of a similar description.—J. C. B.

ABELIA RUPESTRIS is a neat little hardy shrub, very suitable for a rock garden or for planting among root work. It grows only a few feet high, is of spreading growth, very twiggy, and almost every little shoot is terminated by a cluster of tubular sweet-scented flowers about an inch long, white, or only just tinged with pink. Mr. Green brings it, among other good things, from Pendell Court, where, as might be expected, it is grown as it ought to be. Such an interesting little shrub can with confidence be recommended for general cultivation.

WHITE RAMANAS ROSE.—This lovely Japanese Rose, together with the typical kind, are now in great beauty at Pendell Court, Surrey. There is no single Rose, not even the Macartney, that rivals this white *Rosa rugosa* in beauty, its flowers being so large, of such delicate whiteness, and so deliciously scented. The deep, green, shiny foliage, prettily wrinkled on the upper surface, and among which the flowers nestle, also adds to its charms. A little later it will be covered with bright orange-red hips, nearly as big as Walnuts, which are also beautiful. Such a shrub as this, so hardy and easy to grow, should be in every garden.

FUCHSIA PUMILA is a veritable little gem among Fuchsias. It does not exceed 9 in. in height, and each little twig, and they are numerous, carries two or three small, drooping blossoms, having bright red calices and stamens, and deep purple corollas. The tiny foliage corresponds with the stature of the plant. Some excellent specimens of it, among other open-air Fuchsias, come from Pendell Court, Surrey, where it is grown in the open borders. Mr. Green says *F. Brewsteri* is one of the oldest of Fuchsias, and a very free flowerer. It forms a dwarf bush little more than 1 ft. in height.

GAILLARDIA LORENZIANA.—Some admirable specimens of this new *Gaillardia*, from Messrs. Cheal, Lowfield, Crawley, in a great measure refute what was said of it in our columns a week or two ago. Messrs. Cheal's flowers are perfectly globular, the head being well filled up with tubular-spreading, mouthed florets, crimson at the base and tipped with bright yellow. Though the flowers are not so painfully symmetrical as represented in the drawing, which we saw of it some time since, they fully bear out all that has been said about it by the raisers, Messrs. Lorenz, of Erfurt. For our own part we still prefer the typical form pure and simple; but as the double variety is showier, no doubt it will be preferred by some. It is evident that quite a new race of striking composite flowers will spring from this, the first double *Gaillardia*.

STANHOPEA FLOWERS.—From Mr. Peacock's rich collection of Orchids at Sudbury House, Hammersmith, come flowers of several fine species of *Stanhopea*, which are among the handsomest of Orchids, though not so much grown as they used to be. The blooms sent include *S. tigrina*, *S. bucephala*, *S. oculata*, which are among the finest species in cultivation. There is also an ivory white-flowered species which we do not know. It is distinct and much worthy of culture. The handsome appearance of these Orchids as

basket plants, and the delicious odour of their blossoms, add much to their value.

CACTUS DAHLIA.—A splendid bloom of *D. Juarezi*, from Mr. H. Stevens' garden at Addlestone, is as fine as we have yet seen; it shows well what an extremely fine variety it is, so distinct from any other type of Dahlia. It has the gracefulness of the single varieties, and the showy full appearance of the double kinds without their lumpiness. The petals (florets) spread out at a uniform angle from the centre, and, being rolled slightly outwards, each is seen distinctly. The colour is the brightest vermillion. Seen on the plant the dark foliage backs the flowers up finely, and in a cut state a spray of feathery foliage, such as that of a *Retinospira*, sets them off to increased advantage.

GYNURA AURANTIACA.—Of this new plant, recently distributed from one of the Brussels nurseries, a bright example comes to us from Messrs. Cheal, of Crawley. This specimen, the top of a young plant, bore young leaves densely covered with rich purple down, more resembling plush than anything we know of among plants. The older leaves are not so highly coloured, but still are very handsome; we know nothing as to its constitution or habit of growth in the open air, but we imagine it is what is called a "good doer," and if it is always like the example sent, it is really a fine ornamental plant. It must be considered a valuable addition to garden plants, though we believe it was in cultivation years ago. It is a composite nearly related to *Conoclinium* or *Hebeclinium*.

LAGERSTREEMIA INDICA.—Some glorious clusters of this very beautiful shrub come from Pendell Court, where it is evidently grown to perfection by Mr. Green in a warm greenhouse. Why it is that we can only look to botanical collections for such a grand shrub as this is a mystery, seeing that it is so easy to grow, and that it flowers so profusely at a season when indoor flowers are not plentiful. To those who do not know it, it may be described as a tall-growing shrub with slender branches, which late in summer are terminated by large clusters (nearly 1 ft. in length) of flowers, with crimped petals like those of the common annual *Clarkia*, but of a beautiful, clear rose-pink. Some grow it as a cool greenhouse plant, but without doubt it is a heat lover and it is only by growing it in a stove or warm greenhouse that one can ensure success. When grown well, and in full flower, it has but few rivals. There is a white-flowered variety of it, but it is very uncommon.

IMMERSED CUT FLOWERS.—A curious exhibit was made by Miss M. Browell at the recent Feltham Horticultural Society's exhibition. It consisted of a large rounded glass shade, covering a small bouquet of flowers standing on a broad, flat round dish, the shade being full of water. I do not know whether the *modus operandi* of this exhibit is well known or not, but I give it as told to me by the lady who exhibited it. A glass stopper, having a flat, broad end, is desirable as a steady support to the flowers, which, with a few pieces of Fern or foliage, are tied round it at the base, but yet not so as to crowd them. The flowers should be those of erect habit, so that the water should not lift them from out of their natural position. The flowers with the glass stopper attached are then stood erect upon a large plate, or other round dish, in which is about half an inch of water, and the glass shade is placed over them. The dish with its contents is then stood in a tub or bath, which is gradually filled with water until the shade is covered, the water rising under the shade and expelling the air gradually until it is full. The dish may then be lifted out of the water, wiped dry, and be placed on a table, where it will form a handsome and most interesting room ornament. The water magnifies the flowers, and a pleasing optical illusion results. We learnt that flowers so immersed will keep fresh quite twice as long as when exposed to the air. *Begonias*, *Bouvardias*, *Eucharis*, and similar flowers look very beautiful in the water.—A. D.

TREES AND SHRUBS.

THE CATALPA.

I HAVE just received THE GARDEN for July 22, and find on page 74 an illustrated article on the *Catalpa*, written by "Alpha." He says, "A great deal of confusion exists in British gardens as to the actual difference between the three kinds—*syringæfolia*, *speciosa*, and *Kämpferi*. Now it would be difficult to contemplate a greater confusion than has existed for the past five years in the United States in regard to this same family of trees, and some of the discussions in the horticultural journals on the subject have been quite sharp and personal. After a careful reading of the facts as presented, it seems to be pretty well established that our (in America) commonest cultivated form, *C. bignonioides* (or as named in Europe generally *syringæfolia*), is originally from the States further south, where it still grows wild, and from its greater abundance has been more easily and widely disseminated by nurserymen; while *C. speciosa* is a scarcer form from the great central portion of the United States, especially from the Wabash and other rich alluvial river bottom lands, particularly between 38° and 40° north latitude, and has been only sparingly introduced into cultivation.

The two forms are most certainly quite distinct in many constant characters. First and most important to the cultivator, *C. bignonioides* will not stand the test of our severest winters north of about the latitude of New York City, while *C. speciosa* flourishes at least 2° or 3° further north. Again, *C. bignonioides* is always from two to three weeks later in producing its foliage and flowers than *C. speciosa*, and I might add that on my grounds the form now designated as *C. Kämpferi* is about four or five weeks later than *C. speciosa*, and is now (August 10) in its prime, but has been in full bloom for the past two weeks.

The following paragraph on the subject is from page 8, January, 1881, of the *Botanical Index*: "Mr. Meehan seems to have cleared up the doubts respecting our foreign varieties and their hybrids now under cultivation in the United States. After a careful comparison of specimens in Dr. Gray's herbarium, with the acknowledged authorities, he decides the dwarf form looking like a huge Currant bush, with leaves and shoots exactly like the common *Catalpa*, and distributed from European nurseries as *C. Kämpferi*, to be nothing but a dwarf American *Catalpa*, and proposes the name of *C. bignonioides nana* for this form. We might say it is not as hardy as any of the other forms under cultivation, consequently not as desirable. The small variety, growing into a small tree, with long slender pods, also sent out by European nurserymen as *C. Bungei*, is the true *C. Kämpferi*, while *C. Bungei* is probably not yet introduced into America."

According to Mr. Meehan's observations, we have not *C. Bungei* under cultivation in the United States, and it would give me great pleasure to receive a few seeds of it from some one of your numerous English readers who may have it and know it to be correct.

L. B. CASE.

Richmond, Indiana, U.S.A.

Rhododendrons in heavy soil.—Many are deterred from planting *Rhododendrons* because their garden contains no peaty soil, which is generally looked upon as that best suited for *Rhododendrons*; but I would advise anyone having a naturally well-drained soil not to be deterred from giving these charming shrubs a trial, even if their soil looks more like clay than peat. We have some acres of *Rhododendrons* that grow with the greatest luxuriance in hard poor soil, in which scarcely anything else will grow, and seedlings spring up by thousands. In fact they grow in this unlikely looking soil far better than in beds that have been specially prepared for them. Our soil is naturally stiff, resting on broken soft stone called "hassock," that provides good drainage.—J. GROOM, *Linton*.

WEIGELA HORTENSIS NIVEA.

OF all the varieties of the Chinese and Japanese Weigelas now in gardens none possesses such delicate beauty as the white-flowered variety of *W. hortensis*, of which the annexed illustration is a representation. The flowers are snow-white, and borne as profusely as those of the well-known *W. rosea*, and they are set off to advantage by the bright green of the foliage with which they form a charming contrast. This is the only really pure white-flowered Weigela, the blossoms of the variety

other hardy flowering plants, blooming most profusely this season. Its beautiful light, fleecy inflorescence varies in colour from purplish claret to rosy purple. This shrub, as we saw it the other day at Sunbury Park, when in flower, is strikingly attractive and very effective either as a single plant on the grass—as in this case—or when planted in a group amongst other shrubs. It is rather of slow growth, and takes some years to develop into a goodly sized bush. Therefore, it is best to plant three or more in a group, rather close together. The foliage is not particularly ornamental, unless perhaps in autumn, when it



Flowering spray of Weigela hortensis nivea. (Drawn at Grasmere, Byfleet, in June last.)

called alba or candida being suffused with a faint blush tint, which mars their purity. This nivea variety, which is of dwarf spreading growth, is a moderately rapid grower, and flowers for some weeks together in summer. The annexed engraving, drawn in June last, was made from a plant which flowered in Mr. J. Stevens' garden at Grasmere, Byfleet, where there is an exceptionally rich collection of Weigelas, all thriving admirably in good ordinary soil, and in an open position. It is a shrub that should be planted in every garden, for even in the north it makes a beautiful object against a wall.

W. G.

The Venetian Sumach.—This, by no means common, although old-fashioned shrub, is, like all

becomes rich yellow, mixed with purplish tints. The leaves hang on until severe frosts pinch them off.

TREES OF THE SOUTH-WEST.

QUERCUS EMORYI, known as the black Oak, is very common in the country of the Upper Gila. It never grows on the hills nor far from the beds of the streams, though these may be dry during the greater portion of the year. It delights in a fine gravelly or sandy soil in open cañons. Although the growing wood is not subject to decay, as is the case with the other Oaks of this section, I do not know that it is highly esteemed. It is here a tree 40 ft. or 50 ft. in height, and proportionately stout. Its thick, dark, and glossy foliage would make it a very handsome tree, but for the scraggy appearance given it by its dead twigs and branches.

Its Acorns furnish the principal September food supply of large flocks of wild pigeons.

QUERCUS HYPOLEUCA.—This handsome little tree I have observed in the Bear Mountains. It scarcely exceeds 15 ft. in height, the trunk being stout for the size of the tree. Its long, elegantly pointed, dark green leaves, silvery below, render it handsome in spite of its gnarled and twisted trunk and branches. It grows only in deep cañons and in the rockiest places. It would be a great favourite as an ornamental tree in those sections where it could be successfully cultivated.

QUERCUS UNDULATA grows sparingly in the Bear and Burro Mountains, and very abundantly in the Mogollon Mountains, where, with the Sycamore, it forms about five-sixths of the tree flora of the cañons. The young wood is quite tough and strong; but, as it grows older, it soon becomes brittle and subject to decay. The trunks and main branches, like those of *Platanus*, are much twisted, and bent or arched. It grows only in the bottom of the cañons.

QUERCUS GRISEA.—This is comparatively a rare tree in the sections which I have visited. A few trees grow in the San Francisco Mountains, and it is rather frequent in the Bear Mountains. Its smaller leaved forms approach the next species in appearance, but it seems to be distinguished from that by its more abrupt manner of taking on fresh foliage; while in the colour and appearance of its bark and the habit of the tree it is much like *Q. hypoleuca*. I did not see the fruit.

QUERCUS PUNGENS.—I am somewhat in doubt as to whether the plants which I have called by this name do not constitute two species—one a good-sized tree, the other shrubby. This tree, if we include its shrubby forms, is probably more abundant than any other in the basin of the Upper Gila and the adjacent country. It does not grow upon the plains, but is everywhere abundant in the mountains. It clothes many of the gravelly hills, from base to summit, with a dense thicket of scraggy growth. On the higher summits it is not common, while in partial shade in the cañons and near water it becomes a good-sized, though rather low tree. Its form is strikingly like that of a well-grown Apple tree; and a gentle slope or grassy hollow dotted with good-sized, scattered specimens reminds one strongly of a New England orchard, and is a sight which a lover of fine trees delights to look upon. Probably no tree is more generally unsound at the heart, yet one must be experienced to detect the indications of such a state. It is difficult to find a sound specimen, except where the roots have access to a permanent water supply, and then only among young trees.

ALNUS OBLONGIFOLIA.—With the exception of the Coniferae, this occasionally becomes the largest tree of the South-western Rocky Mountain region, though the average size is less than that of the next. It is common and abundant along nearly all mountain streams, growing only at the very edge of the water. It is well proportioned and handsome. The wood is brittle, decays rapidly, and is fit only for firewood.

POPULUS FREMONTI VAR. (!) WISLIZENI.—A magnificent tree, abundant along all streams in open country, or in the open parts of the cañons. Towards the heads of the cañons, or where they are narrow and precipitous, it is rarely found. Like other Cotton-woods, this species flourishes where no others grow, and hence is one of the most valuable trees.

JUNIPERUS OCCIDENTALIS VAR. MONOSPERMA.—One of the most abundant trees of Southern New Mexico, growing occasionally in cañons, but mostly on low hills with the next and with *Pinus edulis*, these three species constituting almost the entire tree flora of the hilly country. It becomes something more than a "small tree," though it is never tall. In some sections it is almost the only tree. *Juniperus pachyphlæa* is everywhere abundant in the mountains and hills. The large, sweet fruit is extensively eaten by bears and other animals.

CUPRESSUS ARIZONICA.—This fine tree I have seen only in the San Francisco Mountains, where

it is quite abundant, growing both in cañons and upon the highest mountains on the northern slopes. Where it grows in thick patches it becomes tall and straight, much resembling at a distance the Balsam Fir. Single specimens branch widely and assume handsome forms. The largest that I have seen measured about 40 in. in diameter. It possesses great value as a timber tree, being evidently adapted to varying conditions of soil and climate; the wood is light, strong, straight-grained, and apparently durable. Its handsome form and colour and the sprightly disposition of its foliage would render it a favourite upon the lawn.

PSEUDOTSUGA DOUGLASI, the principal species constituting the large and dense forests which clothe the higher portions of the Mogollon Mountains. In the deep and shady cañons it descends almost to the base of the mountains, the largest specimens growing in such locations. Unless two species have been observed, two distinct forms grow here, one with the very glaucous leaves shorter and more rigid and crowded. The bark of the latter is thicker, and is more deeply furrowed than in any other species with which I am acquainted.

PINUS REFLEXA.—Seen only in the higher portions of the Mogollon Mountains, where it grows sparingly. The trunk is tall, slender, crooked, and very flexible, with a few branches at the top. The large, somewhat flattened seeds are fully as sweet and rich as those of *Pinus edulis*. *Picea Engelmanni* grows sparingly in the Mogollon Mountains, and only on the highest summits. It forms a compact and handsome top. *Ephedra antisiphilitica* becomes a small tree of 12 ft. or 15 ft. in height, and 5 in. or 6 in. in diameter, along the Rio Grande. It is apparently worthless.—**HENRY H. RUSEY**, in *Bulletin of the Torrey Botanical Club*.

APPLEY TOWERS, RYDE.

THIS place, the residence of Sir William Hutt, is now pretty well known to lovers of Isle of Wight scenery, and not least to many horticulturists. My visit was made at an auspicious moment, for few parts of the world can excel the northern sides of the island for maritime life and beauty early in the month of August. A trip from Southampton Pier down the arm of the sea which runs past that old town, passing the fine docks, Netley Hospital and Castle on one side, and the grand demesne of Cadlands, with the jutting promontory of old Calshot Castle and Eaglehurst Castle on the far background on the other side, has many charms. Cowes Harbour, too, is seen from the water, a spot of singular loveliness, whilst beyond the town, situate at the mouth of the Medina River, the ground rises tier above tier towards the wooded hills behind. Then the steamer sweeps away round towards Ryde, and passing the noble promontory on which Norris Castle forms so prominent a feature, surrounded too by woodland scenery of the most delightful kind, all eyes are bent towards catching the first view of the lofty towers of Osborne, which, however, lies so far back up the dell formed by the bay and the slope of the mainland, that it is but remotely seen and almost as soon hid from view. Some time, however, ere the noble pier at Ryde is reached, the towers at Appley come into view, for the mansion stands out on a bold promontory above and on the eastern side of the town, and, seen from the boat coming across from Portsmouth, presents a very conspicuous and handsome object. The visitor to Appley Towers will find in the charming gardens much to interest him, even though he may not succeed in getting, as I did, an invitation to ascend to the top of one of the lofty towers, from which the house derives its title, and there seemingly to take a survey of the world, for there both earth and sea lie at one's feet, the surrounding scenery, which stretches for many miles in every direction, being far too diverse to obtain reference here. It may be said that all this is not horticulture, but if not so, it is closely allied to it, for if the architect and the landscape gardener do not work in unison, mistakes will be the

result. But one effect of ascending to this dizzy height is that the grounds below, always charming, seem additionally beautiful, and there is special stimulus given to descend and get out into the gardens. It seems to be at Appley a sort of providential arrangement that a public road cuts clean off from the pleasure-grounds all that portion allotted to the culture of fruits and vegetables, for matters so purely practical seem out of place in such peculiar surroundings. The grounds are essentially pleasure-grounds, and the entire place thus dissociated from the more grubbing parts of garden work thus becomes unique. With the mansion standing on the higher land and facing these, it is of course evident that all the pleasure-grounds are of a sloping character, and, moreover, that they look to the north-east, so that, thus exposed to the rude blasts that set in from the Solent and Spithead, it seems marvellous that trees and shrubs of such tender kinds should grow so luxuriantly. Apart from all those charms which must ever attach to a residence and grounds so pleasantly and so advantageously situated, Appley Towers thus has special charms in these beautiful shrubs, trees, and herbaceous plants; and although the place perhaps shows to the best advantage in the spring, when *Rhododendrons*, *Azaleas*, both indica and mollis planted together in beds, *Kalmias*, and many other brilliant flowering shrubs make the gardens a blaze of rich colour and beauty, yet it is beautiful now. Perhaps the most striking shrub in the grounds is *Escallonia macrantha*, full of vigorous growth and of rich red coral-like flowers. This is seen in huge specimens in all directions. *Olearia Haasti*, a dense shrub about 3 ft. through, is literally a mass of bloom, and *Eugenia Ugni* and *apiculata* are both fruiting freely. *Aralias* grow to a great size; one, indeed, of *Sieboldi* is quite a monster bush, whilst the variegated form is doing well.

That hardy Palm (*Chamærops Fortunei*) seems perfectly acclimatised, and forms a mass in a large bed. *Camellias* also are growing almost as luxuriantly as *Rhododendrons*, and must in the spring form a beautiful feature. Just now nothing could be more charming than a long hedge of the old *Fuchsia Riccartoni*. This seen from the Towers resembled a *Berberis* in full fruit, but close by it is a rich and lovely fence; indeed, worth going miles to see and not soon to be forgotten. Near to the large square conservatory, which stands remote from the house, there is growing two large clumps of the charming *Francoa sonchifolia*, of which so much has recently been written. It has longer spikes and larger flowers than has the pure white *ramosa*, shown so beautifully the day before our visit at Southampton by Mr. Blandford, of Moor Hill, West End. Just beside these are growing and blooming most beautifully a few *Begonias*, the bulbs of which were left in the border all the winter. The plants were not large, but could not possibly have been more laden with flowers. In other spots are such charming shrubs as *Berberidopsis corallina*, heavily hung with its intense red flowers; the beautiful pink-flowered *Abelia rupestris* and its congener *floribunda*, also a fine plant in splendid bloom of *Statice taurica*. A fine *Ceanothus* much like *Gloire de Versailles* is in luxuriant bloom; so also is the pretty yellow *Hypericum patulum*, a fine shrub about 5 ft. in height. In one bed is a grand plant of *Phormium tenax* looking as fresh as seen at flower shows, and beside it a fine *Dasy-lirion acrotrichum*, quite a remarkable specimen. In another direction there is a good specimen of the *Camphor Laurel*, and, indeed, so many things rare, tender, yet good, amongst shrubs, that it is not possible to notice them all.

Just in front of the house a winding ribbon border, planted for many years after one approved pattern, is to be utilised during the winter for a display of herbaceous plants, of which in the lower and now unkept grounds there is a wondrous wealth of fine things. This border should thus become a most interesting feature by-and-by. The most striking object on the lawn is a huge cone of scarlet *Pelargoniums*, and this, surrounded by a low hedge of Ivy, looks from the

top of the tower like a ball of fire. This cone, some 7 ft. high and 4 ft. through at the base, is one blaze of flower, and has stood there all through the winter just as planted the preceding year. In the conservatory the climbing *Tacsonias* are very striking, *exoniensis* especially being in profuse bloom. These literally cover every available support of the roof. The large orangery next the mansion is full of giant Orange trees, that have not yet recovered the severe mauling they got when out-doors in the terrible October gale. In one of the fruit houses no more interesting feature is presented than a large plant of the Date Plum (*Diospyros Kaki*), which is heavily laden with green fruit very much like Tomatoes in appearance. This plant is famous as being the first of its kind to fruit in this country if not in Europe. Mr. Stanbury, the gardener at Appley, is to be complimented on his having been the first to fruit this plant. A. D.

FRUIT GARDEN.

GRAPES SHANKING.

THE primary cause of this destructive malady is I believe, allowed by most people to be either a deficiency of roots or of food. There is, however, one other cause to which I attribute shanking, though I have not seen it alluded to by practical men. In private establishments, in which there are first, second, and late vineries, we often find the late Grapes badly shanked, while in the first, and even in the second house, the evil is hardly visible. Now, how is this to be explained? All three have shared alike as far as food and drink are concerned. The atmospheric temperatures have also been much about the same. I may mention that I have often observed in late vineries lots of stray laterals, and sometimes even the whole crop of them allowed to grow late in summer and autumn. In fact, the other week I saw a second crop almost in flower, while the first had hardly begun to colour. In such a case we know that the roots are busy taking advantage of the neglect by establishing themselves in equal proportion, not short, branching, fibry roots, but soft, bulbous masses, all but useless so late in the season. Even with careful nursing, and by covering the border from cold and heavy rains, all these roots will be found dead in spring. Thus the Vines suffer, and, unless prevented, the same thing will happen year after year. I know that shanking arises from many other causes besides the want of ripe, fibry roots, such as destruction of the foliage by red spider, over-cropping, &c. Perhaps someone may say that early houses are as apt to be neglected as late ones. I hardly think they are; and besides, both the roots and wood of early Vines have a better chance of ripening through the summer than in winter. The idea that not stopping them properly is conducive to shanking is supported by the fact that they always make roots in proportion to their shoots. When pruning Vines in spring, if we find a lot of laterals half ripe, we may be sure there is a corresponding amount of roots in the same condition. Where, however, there is bottom-heat, there is really no substantial excuse for Grapes shanking. W. D.

Seckel Pear on the Apple.—A writer in the *Gardener's Monthly* says he budded an Apple tree with the Seckel Pear more than twenty years ago, and it has continued to bear a crop every year, the fruit being larger than on Pear or Quince, measuring $7\frac{1}{2}$ in. in circumference. In another case a one-year seedling was budded three years ago, and the shoot from the bud grows thriftily. He concludes that the Apple is an excellent stock for the Seckel Pear, and worthy of being recommended as such. The same experiment has been often tried, and by different cultivators, within the past forty years. Occasionally, rarely, the union succeeds permanently. We have grafted whole rows in the nursery. Not half grew at all; very few made a good growth which bore

early, the fruit being about double the size obtained on the Pear stock, and inferior in quality. The flavour seemed to be diluted according to the size. The union between graft and stock was imperfect, and every one easily broke off in a few years.—*Country Gentleman*.

IMPROVED GRAPE BAGS.

IT stands to reason that were our summers warmer we should be able to grow Grapes successfully on open walls; it is therefore probable that a new Grape bag the invention of M. Pelletier, 20, Rue



Grape Bag (open).

de la Banque, Paris, intended to serve a double purpose, viz., protecting the fruit and hastening its maturity, will, when it becomes known, be welcomed in this country. It consists of a square of curved glass so fixed to the bag that the sun's rays are concentrated upon the fruit, thereby rendering its ripening more certain in addition to improving its quality generally. The glass is affixed to the bag by means of a light iron wire support. It covers that portion of it next the sun, so that it increases the amount of light and warms the Grapes without scorching them, a result due to the convexity of the glass and the layer of air between it and the bag. M. Pelletier had the idea of rendering these bags cheaper by employing plain squares instead of curved ones, but the advantage thus obtained was more than counterbalanced by their comparative inefficacy. In practice it was found that the curved squares gave an average of 7° more than the straight ones, whilst there was a difference of 10° when the bags alone were used, thus plainly demonstrating the practical value of the invention.

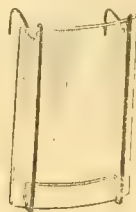
Whether these glass-fronted bags would have much value in the case of Grapes grown under glass in the ordinary way is a question that can only be determined by actual experiment; but where the Vines are on walls, either under glass screens or in the open air, so that the



Grape Bag (closed).

bunches feel the full force of the sun's rays, there can be no doubt as to their utility, and it is probable that by their aid many of the Continental varieties which we do not now attempt to grow in

the open, and which are scarcely worthy of a place under glass, might be well ripened. At any rate we ought to give anything a fair trial which may serve to neutralise, if only in a slight degree, the uncertainty of our summers. As it is, we have only about two varieties of Grapes, and these not the best of the hardy kinds, as regards flavour and appearance, that ripen out of doors, and even



Curved Glass for front of Bag.

these do not always succeed. We know next to nothing of the many really well-flavoured kinds which are so much appreciated in many parts of the Continent. The fact is, our outdoor culture of Grapes offers a striking contrast to that practised under glass, and although our comparatively sunless and moist climate affords some excuse for our shortcomings in this respect, there is no valid reason for the utter want of good culture which is to be observed in a general way. Given intelligent training, constant care in stopping the laterals, and checking mildew as well as thinning the berries, allowing each bunch to get the full benefit of sun and air, and I believe good eatable Grapes would often be obtained even in summers marked by a low average temperature.



Curved Glass fixed on Bag.

If, moreover, to a good system of culture we add some such mechanical contrivance as that under notice whereby the bunches enjoy an average warmth some 10° higher than they otherwise would do, we not only ensure the Grapes coming to perfection in favoured districts, but outdoor culture might probably be practised in higher latitudes than is now practicable. The improved Grape bag would also offer great facilities for destroying mildew or guarantee the Grapes against its attacks, as a light dusting administered as soon as the berries were fairly formed would suffice for the season, as owing to the glass protecting the berries from driving rains, which often accompany south or south-west winds in summer and autumn, the sulphur would not be washed off.

The inventor claims, and we should say with just reason, that these glass-fronted bags would be found equally serviceable for the ripening of Pears and other choice fruits, and with a view to their being employed for such a purpose, he has had them made of varying sizes and shapes. In conclusion, it may be observed that, in addition to advancing the maturity of the fruits to which

they are applied, they also serve to preserve them from falling to the ground when ripe.

Diglett.

J. CORNHILL.

THE CHASSELAS DE FONTAINEBLEAU.

OPINIONS vary as to the origin of this Grape, which is so highly esteemed for table use, and which, cultivated in the first instance at the Chateau de Fontainebleau, is now much grown in that neighbourhood, notably at Thoméry, where its culture has been brought to perfection. King Francis the First, it is said, sent to Cahors for Vines and a grower to look after them. Others say that it was King Henry the Fourth who, acting on the advice of the Duke of Epemon, caused Vines from Jurançon to be planted in a vineyard in the grounds attached to the park at Fontainebleau.

The author of this latter account states that "along the walls which border the park on the north-east is an immense trellis, called the King's Trellis, the Vines thereon being descended from those planted by Henry the Fourth, so that this particular spot is the cradle of the Chasselas." But here there is evidently a mistake, as although Francis the First and Henry the Fourth may have sent for Vines, the one from Cahors the other from Jurançon, the same were cultivated in open quarters, or at the most on arched trellises. The King's trellis is of more recent origin, and was only formed at the beginning of the eighteenth century at the end of the reign of Louis the Fourteenth; indeed, the culture of the Vine on walls is not to be traced much beyond that period. The idea of cultivating fruit trees on walls originated with the Abbé Legendre, who did not publish his book until 1650, and at that time it was only a question of Pears, Apricots, and Peaches, as the Vine did very well in the open. It was not until later that the idea was conceived of growing Vines on trellised walls in order to hasten the ripening and augment the quality of the Grapes. But this system of culture was not practised in the time of La Quintinye, for when the kitchen garden at Versailles was formed in 1680 no Chasselas were planted on the walls thereof, only some Muscats, which, as is well known, would not ripen in the environs of Paris were they not placed on a wall having full exposure to the south. If the Fontainebleau trellis had existed at that time, La Quintinye would not have failed to imitate it. It follows, therefore, that the King's trellis was planted neither with Vines from Cahor nor from Jurançon, but simply with layers or cuttings of a white Grape coming from the district of Chasselas, a village in the arrondissement of Mâcon, from which it takes its name. This Grape, which was good for eating and of but medium quality for wine making, has acquired, owing to its culture on walls and the care bestowed upon it by the Thoméry growers, a superior quality and European renown.

To the name of Chasselas has been added that of the district whence it was obtained, in order to distinguish it from other white Grapes, but its name, as decided by the Pomological Congress, is Golden Chasselas. M. François Charmeux in 1730 built the first wall for the cultivation of the Chasselas in that unpretending, but now prosperous village. We have only to add that it is by constant care and special choice in the way of cuttings that these Chasselas, now so highly esteemed have been, obtained. The above account was furnished by M. Chauvin, vice-president of the Horticultural Society of the Côte d'Or to the journal of that society.

Alpine Strawberries.—I have been a grower of alpine Strawberries for a good many years, but I never had such a crop as we had last year all through the hot weather and up till the autumn. The bed in question had been planted on a piece of close damp land, where many years ago, during some alterations, an old pond had been filled in. Though a good deal had been done for its amelioration, it still remains damp and heavy. But it has long grown abundant crops of fine

Raspberries, and the alpine Strawberry bed, bidding fair to be equally useful, has been extended. If it had been possible to keep an account of our daily gatherings over a very long period last year, I have no doubt the result would have been far in advance of those obtained from any other variety. I have got into the habit latterly of leaving the alpine for several years on this cool damp land, and think we get an advantage in bulk of crop from it. We mulch heavily in autumn, and only stir the surface so far as is necessary to keep down weeds. The ground is thoroughly prepared before planting, and I prefer planting in August, though beds planted in March generally do pretty well if well mulched directly after planting, and watered if necessary. Generally, Strawberries run too much to leaf, and the crowns fail to ripen if planted on low, damp land; the blossoms also suffer more from spring frosts. But I find the alpine is an exception; and, even if the early blossoms get a check from frost, others soon start away, and we often cut off the early blossoms spared by the frost to induce late fruiting. There are two periods when the Strawberry seems to require an abundant supply of moisture, if the plants are growing on a porous site, viz., when the blossoms are setting and the young fruit swelling, and again when making growth. After the fruit is gathered, heavy mulchings of manure are a great help, especially on porous land; they are, in fact, indispensable. Firm ground is also requisite, though it should not be the firmness which is the natural outcome of lying unworked. I have given up raising alpine Strawberries from seeds, though seedlings answer very well; I prefer planting runners, or dividing the old plants, whichever is at the time most convenient. The Red Alpine is most appreciated here.—H. E.

Marlboro' Raspberry.—We have received several boxes of fruit and many branches bearing fruit of this Raspberry. The berries are as large as any we have ever seen, many of them measuring not only 1 in. in diameter at the base, but nearly 1 in. (seven-eighths) from the base to the tip. The shape is broadly oblong-conical, the colour a rich crimson. The drupes do not separate under ordinary handling and the berry carries well. In quality it is neither juicy nor dry—neither sweet nor sour; it is simply a rich, delicious Raspberry.—*Rural New Yorker*.

Crittenden Damson.—This is grown on its own roots generally. In the neighbourhood of Maidstone where it originated, and where it bears the name of the Farleigh Prolific or Cluster Damson, growers realise good sums by letting the suckers or spawns, as they are locally called, grow up into little trees and then selling them. I may add that although Damsons are not a regular crop this year, I have seen many trees of this kind with the branches propped up in order to support the weight of the crop on them.—J. GROOM.

Age of Apple trees.—In the best Apple growing regions of Western New York well managed Apple orchards decline at about sixty years of age—some live longer and many not so long. At a meeting of the Illinois Horticultural Society Mr. Bryant placed the average age in that State at twenty years, and Mr. Nelson at fifteen years. Others knew of some orchards much older. Trees grow rapidly in Illinois, and it was generally admitted that it is best to cut them down at twenty and plant on new ground.

SHORT NOTES.—FRUIT.

Diseased Grapes (H. H.).—The root may have got into the "strong clay;" but the evil is more likely to be the result of too much air-moisture, which should have been driven off occasionally in dull weather by the use of a little artificial heat. When Grapes are ripening a little air should be left on night and day.

Pear tree insect (R. C.).—Your Pear trees are infested with the Pear sucker (*Psylla pyri*); syringe the trees with 1 lb. of soft soap and 1 lb. of flowers of sulphur, mixed with 8 galls. of water, or Gishurst compound and Tobacco water. There is an article on this insect in THE GARDEN of January 28, 1882.—G. S. S.

ORCHIDS.

THE A B C OF ORCHID GROWING. (ODONTOGLOSSUMS.)

It is easy to describe the way in which most Orchids should be grown, but practically it is difficult to carry it out in many cases. "Use live Sphagnum Moss, and keep it growing." That is one of the important points we are told over and over again in growing damp-loving Orchids, such as *Odontoglossums*; but in reality it is at least as difficult to keep the Sphagnum growing as the Orchid which is planted in it.

As a rule, if the Moss looks bright and green and healthy, the *Odontoglossum* will look the same. But this is a difficult matter. First of all the Moss itself must be in a proper condition when the potting takes place; that is to say, it must be quite fresh and lately gathered. It is an exceedingly difficult thing to keep it in a right condition for use for any length of time after it is taken away from its native haunts. Keep it too damp, and it will soon rot; keep it too dry, and it will soon wither away. The best plan is to get the Moss yourself, and there are few more pleasant ways of spending a summer afternoon. Almost every bog contains an abundant supply of this useful Moss, and it may be found also in wet places in deep shady woods. Its bright green attracts the eye at once if it is in full growth in a moist place. If the summer sun has dried up the bog, then it assumes a reddish tint, which is equally conspicuous. Spring and autumn are the best seasons for procuring it, as in winter it is frequently hard to find without getting wet feet. In most cases it is associated with other interesting bog plants, such as the Bog Pimpernel and the Round-leaved Sundew. The Moss procured, the next thing is to use it at once. For this purpose cut it up in small pieces with a sharp knife, mix it in tightly with the fibry peat, and take care to put good pieces on the top, that is, nice green growing bits. Let all be firm round the Orchid, and well raised in the centre above the rim of the pot, which, as usual, must be three parts full of broken crocks and charcoal.

When first potted, the moss will more readily dry, of course, than after it has taken root and is actually growing. You have to take care that the material is not kept too wet for the sake of the Orchid, and you have to be sure that it is sufficiently damp for the sake both of the Sphagnum and the *Odontoglossum*. Once get the Moss to look like little starry splashes of bright green over the surface of the pot, and it will be comparatively easy to keep it so. The *Odontoglossums* at Kew are well grown in this respect, and may be seen any day and carefully examined.

The chief thing, in fact, to be attended to in growing these damp-loving Orchids is to take care that they are never too wet and never too dry. An important item in this matter is the material on which the pots are placed. It should be something which will retain moisture. On no account place them on the stones of a flue, or in any situation in which there must be rapid evaporation and drying up of the potting material. The best thing for the purpose is good clean gravel, or, possibly better still, and as a rule easier to get, small broken coke. This should be well sprinkled once a day, and there should be some contrivance for preventing the water from running off at once from the surface on which the gravel or coke is placed.

Get imported plants if you can; they are cheaper and more interesting. It is necessary, however, to be very careful about giving too much moisture at first until growth is made. Remember, *Odontoglossums* are never to be syringed. That is a distinct rule. The reason is that the leaves lie so flat and close, that moisture is retained between them too long, and they damp off. Specially is this the case with the young growths, which must be most carefully kept dry, or they will turn brown and then rot off. The young shoot will, after a time, mature its leaves, allowing the bulb to develop gradually at the base like many other Orchids, and when the bulb has

come to its full size the flower-bud will appear, coming from the base of a leaf by the side of the bulb. In *O. Alexandræ* one flower-spike only appears; in *O. vexillarium* a spike will come from each side of the bulb.

The less fire heat the better so long as 50° can be maintained. I am speaking chiefly of *O. Alexandræ*, but the same rule applies to almost all the species. Hundreds may be seen in cold frames during the summer at Mr. Low's nursery, Clapton. There they thrive to perfection as young plants making their first growths.

Slugs are troublesome to *Odontoglossums*. They will walk over the leaves without doing any harm; but if they find a nice young spike of bloom covered with buds, they will feast upon it in the night, to the great dismay of the owner in the morning. Green-fly is also apt to be troublesome, but can easily be kept off. A penny gum brush used dry or damp is exceedingly useful. It is easy to go over a number of plants with it, and thus to freshen them in the morning, always being careful not to leave any actual wet behind on the leaves.

To sum up shortly a few rules for growing these very lovely and popular Orchids: Keep the material in the pot damp, the Moss growing, and the leaves of the Orchid dry; stand the pots on some material which more or less retains moisture; keep the air cool and sweet round them, and as damp as possible; take special care not to allow moisture to lie on the young growth, and beware of slugs for the spikes of bloom.

J. L. S.

GARDEN FLORA.

PLATE CCCLI.

IPSEA SPECIOSA, *SPATHOGLOTTIS LOBBI*.*

IPSEA SPECIOSA is rather a rare, but very beautiful terrestrial Orchid, a native of Ceylon, and in general habit of growth resembling *Bletia hyacinthina*. Its flowers, however, are large and showy, being borne two or three together on the apex of a slender Reed-like stem 15 in. to 2 ft. in height. The individual flowers are 3 in. in diameter, and both sepals and petals are of a golden yellow colour, the three-lobed lip being marked with parallel orange lines. When well grown it is a graceful and effective Orchid, and one, moreover, of tolerably easy culture in a warm house. A compost of peat and loam fibre mixed with charcoal and living Sphagnum Moss suits it admirably. The pot should be effectively drained, as the plant requires a plentiful supply of moisture when growing.

Spathoglottis Lobbi, represented by the lowermost flowers in the plate, is a dainty little yellow-flowered Orchid not often seen in cultivation, but well worth attention on account of its graceful beauty. It was discovered by Mr. Thomas Lobb in India, and is of dwarf, *Bletia*-like habit. It succeeds well in a warm house. Another taller species named *S. aurea*, found in the Malayan region, grows 2 ft. in height, and has broad, plaited leaves and bears several flowers of a golden yellow colour on the apex of a slender scape. The lip is dotted with red. This plant grows in red sandy earth on the cliffs below the Civil Hospital Flat at Labuan, its roots being protected by Grass and other herbage, but otherwise fully exposed to a tropical sun. Lobb found it growing on Mount Ophir, near Malacca, along with *Nepenthes sanguinea*. *S. plicata* is a common plant on dry jungle ground in Singapore

* No. 1 (*Spathoglottis Lobbi*) was drawn in May last from a plant in Mr. Pollatt's collection, Fernside, Bickley. No. 2 (*Ipsa speciosa*) in Mr. Philbrick's garden at Oldfield, Bickley.



SPATHOGLOTTIS LOBBI

and Penang, whence it was imported by Messrs. Loddiges many years ago. It has red flowers, and is not unfrequently mistaken for *Paxtonia rosea*, which in general appearance it somewhat resembles. *S. tomentosa*, a native of the Philippines (Mindanav), has many flowers on the raceme, and the bracts and upper part of the flower-stem are coated with a dense tomentum. An unnamed species growing 2 ft. high, and bearing from five to ten showy yellow flowers on an erect spike, grows beside the path leading to the Marie Parie spur of Kina Balu in company with *Cystorchis*, variegated *Cypripedium Petreianum*, and *C. Burbidgei*. It grows among rocky boulders, from the shelter of which it is not easy to extract its roots.

Our figure may be taken as in some sort showing the grace and beauty of terrestrial Orchids, whose heyday of popularity is yet to come. At present and for years past the epiphytal section has been most popular, but there is yet a rich harvest to be gained by the collection and culture of the many thousands of lovely earth Orchids as yet unintroduced to our gardens. Some might do worse than make a special culture of terrestrial species of Orchids, hardy as well as tender, since they are quite as interesting, and not unfrequently quite as showy as their epiphytal relations. F. W. B.

ROSE GARDEN.

ROSE CULTURE NEAR TOWNS.

MR. SMEDLEY'S remarks on this subject (p. 107) are interesting, as showing how much more favourable the suburbs of Birmingham are for Rose growing than the suburbs of London. Anyone visiting that town in the middle of winter would expect them to be so; in only one or two districts is there any approach to a murky atmosphere, for although the Smoke Act is not enforced so rigidly as it is in London, the coals used in houses are of a quick, clear burning sort, and the inhabitants keep up great fires which consume their own smoke to a great extent. The suburbs also in those districts which I have visited are not crowded masses of houses, as in London. It would be interesting to have reports of successes from the suburbs of other large towns. At the first Rose show held at the Crystal Palace a collection of Roses grown at Stoke Newington was exhibited for the express purpose of showing what could be done in the suburbs of London, but those suburbs have changed very much for the worse since. Great districts of poor people's houses in the centre have been pulled down, and still greater districts of small and crowded houses built on what used to be either market gardens or large gardens attached to old-fashioned suburban villas. Eighteen years ago London may be said to have ceased at what is now Grosvenor Road Station on the west, and with the North London Railway on the east and north, while on the south there were no thickly built districts to the south of Newington and the Surrey Gardens or Kennington Oval. Since then, however the space covered by closely packed houses has more than trebled.

From my own observation I should say that a town may extend a long way into the country without creating conditions injurious to flowers so long as the houses are two floors and attics, and in square gardens from an acre or so upwards; but the moment tall, crowded villas or terraces of houses begin to be built with little scraps of ground to each, which it is a misnomer to call gardens, the conditions become at once unfavourable. The air in crowded districts is exhausted of its oxygen and overloaded with carbonic acid gas, which, being heavy, sinks to the ground; the earth in enclosed gardens has therefore little chance of being oxidised and refreshed.

The reason why flowers thrive so badly in towns is, no doubt, a combination of many little things more or less injurious. There is the dust and dirt, the air poor in oxygen, the waste gases from gaslights, the interrupted breezes, and last, but not least, the smoke. I cannot help thinking that the injurious effects of the last may be owing to its intercepting the chemical or actinic rays of light, which are those of most value to plants. These are of about the same refrangibility as the violet rays which the London fog almost wholly intercepts, and if it also intercepts these rays, the health of plants must suffer nearly as much as if they were grown in the dark. This could easily be tested by experiment. My remarks about Rose shows in towns were suggested by seeing so many bundles of standard Roses carried home to districts where they could not possibly thrive, and also by beginners in gardening asking so often what the best Roses would be to plant in some district where only a few hardy plants will thrive J. D.

ROSES IN POTS.

PROPERLY speaking, there is a long season when forced Roses may be had in flower, but there is a great difference in the treatment of those forced into flower in February and March and those that flower in May. With me it is a question whether the latter can properly be called forced Roses, as very little artificial heat suffices to bring them into bloom. It requires ten times more skill to have good forced Roses in February than in April or May. However, that has but little to do with my present object, which is to direct attention to the details necessary in the preparation of the plants for forcing next spring, and I shall at once assume that there is already at hand a sufficient number of plants established in pots for the purpose. The proper time at which to repot the plants is during August, and the earlier in the month the better, because, to be able to force them in a satisfactory manner early in the season, the pots must be pretty well filled with roots that have got a good hold of the soil, and roots cannot get well hold of the soil and fill the pots unless the plants are repotted early enough in the summer to have a few weeks' growing weather before them, to enable them to start into active root action again and lay hold of the new soil. The plants, whether Tea-scented or Hybrid Perpetuals, must be treated the same. Many of those with which I have to deal have been forced early for nearly twenty years. Some of the largest are in 10-in. and others in 14-in. pots, and we do not intend to give them more room. When we begin with young plants in 6-in. pots, we increase the size of the pots every year until they are as large as we want them. I find very little difference whether the plants are on their own roots or not. The only objection to the Manetti as a stock is its constantly throwing up suckers, which must be cut off as soon as they are seen.

The soil for pot Roses should be three parts good turfy loam and one part thoroughly rotten animal manure, with a fair sprinkle of sand. The loam should not be sifted, but cut up and broken to pieces with a spade. The manure should be carefully examined for worms, which, when found, should be picked out. The compost should not be used when wet; if there is any doubt about the matter, it should be prepared and laid out on the floor of an open shed to dry for a few days. As the roots like a firm medium, the soil requires to be pressed pretty firmly, and if it is wet, it would run together in a compact mass, into which the roots could not enter; better by far use soil a little dry than wet. In repotting, take the plants out of the pots, remove all the drainage, and then shake off about three parts of the old soil, but take care not to injure the roots. In the case of old plants, there may be a large root more than is wanted, but, unless very plentiful, it is better not to prune the roots. I never touch those of a young plant. When practicable, it is best to give them clean pots and clean crocks, but if the old pots must be used again, they should be made as clean

as a hard wisp of old matting and a good rubbing will make them, both inside and out. It is important that the drainage should be liberal and carefully prepared according to the size of the pot; for a 12-in. pot 2 in. of crocks, and for 7-in. pot 1 in. in depth is not too much. The hole in the bottom should be first well covered with a large piece of crock, hollow side downwards; then a layer of larger pieces, and on the top a couple of handfuls broken rather small, and on these put a few pieces of rough turfy loam.

In potting, work in amongst the roots the finer particle of the compost, so that every root may have a bed of soil on which to rest. As the earth is put in, ram it moderately firm with a wooden rammer up to the top of the pot, or rather, I should say, as high as the soil comes, for it is best not to pot the plants too high; in a 14-in. pot there should be a space of 2½ in. left to hold water, and smaller sizes in proportion. Be careful not to injure the branches; any flower buds may be removed, but no pruning should be done at this time; every green leaf should be preserved; they will be wanted to assist in inducing a speedy root formation. After being repotted, if I had a suitable sized house which I could devote to forced Roses for only three or four weeks after being repotted, I should prefer that to anything else, as then I could not only shade them from bright sunshine, but I could keep them close, and the air about them moist. Under such conditions they would recover from their change of soil much sooner than when exposed to the drying winds. As, however, I have not this convenience, I have to find a position for them close to the north side of a high wall where they are shaded all day, and when drying winds occur, I have them syringed two or three times during the day with the garden engine. After they have been repotted a month, they begin to make new growth; this is the signal that they have begun to make new roots. I then have them brought out into the open where the sun can reach them all day. During this time the watering has to be done carefully; it will not do to let the soil get dust dry, or keep it very wet. That about the roots must just be kept moist. Pot Roses required to flower in February should be pruned about the middle of November, and they should remain exposed in the open air until that time; after being pruned, they should be taken to some cool structure, where they are just kept out of the reach of severe frost. J. C. C.

ROSES FROM CUTTINGS.

WITH the exception of the Moss, Austrian, and a few other varieties, nearly all may be struck from cuttings; and to obtain plants upon their own roots, this is the most expeditious and best system. This mode of propagating Roses may be practised throughout spring, summer, and autumn, but the shoot which is to form the cutting should in all instances be matured and well ripened. The cuttings should be made from 3 in. to 4 in. in length, and if a small portion of the old wood can be taken off with it, so as to form a heel, the cutting will strike more freely. The two or three upper leaves should be allowed to remain on the cutting until they fall off, when they should be removed to prevent their damping.

Take 5-in. or 6-in. pots and fill with a compost of friable loam, leaf mould, and sand, pressing it moderately firm; plant with a small pin from six to eight cuttings evenly round the sides of the pot, making the soil firm around them, then water with a fine rose to settle the soil. Place the pots at once into a frame with a gentle bottom-heat, where they can be kept close and constantly shaded from the sun. Sprinkle them over with a fine rose, or syringe daily for the first week or nine days. In about three or four weeks the cuttings will have rooted, when they should be potted single into 3-in. pots, and again placed in a frame with a gentle bottom-heat; here they should remain for nine days or a fortnight, being shaded and watered as required. When rooted round their pots, they should be removed into a cold frame to harden previous to being placed out of doors.

Many hardy kinds, such as the Hybrid Perpetuals, Bourbons, &c., may be struck out of doors under hand-glasses. About the end of September or beginning of October prepare a border with light soil upon the north side of a hedge or wall; let the cuttings be 5 in. or 6 in. in length, choosing firm well-ripened wood, taken off with a small portion of old wood to form a heel; without this the cuttings will not strike so readily. Put the cuttings in thickly, pressing them firm into the soil; well water, and place over them small hand or cap-glasses; these must remain on until the cuttings are struck in the spring. An occasional watering with clear lime water should be given; this will destroy the worms, which are often troublesome and disturb the cuttings. In the spring, when the cuttings are found to be rooted, take them up and pot singly into small pots, put them into a cold frame where they can be shaded from the sun until sufficiently hardened to be planted out of doors. Some of the hardy, vigorous-growing summer Roses will strike if planted in a shady border without the assistance of hand-glasses; but when this is done, the cuttings require to be made 9 in. to 12 in. in length, and planted at least 6 in. to 8 in. deep, and the soil trodden firmly to them.

ROSES BY SEED.

THE object in raising Roses from seed is to obtain new varieties. Although somewhat uncertain as to the result, it is, nevertheless, a very pleasant and interesting occupation. There has long been an idea prevalent that good varieties of Roses cannot be raised from seed in England, and that we must go to warmer climates for anything of sterling merit. This, however, is not entirely so, as some excellent varieties recently raised in this country will testify. The tender varieties, however, seldom if ever mature seed in our climate, but even the ripening of seed can be accomplished artificially; and, with the assistance of glass and hot water, we may reckon our advantages equal to those in the south of France or Italy. The seed pods should become thoroughly ripe upon the tree before they are gathered. When taken off, place each sort separately into small pots, mixing with them fine sand. They may be stored away in this manner until February, care being taken to keep them out of the way of mice, which will very soon destroy the lot if the opportunity is given them.

Early in February take them out and break up the pods, and rub the whole until the seeds are all separated; they may then be sown in shallow pans, pots, or boxes, using light soil with a liberal admixture of sand, and cover with the same to the depth of 1 in. Place them in a frame having a northern aspect, or otherwise in a shady or sheltered spot, where a uniform temperature and moisture can be maintained. About April or May many of the seedlings will begin to make their appearance, but this will depend upon the quality of the seed; if it was well ripened when gathered, a large portion will vegetate the first season, but in most instances the greater portion will not vegetate until the following spring.

The seedling plants should be removed when sufficiently strong to bear transplanting; in taking them up, care should be taken not to disturb the dormant seeds, or others just beginning to vegetate. The seedlings which are removed from the seed-pans during the spring and summer should be pricked out into other pans, and afterwards placed in a cold frame, where they can be shaded from hot sun and occasionally watered. If allowed to grow in the seed-pans until autumn, they may then be transplanted into the open ground in a well sheltered border, and there allowed to remain until they bloom. Many of the seedlings will bloom the first year, but little more than the colour can be ascertained until the plant has been established at least two years. Those which produce very thin petals, or which are deficient in colour, or single, may safely be discarded at once, retaining only such as have good outline, decided and distinct colour, petals of good substance, and the flower, if not full, somewhat more than semi-

double. If all or any of these properties exist, they will improve under cultivation.

ROSE CONSERVATORIES.

NOTHING can possibly be more delightful or beautiful than a large conservatory filled with the choicest kinds of Tea-scented, Noisette, and China Roses. No artificial heat being required, the temperature is delightful and most enjoyable at all seasons, but, perhaps, more so in the spring of the year, when cold piercing, easterly winds prevail. We have here the temperature of Italy or the south of France; no frost during winter to harm our Roses, nor yet smoke or dust to stifle them; the whole being under easy control, can be tended at our pleasure. The greenfly, the greatest pest to Roses out of doors, is here easily destroyed; a few pounds of tobacco paper will bring a whole colony to grief in a very short time. These are only a few of the advantages derived from growing the delicate kind of Roses under glass, and it is almost needless to attempt to picture to the Rose amateur the delightful and pleasurable occupation which a Rose conservatory affords at all seasons of the year, for it can more easily be imagined than described.

I had long contemplated the idea, as well as the necessity, of having conservatories in which to plant out all tender kinds of Roses, but not until the destruction occasioned by the severe winter of 1860-61 was I fully determined to carry out this object. During that season nearly every Tea-scented, China, and Noisette Rose not under glass was totally killed, this disaster being attributable as much perhaps to the cold, wet, sunless summer preceding as to the severity of the winter. I then determined to erect a large conservatory, wherein to plant out all Tea-scented, China, and Noisette Roses. This conservatory is 140 ft. in length, 24 ft. in width, and has a well prepared bed, 11 ft. wide, made the entire length of the house, with 3½-ft. walks passing round, upon either side of which are tan pits 3 ft. wide for growing specimen plants in pots. The centre bed is divided into seven rows, the centre row being planted with Cloth of Gold, Solfaterre, Lamarque, Maréchal Niel, Gloire de Dijon, Climbing Devonians, Madame Falcot, Céline Forestier, America, &c.; these are intended to be trained upon iron wire pillars to the top of the house, which, by-the-by, is 16 ft. in height. The other rows are planted with standard and dwarf standard Tea-scented Roses, from 4 ft. graduating to 1 ft.; the whole is surrounded by a neat garden tile edging, underneath which is planted a border of the Fairy Rose.—*Cranston on the Rose.*

Own root Roses.—We understand that the demand for these is not so great as it ought to be, considering their merit. It is, in fact, the interest of the trade too much to graft on the common stocks, because they so quickly get an apparently bigger and sounder plant; but it is a great mistake to suppose it is better—in fact, it is much worse. Of late years thousands of standard Roses were killed, whereas Roses on their own roots escaped. When we say thousands, we must not be supposed to exaggerate, because we ourselves know more than one grower who alone lost that number. So, whatever the trade may say, we say to our readers and to Rose lovers, plant all your favourite kinds on their own roots, whatever you do as to standards, and insist on getting them if you cannot strike them yourself. Never mind a plant looking small—much smaller, and apparently more delicate, than the grafted plant; the test is, what it is three or four years after you buy it.—W. H.

A new North American Rose.—On a botanical excursion in the upper part of Lower California, between the 5th and 15th of April of the present year (1882), among other interesting discoveries in that little-known district, a remarkable new species of Rose was met with, which, on account of its peculiar botanical and horticultural features, seems deserving of notice. It was first seen from the road, skirting the shores of All

Saints' Bay, between Sanyal and Encenada, about the parallel of 32° N. latitude, becoming abundant, and forming dense low thickets on dry slopes shut off from the sea breezes, and composed of crumbling ferruginous sandstone. Forming, as it did, a most conspicuous and agreeable feature in the arid landscape, with its finely divided foliage and showy pink or white flowers, it attracted general attention. Specimens of it were shortly afterwards sent to Dr. Engelmann, of St. Louis, who described it as a new form of *R. minutifolia*, a most striking and lovely Rose, distinguished from all others by its minute, deeply incised leaflets. This Rose is quite peculiar among its American congeners, and even among the Roses of the Old World, so that it is difficult to determine its true position. In aspect and habit it comes nearest to the *Pimpinellifolia* on account of its single bractless flowers, its numerous acicular spines, and its small leaves, but it recedes in its pinnatifid calyx lobes.—C. C. PARRY, in *Bulletin of the Torrey Botanical Club.*

KITCHEN GARDEN.

AUTUMN SOWN ONIONS.

THIS crop may be sown from the second week in August till the end of September according to locality. If sown earlier than the middle of August, the crop is often of inferior quality, owing to the greater part running to seed. For several years I have made two sowings, the first some time in the third week of August, and another from the 15th to the 20th of September. I select a piece of ground which lies open and free from the shade of trees, and which is of a good holding character; if too light and sandy, one cannot expect a crop of fine bulbs without being well fed. The ground should be trenched or deeply dug after being well dressed with rotten farmyard manure, or if at hand some manure from the fowl-house or the pigeon loft, which will be found to produce the heaviest crop of bulbs, but care must be taken in employing pigeon manure not to use too heavy a dressing at one time, or the young roots of the plants will suffer. Pig-stye manure, too, will be found to be one of the best for Onions. After spreading the manure sow 1 lb. of salt to the square yard, being careful to scatter it evenly over the ground. This will destroy the eggs of the Onion maggot, often so destructive to Onion crops. If at hand, a good dressing of wood ashes will also be found beneficial, spreading them over the ground after being dug, and raking them into the surface of the bed before sowing the seeds. After raking, tread the whole firmly with the feet. Rake again finely, when the seeds may either be sown in drills or on beds broadcast. If in rows, draw the drills from 9 in. to 12 in. apart and 1 in. deep. After sowing cover with the feet, or they may be covered in lightly with a rake, treading the ground firmly. If in beds, mark them out 5 ft. wide, leaving alleys 1 ft. wide. After sowing rake the seed well into the ground, when a little of the soil from the alley may be spread over the beds, treading them firmly with the feet; then rake fine, stretch the garden line, and cut the edges of the beds with a spade, so that they may have a finished appearance. The crop will require but little attention, except keeping it free from weeds until the plants require thinning in spring, which may be done all at one time, or as required for use.

Where a larger breadth of Onions is required than that sown in the autumn, a piece of ground may either be trenched or deeply dug, manuring, it heavily with some well decayed rotten manure. As early in February as the weather will permit and the ground is dry enough to rake to a fine mould, rake and tread firmly. Draw plants from the autumn-sown crops, and plant them upon the prepared piece of ground in rows 9 in. from row to row and 6 in. plant from plant. Keep the ground free from weeds by frequent hoeings, and water freely during dry weather. If large Onions are required for exhibition they will require to be well fed with liquid or some artificial manure, when some of the varieties may be

grown to a very large size. The crop will be fit to harvest some time in July, but that will depend a good deal upon the earliness or lateness of the season.

As to varieties, the following will yield good crops of first-rate quality, viz., Giant White Tripoli, a fine Onion and one of the best for exhibition; Giant Rocca, one of the hardiest and best Onions in cultivation, an especial favourite with exhibitors; Red Genoa, one of the most useful autumn varieties, being of exceedingly quick growth and a good late keeper; and Carter's Golden Globe Tripoli, which grows to a great size, is excellent in flavour, suitable either for autumn or spring sowing.

Bromley.

WM. CHRISTISON.

THE LENTIL.

(LENS ESCULENTA.)

A GOOD deal of interest attaches to the Lentil in consequence of its great antiquity as a food



Lentil (L. esculenta).

plant; it is generally supposed that the Lentil used in the pottage Jacob gave to Esau was identical with the Lentil of the present day. Lentils were undoubtedly cultivated to a very large extent in the East in very early times, and they continue to be so grown throughout Egypt, Nubia, Syria, and India. In Central and Southern Europe also the Lentil is cultivated as a food plant. Its introduction into this country is said to date from about the year 1545, but its cultivation with us on a large scale has never been attempted. There are many varieties grown varying in habit, but more particularly in the size, shape, and colour of the seeds, the usual form of which is circular, about $\frac{1}{4}$ in. across, concave on both sides, and of a dark reddish or chocolate-brown colour. Others, again, are not more than a third the size, more globular, and often of a pink tinge; these are largely grown in India. The Lentil is an annual, seldom exceeding 1 ft. or 18 in. high, belonging to the papilionaceous section of the Pea family

(Leguminosæ); its flowers are pale blue, and its small pods contain one or two seeds. In some Continental countries the Lentil is grown as much for the sake of the haulm as for the seeds, the former being used both in a fresh and dried state for feeding cattle, particularly young stock. When given as green food, it should be cut when the first pods are nearly full grown, and in this case it is generally sown broadcast, but drilled when grown for ripe seeds. The soil best adapted for the Lentil is that of a dry, light, calcareous sandy character, being very impatient of wet. Though not cultivated with us as a crop, it has been recommended by many as yielding a large supply of very nutritious food.

Lentils are cooked in a variety of ways; with the outer skin removed, and the seeds reduced to fine flour or meal, they form an easily digested food, often recommended for invalids. The "Revalenta Arabica," so much advertised, is largely composed of Lentil meal. The principal mode of using Lentils, however, is in soups in the way in which split Peas are used. Considerable quantities are annually imported into this country.

J. R. J.

MUNSTEAD, GODALMING.

HERE in the midst of wild heath land, diversified with picturesque clusters of Hollies, Scotch Firs, wild Junipers, and a variety of other spontaneous growth, is a beautiful garden made by a lady within the past four years, and along the whole range of the Surrey sandstone hills there could scarcely have been found a better position for a house and garden than this. It lies high, and commands beautiful distant scenery, stretching right away across the weald of Sussex. The garden has been laid out in quite an unconventional way; even the heath and scrub, instead of being cleared away and shut off from the garden proper, is made to mingle with it in a charming manner, and trodden tracks only instead of sharply defined walks traverse the heath in various directions, leading from the lawn and the garden. In fact, everywhere about the place are traces of true artistic taste.

The particular aim of Miss Jekyll, the lady in question, is to show in her mother's garden what open-air flowers really are, and the various ways in which to use them properly. In this we think Miss Jekyll has been highly successful, for never before have we seen hardy plants set out so well or cultivated in such a systematic way. There are three special features in the garden—the mixed border, the reserve garden, and the rock garden, each of which requires notice.

The mixed border is a great success. It is some 80 yards or 90 yards in length and of proportionate breadth, and has for a background a soft grey wall draped with a variety of climbing plants and shrubs. This border alone suffices to show that Miss Jekyll has made an attentive study of her subject, special attention having been paid to colour and form. The brilliancy of this border, as we saw it a week or two ago, was beyond anything we had hitherto seen in the way of hardy flowers—as different from the ordinary mixed border as night from day. In brightness it even surpassed the most brilliant effects produced by bedded-out plants, and that without their attendant flatness and monotony. In such a border as this there is sufficient to fascinate even those callous to every colour but fiery reds and glaring yellows. The great point in this

border is the grouping of the colours in broad masses, all being so blended as to produce one harmonious whole. It is this soft and insensible transition from one mass of colour to another which is so effective, and which, above everything else, gives brightness and beauty to the whole. An artist who is well acquainted with the harmony of colours knows exactly when to keep each separate, and in what degree to mix them so as to produce the proper effect, and this is the kind of knowledge which should be brought to bear upon the subject of arranging flowers, and particularly hardy flowers, for then we should see less of the motley and confused crowds of plants that characterise mixed herbaceous plant borders. Looked at from a distance, nothing in particular catches the eye in this border; everything is in harmony, while nearer it reveals quite a labyrinth of variety without unpleasant confusion, the general effect being as simple as the detail is complicated. Throughout its whole length no bare earth is seen; the whole is carpeted with plants, those of taller growth rising from a carpet of dwarf ones. They are, however, not so thickly placed but that each has ample room in which to develop itself. Miss Jekyll is an advocate for good cultivation, and likes to see plants individually attain full growth.

As an illustration of this we might mention a clump of about a yard through of the scarlet *Lychnis chalcedonica* with stout erect stems between 4 ft. and 5 ft. high, carrying clusters of blossoms well nigh 6 in. across. Another plant grown well is *Tropæolum speciosum* (the Flame Nasturtium), which, as a rule, is a puzzle to grow well in the south. Here it has taken up its position by the side of the kitchen garden door against a wall having a north aspect. When we saw it, it was completely wreathed with its rich crimson blossoms, as well as the fruits which are deep purple when ripe. The brilliancy of such a plant as this when in flower amply compensates for any extra trouble taken in its culture. No doubt in this case the cool surface of the wall is beneficial to the roots, and such a condition really seems indispensable.

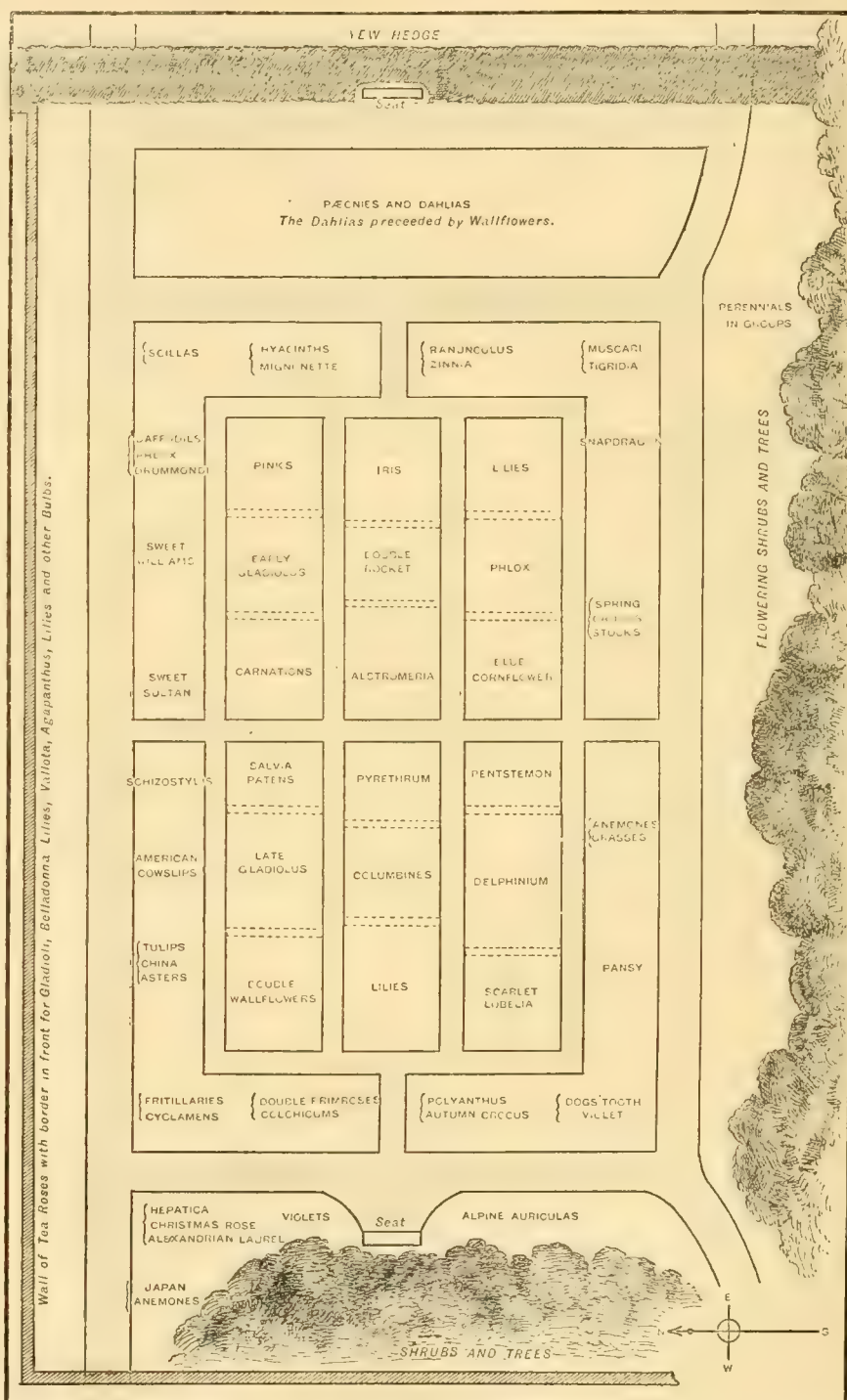
The plants are arranged for the most part so that those of tall growth are at the back, and the trailers in front, but there is no monotonous slope from back to front, as is generally seen in a mixed border; on the contrary, the outline is broken by irregularities. The all-important point is the selection of kinds, so that there is a continuous tide of bloom from Daffodil-time till frosts destroy the scanty bloom late in autumn. In spring, summer, and autumn there is a constant succession of bloom, each uprising plant hiding the shabbiness of its neighbour behind that has flowered. It is surprising to see what can be done in this way, and how the untidy appearance of a herbaceous border may be mitigated by a little attention to arrangement. In order to give a clearer idea of the arrangement, it may be well to enumerate the plants in a small section of the border. In spring there are in flower Oriental Poppy (*Papaver orientale*), Day Lilies (*Hemerocallis*), perennial Lupines (*Lupinus polyphyllus*), various French Poppies and German Irises in variety. These are the taller plants; the dwarfier ones consist of yellow Alyssum, *Gentianella*, *Violas*, Wallflowers, *Polyanthuses*, *Primroses*, *Auriculas*, *Phlox setacea*, and *Anemones*. Succeeding these are scarlet *Lychnis*, *Coreopsis lanceolata*, Sweet Williams, *Spiræa palmata*, *venusta*, *Arunceus*, and various *Campanulas*. Follow-

ing the summer flowerers in the same section of the border are Gladioli, Lobelia fulgens, Tiger Lilies, double perennial Sunflower, Sedum spectabile, Rudbeckia Newmani, Hyacinthus candicans, Anemone Honorine Joubert, Harpalium rigidum, and African and French Marigolds. These are all grouped so that the prevailing colours are in masses. For example, one mass consists of Tritomas, Gladiolus brecheleyensis, scarlet and crimson Phloxes, Lobelia fulgens, scarlet Opium Poppy, scarlet and crimson Sweet Williams, and between this group of reds and scarlets are intermediate tones that lead one on to a large mass of yellows of various shades. The arrangement, too, with respect to the form and habit of the plant is attentively studied, those with strikingly handsome foliage being placed so that they can be seen to the best advantage. Also in the arrangement is studied the relation to the wall which forms the background, and which is clothed with a variety of things that flower at various seasons.

Rock gardens.—There are two rock gardens here made on quite distinct plans. The old one, consisting of undulated rocky mounds, is arranged so as to give a variety of aspects for the plants. Shade lovers, sun lovers, as well as those that delight in moisture, can be suited to a nicety. In this rock garden there is an infinite variety of plants, many of which are rare, and all for the most part are thriving admirably. To mention a few, there is the rare little *Haberlea rhodopensis* growing from a shady crevice and in a most luxuriant condition, and near it is a thriving tuft of *Ourisia coccinea*, with its creeping stems clinging to the face of a rock—just the position it likes. Of the uncommon *Arnebia echioides* we have never seen such fine tufts as there are here on a sloping ledge facing the sun, and the same may be said of *Onosma tauricum*, which grows to an unusual size sheltered and shady. A part is set aside for peat lovers, and amongst them at the time of our visit was a charming mass of *Pyrola rotundifolia* in full flower. Those who know the plant only in a non-flowering condition can have no idea what a lovely plant it is when well grown and flowered. It has erect stems about 1 ft. high, furnished on the upper half with drooping, waxy-white, bell-like blossoms. It delights in a cool, moist, peaty soil such as it gets here. The other rock garden has only lately been made. In order to make it, a large clearing was made on the heath a few paces from the mixed border. The ground on which it is placed is not a dead level, but slightly tilts towards the south. After the heath was removed nothing was done except trenching the ground, half burying in the operation some huge blocks of sandstone at irregular distances apart. Around these boulders alpine plants are planted in broad patches, so that as they grow they make solid masses. Already there are several square yards of *Gentiana acaulis*, *Linaria alpina*, *Anthemis Aizoon*, *Phlox Nelsoni*, *Arenaria pilifera*, *Thymus lanuginosus*, *Phlox reptans*, *Coronilla iberica*, Mossy and Crustaceous Saxifrages in variety, various alpine *Campanulas*, including the lovely little *C. pulla*, which when we saw it was in full flower, the whole mass, about a yard square, being thickly studded with its nodding deep purple flowers on slender stems about 3 in. or 4 in. high. Such a rock garden as this is quite out of the orthodox style, and gives ample proof that in order to grow the majority of alpine plants well it is not necessary to raise mounds or have

such an array of rocks as is usually the case. In this garden the stones do not unpleasantly obtrude, but are made subservient to the plants which surround and overspread them with

Another charming feature in this way is a rocky bank, about 4 ft. high, running parallel with the mixed border. It is built entirely of local stone so plentiful in the neighbourhood, and was really



Reserve garden for the choicer families of hardy plants, grown in beds without reference to general effect, and serving also as a garden for cut flowers and a nursery. Central beds divided by trodden alleys; borders and main beds edged with stone. Early flowering bulbs generally succeeded by annuals or summer flowers.

good effect, and in a most natural manner. As to the plants themselves, though only planted a few months, they exhibited the greatest luxuriance, even growing in the natural soil of the heath and without any special attention. They seem to hug the projecting boulders as if delighted to get their roots near the moist surface of the stone.

built as a retaining wall for the high ground behind it, as the spot occupied by the long border was excavated a bit. This rocky bank has almost a perpendicular face, yet the chinks and crevices of the stones afford a foothold for colonies of small growing plants of all descriptions—Houseleeks, Stonecrops, Hairbells, a pine Pinks, and mountain

Catchflies, and a host of others, all thriving in the greatest luxuriance; indeed, we have rarely if ever seen such healthy hard tufts of such plants as *Silene acaulis* which, on the crest of the bank, evidently finds a congenial home. Another thing that does uncommonly well on the perpendicular face of the wall is the white form of *Campanula pumila*, there being spreading tufts smothered in blossoms, producing a beautiful appearance on the mossy stones. The reason why this *Campanula* does so well is no doubt owing to its being shaded from the full sun and the moisture it derives from the stones. The top of the bank, covered with myriads of alpine, connects itself with the heath, where interspersed with the native growth, are Everlasting Peas and other hardy plants which mingle most charmingly.

The reserve garden deserves special notice, as it is so seldom that we find anything of the kind even in the largest places. As may be seen by the annexed plan, it consists of an oblong piece of ground having the walls of the kitchen garden for two of its boundaries, and sheltered from east winds by a Yew hedge. On the other side it is screened by trees and shrubs, among which are intermingled hardy plants of tall growth. Such a garden as this is of the greatest importance, for it is not only a never-failing source of cut flowers, but also of great value as a nursery where plants can be reared or divided for stocking the other parts of the garden. The plants are in beds without reference to the general effect, and all the borders are edged with stone dug on the place, and give no trouble after being once properly set; when old and moss grown, they look better than anything else with which we are acquainted that could be used in that way. These stone edgings are laid down throughout the garden, and in the mixed border the plants are allowed to run over them, and thus break their long straight lines. The plan shows the contents of the garden as it is this season, but every year it may be varied; for example, the following is a list of useful plants for such a garden not placed on the plan, but which may be used when required, viz., Scabious, perennial and annual *Chrysanthemums*, Marigolds, Chinese Pinks, Sweet Peas, dwarf Phloxes, Camassia, *Agapanthus*, hardy *Amaryllis*, *Verbena*, *Anthericum*, Thrifts, double Daisies, Lily of the Valley, Orchis (fine hardy kinds) (*Enothera*, *Gaillardia*, and Everlastings. A similar garden to this ought really to be found in every place where there are borders to be stocked and maintained in a creditable condition, and particularly where there is a demand for cut flowers, for it does away with the necessity of disfiguring borders that have some attention bestowed upon them as regards their arrangement. Gardeners in large places would find such a reserve plot a great boon, and it costs but little trouble to maintain. Although hardy plants are the special feature of this garden they are not exclusively so, and even the parterre is not ignored, for in a snug corner overlooked by Miss Jekyll's studio there is as bright a display of scarlet zonal *Pelargoniums* in masses and tuberous *Begonias* as we have seen this season. The *Begonias* in particular are very fine, as they are so uniform in size, of such brilliant colours, and so profusely flowered. The warm borders on the sunny sides of the walls afford a capital place for growing a variety of bulbous plants, and *Gladioli* of the *gandavensis* class thrive to perfection, having tall massive spikes of

blossoms, which, though only seedlings, are quite as fine as the named varieties exhibited. The kitchen garden, an excellent one, besides supplying the culinary requisites, is gay with autumn and spring sown Sweet Peas, the former much the finest, and we noticed that with regard to all annuals Miss Jekyll favours autumn sowing. A couple of spacious glass houses as bright as could well be with greenhouse and stove flowers are found sufficient to maintain a continuous supply of plants and flowers for indoor decoration in winter, which is largely carried out. These are a few of the interesting points about Munstead which are continually being added to, only to mention a new garden in the adjoining wood for *Auriculas* and other kinds of *Primula*. W. GOLDRING.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J., SURREY.

LARGE autumn flowers now abound, giving ample material for room decorations of large size. Phloxes, crimson and salmon-rose, cut from 1 ft. to 2½ ft. long, form a fine pyramidal mass. Pink and flesh-coloured *Gladioli*, the tallest cut 3 ft. long, are with side shoots of variegated Maize in a large tall glass. Scarlet single Dahlias are in a large bunch by themselves. A capacious piece of blue and white oriental porcelain holds a towering bouquet of yellow flowers, double perennial Sunflowers, *Helianthus rigidus*, African Marigolds, and some of the tall *Rudbeckias*, with leaves of *Acanthus spinosus*. Flowers of Globe Thistle (*Echinops*), with white Everlasting Peas and foliage of *Cineraria maritima*, make a pretty table bouquet; a smaller one is of white *Campanula carpatia*, with fronds of Maidenhair. Japan Privet, with its handsome panicles of white flowers and broad glossy leaves, is arranged with a few sprays of *Escallonia macrantha*. Tiger Lilies are in a jar of buff-coloured oriental ware. An engraved glass holds a handful of white Jasmine, and a white Venetian glass, small and slender, a few flowers of *Anomatheca cruenta*. *Begonia Rex* and its varieties are some of the most useful pot plants.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Thymus.—Though strictly speaking all the plants belonging to this genus are herbs, there are several of the varieties which for use in the flower garden cannot be excelled by any other plant of similar habit and hardiness. *T. corsicus*, *hirsutus*, *tomentosus*, *Serpyllum*, and *lanuginosus* make good rockwork plants, and the two last-named kinds will flourish in the driest positions. The gold and silver variegated varieties are generally used for edgings in summer bedding, and when kept trim by frequent cutting, they are excellent plants for the purpose, but a far better use may be made of them, as well as of the common green variety, and that is as edgings and groundworks in winter bedding arrangements. The density of their root formation is favourable to their transplantation at almost any season; indeed, I have on many occasions at the height of summer made good with these a failure in summer bedding plants, and as our beds have all to be as fully furnished in the winter as in summer, there was so much the less to be done when the general clearance and replanting began. Seedlings of the common green kind make the best plants. Sow in pans in March, transplant to the open borders early in May, and the plants will be ready for the following winter. The variegated kinds can only be had from cuttings, which strike well at any season under handlights or in cold frames. The kinds for rockwork are increased by division in autumn or early in spring.

Sub-tropical and fine foliated beds.—Besides tying to supports as a prevention

against injury from wind and heavy rain storms, and the removal of leaves and shoots that overhang the turf to its injury, there is little else needed just now in this department. Growth of late has been profuse and the beds will never be better; hence the present is the time to take note of what to repeat or what to avoid in future arrangements. I have marked the following for repetition, viz., a bed of tall Sunflowers and *Castor-oils* in combination; one of single Dahlias, Marguerites, and *Acacia lophantha*; and another of *Solanum robustum* and *marginatum* (a row of each), with *Eucalyptus* and tall *Cannas* in the centre. The variegated *Abutilon* and crimson-stemmed Chilean Beet in combination are also very pretty. Amongst the fine dwarf foliated plants succulents at present bear the palm. *Sempervivum arboreum*, *arboreum purpureum*, and *arboreum variegatum*, large-leaved *Echeverias*, and American Agaves are the principal large kinds used, the carpeting plants for the same being *Mesembryanthemum cordifolium variegatum*, *conspicuum*, and *cerulescens*; all the attention that these beds now need is to keep them free from weeds. Pick the seed-pods off the *Mesembryanthemums*, and give an occasional press down with the hand to keep the growth right under the taller plants. When thus trimming up the beds advantage should be taken of the opportunity to take the necessary cuttings for next year's needs. All succulents strike best in pots; no bottom heat is needed, but full exposure to the sun and protection from heavy rains.

Herbaceous flower borders.—Much has recently been written about herbaceous rubbish; there is certainly plenty of it in existence, but why grow rubbish? I am heterodox enough to think that even botanists might, with profit, dispense with at least one-half the plants they cultivate, and surely we "practicals" can do without the rubbish altogether, seeing the rich abundance there is of really fine herbaceous perennials. Now, whilst they are in flower, is the time to weed out all worthless or curious species, and replace them by increasing the stock of such kinds as not only make the best show in the open borders, but are most useful in a cut state. The *Achilleas*, Japanese *Anemones*, Phloxes, *Galegas*, *Actæas*, *Potentillas*, *Pentstemons*, and Poppies are at the present time in grand blossom; they have had about the same amount of attention as to watering, picking over, and tying up as has been given to ordinary bedded-out plants. Both sections are valuable in their respective places, but neither one nor the other will make a creditable display if left to take care of themselves, and yet many people appear to think so, more especially in respect of herbaceous plants. Many of the kinds may now be propagated freely by means of offsets, and Phloxes and *Pentstemons* by cuttings, but those that need to be increased by division must be left until later in the year. Keep the borders free from weeds, trailers well to their support, seed-pods picked off Sweet Peas, and if there are any vacant spots, sow hardy annals for early spring flowering.

General work.—Water shrubs, Roses, and climbers on walls that rain cannot reach. In the case of these, a good wash with the hose or garden-engine is also desirable. Clip Privet and Yew hedges, and give a final trimming for this season to Box edgings. Propagate bedding plants at every opportunity, and also prepare spring flowering plants by pricking off seedlings, splitting up *Polyanthuses*, *Primroses*, *Forget-me-nots*, and similar material.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Camellias.—These are better under glass than in the open air after their buds are set; but, nevertheless, turning them out frequently becomes a necessity with plants, that bloom early, and which have made their growth correspondingly early, otherwise there is often danger of their blooming sooner than may be wanted unless there happens to be a house with a north aspect at command.

where, by throwing it open, they may be kept as cool as out of doors. Treated in this way there is much less danger of their getting dry at the roots than when set outside. The injurious effect that over-dry treatment at the roots has on these plants is proportionate to the more or less advanced stage the flower-buds are in; if only about setting, or a little more, a dry condition of the soil does little or no harm; in fact, with vigorous examples, it is frequently necessary to allow them to get dry with a view to insuring their setting flower-buds in place of making second growth. But where the buds have attained any size, if allowed to get too dry, more or less falling is all but sure to follow, although it may not take place for as much as a couple of months or more after the soil has been so dried. Plants in the open air should have particular attention whilst the weather is dry in the matter of water, to avoid the consequences here pointed out. Camellias, if fairly treated, grow better than most plants even in the vicinity of smoky towns, but there is one evil connected with their cultivation in such localities, and that is that dense foggy weather in winter frequently causes the bloom buds to drop in quantity, especially those of the white kinds that are deservedly so much prized. Many of the semi-double or irregular formed flowers are much better able to resist injury in the way described, and on that account are more suitable for growing in places so affected. I have also noticed that the buds are much more likely to drop from the cause named when late, through not being sufficiently advanced in the autumn; consequently, although it is desirable to have as much succession as regards the time of flowering as circumstances will permit, it is better in such neighbourhoods to get them well forward in the summer and autumn for early blooming than to attempt, as is often done, to keep the greater portion for flowering in February or March. Wherever these plants are underpotted, and the foliage, through being deficient in deep green colour, exhibits want of sufficient sustenance, manure water ought to be given. Whatever enriching material is used in this way, a liberal amount of soot should be included; even soot water alone is one of the best things that can be given under such conditions. Not only have Camellias a special liking for soot, but it likewise benefits them by ridding the soil from the presence of worms.

Azaleas.—Like Camellias, these plants may be had in bloom during much the greater portion of the year if a sufficient stock is at command and they are properly treated. At no time are their flowers more useful for cutting or the ordinary purposes of decoration than through the last two months of the year, when such flowers as forthcoming under glass have to be wholly depended on. But though Azaleas bear forcing much better than most plants, it is far the best to regulate their time of blooming by the length of time they are kept warm under glass after the season's growth is completed and the buds are set. Where wanted to come up in about the time mentioned, the buds can scarcely be too large and prominent before they are taken out of heat; but, in speaking of heat, through the summer months no more is required than keeping them in a house where the sun's rays are made use of by not giving too much air through the day, and shutting it off completely early in the afternoons. Plants so treated until the buds are as large and prominent as those of Camellias in their early stages can later on when required be induced to open their flowers with half the heat and in half the time that is necessary when turned out of doors or put in cool quarters under glass before, or as soon as the flowers have set. Where Azaleas are required to bloom early, and to be freely used for cutting, the old white kind and Fielder's White, a slight improvement on the former, should find a place, for though some of the newer sorts have better formed flowers, still the much longer and more vigorous shoots which the old varieties named make permit of the flowers being cut with a correspondingly greater length of wood attached,

a matter of great importance in cut flowers. Such examples as were kept for blooming late, say up to June or July, will only now be making their growth, and to do them justice should for eight or ten weeks yet be subject to warm treatment, otherwise many of the shoots will never set flowers at all, or be so insufficiently developed, as to go blind through the winter. In most cases where this latter mishap occurs it is directly traceable to the buds not being sufficiently formed before the cessation of growth. The whole stock of Azaleas should be frequently examined to see that they are free from their greatest enemy, thrips, also red spider, which latter sometimes makes its appearance through a deficient use of the syringe, in not getting the water well to the under-sides of the leaves. Dipping and washing with Tobacco water involves much more labour than fumigation, but it is far more effectual for the destruction of the thrips, and, what is of quite as much importance, it does not injure the leaves, which fumigation often does. Where red spider as well as thrips exist it is only necessary to add two or three ounces of Gishurst per gallon of the Tobacco water which will destroy the spider, that Tobacco water alone seldom does effectually. Azaleas in all their stages require to be much more liberally supplied with water at the roots than almost any other genera of fine-rooted, hard-wooded plants; they enjoy a moist condition of the soil, such as would kill the small feeding fibres of most hard-wooded greenhouse subjects.

Pimeleas.—These distinct and beautiful plants are quite as suitable for greenhouse decoration as they are for the purpose for which they are usually grown—to exhibit; or even more so, for so free is their natural disposition to flower, that they bloom profusely when no larger than occupying 7-in. or 8-in. pots. Another matter of importance when for ordinary use is that they require next to no artificial training, or the use of numerous sticks and ties, as if sufficiently cut back each season after blooming they will all but support themselves without sticks. The elegant drooping habit of the flower-shoots bearing their distinct heads of bloom makes them contrast well with most other plants. The principal cause of their not being more generally grown I take to be the unsatisfactory condition they usually get into through the ravages of red spider, which in the summer months is almost sure to attack them if means are not taken to keep the pest down. Regular drenching daily with the syringe is indispensable to keep the plants clean; not simply sprinkling them, but getting the water in quantity to the undersides of the leaves. Ordinary attention in the other matters of potting, air-giving, and general treatment, such as found to answer for other hard-wooded greenhouse stock is all Pimeleas require, with the addition of much more water to the roots in the growing season than will suffice for others of a hard-wooded character. Being mostly spring flowerers, Pimeleas whilst young often get their potting deferred through a supposition that it will interfere with their blooming; where such has been the case, and they are at all underpotted, they should at once have a shift, for if kept too long cramped at the roots they get into a stunted condition, which stops their future progress.

Preparation for winter.—Whatever has to be done in the way of repairs to plant houses, re-adjustment of heating apparatus, painting, and other things of like nature, this is the best time in the whole year for carrying it out, as now whilst a good many plants are undergoing their hardening process in the open air, the different structures may, by exercising a little judgment, be cleared in succession, so as to admit of the necessary work being done, which it can be so much better and expeditiously than when the houses are encumbered with occupants. Where the woodwork can be well dried, such as permitted of when the houses are cleared, painting is more preservative in its effects than when done, as often seen, with the wood in a half saturated condition, in which state it is of little use. The advantage of doing such work at this season in

place of deferring it until autumn or spring, as frequently happens, cannot be over-rated.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Peaches.—If not already done, prepare a good supply of compost, and take advantage of dry, dull days for root-pruning and other border alterations and additions in the early house, as advised in preceding papers. Syringe the trees before the work is commenced, and keep them moist and slightly shaded if the foliage shows signs of flagging on bright days, until the roots begin to work in the new soil. If gaps have to be made up from the reserve wall, lifting from the open air must be deferred for another month, as, owing to the lateness of the season and the vigorous growth of the trees, the buds are still very backward, and the premature lifting of trees for early forcing might end in disappointment. The making up and ripening of the buds may, however, be facilitated by taking out a trench at the extremity of the roots, and throwing the soil in again, until the time arrives for taking the tree away to the house, when, assuming that the operation is carefully performed, and fresh fermenting compost is used, an abundance of new roots will be at work long before the house is closed for forcing. But, valuable as the reserve wall is for preparing trees for culture under glass, it is not the best place to go to for trees that will be started in November and December, as the season of rest is too short. In my own management I prefer taking a tree from the second house for early work, and filling up its place from a still later house or the wall, when, by using the compost in a fresh fermenting state, root action at once sets in, and every tree is in the best possible condition for giving a full crop of fruit the following season. Follow up the removal of all superfluous growths in late houses, and maintain a constant circulation of air until all the fruit is gathered; then perform any pruning that may be needed to let in light and air, cleanse the trees with the engine, and apply gentle fire heat to ripen up the wood. Where the stock of soil is insufficient for probable requirements, a good quantity of the best calcareous turf should be cut and stacked before it gets chilled and saturated by the autumn rains.

Hardy fruits.—Now the season is quite over let the old canes and all the weakly growths be cut away from Raspberries, particularly those on north or shaded borders, where this year's growth has been very gross, and as yet we have not had very good weather for ripening up the wood. On warm, dry soils a good layer of rotten manure may be spread over the surface as soon as it is cleared of weeds, and next year's crop will be much benefited by the operation; but in cold gardens the application of manure may be deferred until after the winter dressing, as no greater mistake can be made than that of forcing a vigorous growth late in the season, to be crippled or killed by the first severe frost the following winter. The same rule applies to Strawberries after they have done bearing. In many gardens they are much longer neglected than they ought to be, and the ground is robbed and shaded by useless runners, when by their timely removal to let in sun and air a degree of ripeness of roots and crown buds might be secured, which would enable the plants to pass through the sharpest winter, and produce an abundance of perfect flowers the following spring. If possible, all autumn planting should be finished by the middle of September, as the roots will then have time to lay hold of the soil, and the plants will produce a few fine fruit the following season; but if delayed after this time, the young plants will be quite as well in nursery beds until the spring, and the ground intended for their reception can have the benefit of a winter fallow. In the management of fruit trees generally, let the aim be the proper maturation of the current year's wood by laying it in thinly against the wall, and by spurting all the weaker shoots back to within two or three eyes of the winter pruning

buds, taking care to retain a plentiful and even spread of foliage over every part of the trees. Pyramidal Plums, Pears, and Apples, owing to the lightness or complete failure of the crop, are making a vigorous second growth, which must be persistently pinched and checked for the twofold purpose of filling up and letting in light and air to ripen the fruit buds, and where practicable the remains of crops of vegetables must be cleared off the borders in order to expose them to the full action of the sun. Look over Peaches and Nectarines every morning and gather all that are forward enough for removal to a dry, airy room, where they will ripen up and keep for some days after they are ready for use. The different kinds of early Pears, including Beurré d'Amanlis, Williams' Bon Chrétien, and Jargonelle will also be the better for removal, a few at a time, before they are quite ripe, when, by easing the trees, those left will become much larger and they will extend the season until smaller, but better flavoured fruit from pyramids and bushes comes into use.

Cucumbers.—Plants raised from seeds or cuttings early in the current month will be growing fast, but they must not be stopped until they have covered three-fourths of the trellis, neither must they be allowed to carry fruit until they are thoroughly established in the pots or hills. If the latter, keep adding fresh turf and old lime rubble as the roots show through the sides, and use nothing but pure water for watering or filling the evaporating pans for the present. Also avoid the use of fire heat by keeping the fermenting bed frequently renovated, and by closing about 3 p.m. with sun heat and moisture. Where several compartments now occupied with Melons have to be planted with Cucumbers, two sowings should be made in August and one in September, the first to succeed the summer frames, the last to be kept clear of male and female blossoms until the end of the year, when they will be in a fit state for fruiting through the succeeding spring and summer. Old plants in full bearing must be liberally supplied with warm liquid at every watering, and the quantity of fruit they are allowed to carry must be regulated by the quality of that which they are now producing. Pay particular attention to the bottom-heat, as it is to neglect of this important point that many ills, including canker and mildew, may be traced.

Strawberries.—By this time the latest plants will have become well established in the fruiting pots, and the most important point will be the formation of plump ripe crowns with plenty of healthy roots under them for forcing up the flower-stems in the spring. In low, damp situations more favourable to the growth than to the ripening of the crowns medium-sized pots, which quickly become filled with roots, answer best, and when this stage has been reached it is a good plan to elevate them on planks, dwarf walls, or platforms 1 foot or more above the ground, where by full exposure to light and air, and careful attention to watering with water which has been for some time exposed to the influence of the atmosphere, the most backward plants may be made fit for storing away in cold pits by the end of October. Keep the general stock of plants free from weeds and runners, and move them occasionally to prevent the crock roots from striking into the ground; also keep a sharp lookout for worms, red spider, and mildew. The best remedy for the removal of the first is clear lime water, and the others may be destroyed by dipping the leaves of the plants in a mixture of sulphur and water. If very early forcing is contemplated, the first batch of Vicomtesse Héricart de Thury and La Grosse Sucrée, which is equally early and produces finer fruit, may now be taken to an open, airy situation where they can be partially plunged for the better protection of the roots, which should now be almost forcing the balls out of the small pots, as well as to economise time in watering. If not already done, get the surplus runners planted out on good ground conveniently situated for water. Mulch and encourage a vigorous growth, as these plants will give the earliest runners for next year's forcing.

KITCHEN GARDEN.

R. GILBERT, BURGHLEY.

THE glorious rain with which we have been favoured in this locality has made all the inmates of the kitchen garden look cheerful and bright. Celery, Coleworts, and Broccoli now really cover the ground with foliage; one more hoeing will be sufficient to carry them through the season. Onions, I am sorry to say, are somewhat mildewed; we are therefore taking them up, leaving them on clean land to dry. Immediately the land is clear we set the line, and begin to plant Cabbage without any digging; when the young plants get fairly started, we give the soil a good stir up with a cultivator, which does a great deal of good. Lettuces, which we require in large quantities, we plant between the young Strawberry plantations, for both Strawberries and Lettuce enjoy a good rich larder, and we make a point of pleasing them. Endive is now getting ready for putting in its proper place, but here it is not much required. Keep sowing winter Lettuces and Spinach, cut all the old flowering stems from Globe Artichokes, and if the autumn is a fine one you will be rewarded with a second crop of smaller, but quite as good, flavoured heads. General kitchen garden work will consist in eradicating all seedling weeds. There is no time when a good salad is relished more than just now. The hot weather we have had and are having makes a good salad most enjoyable. Our Paris Cos Lettuces growing between Celery ridges, manured with old Mushroom manure, are simply unique. They want no tying, are crisp and cool, and most refreshing.

HEDGES V. IRON FENCES.

WHICH are preferable? If hedges are as expensive to originate as some would have us believe, the question might be settled off-hand in favour of iron fences. A contemporary tells us that it is necessary "in all cases the ground should be trenched to a depth of not less than 3 ft.," and, if necessary, also "well enriched with manure;" this for common Quick hedges. Such preliminary preparation would be simply prohibitive. I am familiar with districts both in England and Scotland where the hedges, counted by scores of miles, and managed to perfection, have never had so much as a yard of ground either trenched or manured for them. Speaking of this subject to a well-known forester, whose services are often employed in different parts of the country, he informed me that he never knew trenching to be either necessary or desirable, except for fancy Holly or Yew hedges, &c., in gardens, and these only of small extent. The Quick Thorn is not a deep rooter, even as a tree, and as a hedge bush it seldom sends its roots so deeply into the ground that it cannot be readily lifted and transplanted by a spade. The roots push laterally more than vertically, and are small and numerous, and were it not so, hedge transplanting would not be so common nor so successful. We have known miles upon miles of comparatively old hedges moved without a hitch, and that in a short time too. Top-dressings are beneficial to the shallow roots, and it is always right to place the scourings of ditches and road parings, &c., along the bottom of the hedge, more particularly when the soil is naturally shallow or poor.

Hedge culture depends much on the judicious use of the hedge-bill, and something also depends on the shape in which the hedge is cut. The same authority that recommends trenching for the roots says hedges should be cut in the shape of an inverted Λ , which, if strictly adhered to, would hinder the progress of the hedge greatly, as well as deprive it of body and strength. The extensive hedges we have alluded to were trained with bellied sides, rounding off to a peak at the top. A section of the hedge represented a Gothic arch more than anything else—a broad bottom, straight sides, and a peaked top. Trained in this form, the bush is sooner up, as the top is not shortened so severely in cutting, while the sides are sufficiently pruned to make a fence

dense and strong enough to form a barrier against cattle of any kind. Such hedges need no inner paling as a protection. The plea put forward for Quick hedges that they are pretty and ornamental when in bloom is all moonshine. Well-kept hedges never produce blossom, or at least should not do so. Their correct pruning is essentially restrictive, hence flowers or haws are out of the question. Many of the hedgerows in England—the majority of them, indeed—have a rustic beauty about them from an artist's point of view, but in a cultural sense they are a wretched sight. Neglected at the outset, they grow all to top; are then summarily lopped over, or are half cut and bent down here and there to fill up the gaps, the dead branches being thrust in among the living ones as well as a stop-gap in the meantime, and to the permanent injury of the hedge. Here a stake is driven in, and there stones are used where the hedge has failed altogether, and in the end we have a fence that is neither a hedge, a paling, nor a wall, but a compound of all the three, concerning the keeping and repairing of which the tenants and the landlords are frequently at strife. The English farmer is a slovenly hedger. But to come back to the subject of hedges *versus* iron fences, it may be said that the former are going out of fashion. At one time they were preferred to dry walls on gentlemen's estates because of their more ornamental appearance, but a Quick Thorn hedge, however well trimmed, is not now regarded as the most useful, the cheapest, or the best looking fence. On farm lands fences of some kind, it does not matter much what, will always be necessary; but in parks around mansions the tendency is to abolish fences altogether, or at all events to keep them out of sight as much as possible. Some years ago it was suggested to a nobleman, who took much interest in planting and landscape gardening, that the prospect in many instances was marred by the trim hedges which enclosed even the smallest patches of wood or copse from the parks, giving a stiffness and formality to the landscape which was noticeable even by those who did not always detect the cause itself. Wherever possible the hedges were removed in time and strained iron fences substituted instead with the most marked improvement. At a distance these fences were hardly noticed, and the absence of visible barriers tended to give a much opener and more natural aspect to the landscape.

Iron fences.—As to the comparative cost of hedges and iron fences, I am unable to furnish any accurate information, but the probability is that iron is considerably the cheapest in the end, and it is finished and done with at once, no further care being needed except occasional pitching with tar or painting. As such iron fences are made now they are extremely strong, durable, neat, and light. Their strength depends on the quality and fixing of the upright supports and the stays, placed some hundreds of feet asunder, the wires, some $\frac{3}{4}$ in. thick and supple, being simply run through the eyelets in the uprights and pulled up as tight as a drum by the raidisseurs at the end. Except for cart traffic, such fences do away with the necessity for gates and other openings to a large extent, as the foot traveller, be they lady or gentleman, can easily pop through between the wires, which are usually 8 in. or 9 in. asunder. Such fences are not loved by fox hunters, we believe, but that is no objection to their use in multitudes of cases. Different makers recommend different kinds of iron fencing. Some dispense with the wire and use band iron, $1\frac{1}{2}$ in. broad or thereabouts, alone, finishing with a stout iron rail at the top. These fences are strong, unnecessarily so, more expensive, and far more conspicuous than wire fencing in which the supports only consist of slender iron bars turned edgewise to the spectator. This latter form just as good a fence as the stronger one, and is the least objectionable in other ways. The desirable points in iron fences are strength and lightness. Manufacturers are always ready to furnish estimates for their erection, which may be undertaken by the labourers on the estate superintended by a man from the firm of the maker. J. S. W.

THE TUNBRIDGE WELLS NURSERIES.

ANYONE travelling between Tunbridge Wells and Frant and fond of trees cannot fail to note the wealth of handsome, thriving specimens which adorn the villa gardens, and which have now attained a size to lend quite a charm to the road itself. The majority of these have been transplanted from the nurseries of Messrs. Cripps & Son, and it is pleasant to see the way in which they have flourished and developed their respective beauties. Higher up a fine avenue of vigorous young Limes leads away to the right, forming a delightful promenade, exceptional in its wealth of cheerful green and in the absence of hard lines of wall or paling. This is Broadwater Down, and a little farther on will be found in the nurseries just mentioned a most interesting collection of trees and shrubs. It is in that part of the nursery first approached, and in the angle formed by the roads to Lamberhurst and Frant, that the whole of the glass houses have been placed. Here all the Lapagerias, Ferns, Clematises, Roses, &c., are grown and large quantities of hard-wooded plants propagated. There is now a very pretty batch of seedling Begonias in bloom, and the sight of many an old, half-forgotten favourite will repay anyone who makes a careful inspection of this department. A new house 100 ft. by 11 ft., with useful pits against the outside walls, has just been added. In an angle formed by this house is a piece of ornamental gardening, a curious combination of the subtropical, alpine, and carpet bedding, but useful as a spot in which to test the hardiness and habits of various plants. Here may be seen the *Gynura aurantiaca*, covered with its bluish-purple lustre. As a single specimen it may be of value and attract attention, but it will probably never play the effective part that is here taken by *Coleus Verschaffelti* and other plants of a decided colour, from the rigid *Echeveria purpurea* to the graceful Japanese Maples. These beautiful Maples greatly enhance the appearance of Yuccas and Agaves when associated with them, but it is amongst the massive outlines and soft tints of conifers that their airy habit and bolder colours are seen to the best advantage. In the herbaceous ground are batches of Carnations, *Anemone japonica alba*, *Hyacinthus candicans*, *Gladiolus Colvillei*, *Campanula pyramidalis alba*, *Achillea Ptarmica fl.-pl.*, and many others to meet the demand for cut white flowers. Hard by is a bed of specimen Clematises, which proves that they all have a character as well as a sweet will of their own when allowed to clamber untrained over any suitable support. Amongst others, *Thos. Moore*, purple; *Magnifica*, purple with plum bar; *Alexandra*, deep blue; *Othello*, rich velvety purple; *Crippsi*, blue; *Star of India*, *Rubella*, *Tunbridgensis*, and *Velutina purpurea* are perfect masses of flower. The crimson of *Viticella rubra grandiflora* is prominent; *Ascotensis* is a splendid blue; in Victoria we have a peculiar magenta tint; and the striking flowers of *Madame Grange* are of a rich velvety puce. But the visitor will notice directly he arrives at the entrance that this is first and foremost

A nursery of conifers.—Nearly all the hardy varieties in cultivation are to be found here. Right before one is a bed of the smaller and choicer varieties. A good example of *Wellingtonia gigantea pendula* stands by the golden variety of this tree, and on the other side of the road is a telling standard of Smith's golden *Laburnum*. Then there is *Thuja occidentalis lutea* and the quaint little *Retinospora tetragona aurea*. But it is hardly fair to speak of golden conifers and omit mention of the good colour and free growth of *Cupressus Lawsoniana lutea*. Close to it are plants of *Cupressus Lawsoniana pyramidalis alba spica*, whose only fault is the length of the name, and *Cupressus Lawsoniana Shawi*; while *Cupressus macrocarpa Crippsi* and *Retinospora obtusa alba* may be seen displaying their silvery tints. *Acer polymorphum atropurpureum* is very beautiful, and *Dimorphanthus mandshuricus* spreads out its noble foliage, which in the subtropical garden would be a striking feature. There are good specimens of the rare

and graceful *Taxus baccata Dovastoni*, one of the darkest greens amongst conifers, and the deciduous *Taxodium distichum fastigiatum*, one of the lightest. Now the eye is fixed by the rich colour of *Quercus Robur purpurea* or by the graceful purple Birch; again the handsome foliage of *Liriodendron Tulipifera medio-picta* attracts, or else the coppery-coloured young shoots of *Acer cissifolium*. The colour is fast appearing on the berries of the golden-fruited Mountain Ash, and *Hydrangea paniculata grandiflora* is covered with bloom. The very free habit and the large heads of flower produced by this *Hydrangea* place it in the first rank of hardy deciduous shrubs. There is also an absence of that stiffness which characterises most of the genus. The love for flowering shrubs is evidently asserting itself; and to meet this, numbers of the choicer varieties of *Weigela*, *Lilac*, *Deutzia*, *Spiraea*, *Philadelphus*, and even of the Bramble are grown. In the drive, *Chamaecyparis spheroides aurea* (the Golden Swamp Cedar) is very pretty, and, like *Thujopsis dolabrata robusta*, it is evidently at home on the fine, binding soil here, a soil which admits of the safe removal of plants of this class with large balls at all times of the year. *Taxodium sempervirens alba spica*, with its growth tipped with a beautiful cream colour, is striking; a globular bush opposite proves to be the variegated variety of the old *Kerrya japonica*, and *Tilia alba pendula* is a shapely tree. The grand foliage of *Juglans regia macrophylla* contrast well with the more upright growths of the conifers, and that of *Hydrangea quercifolia* is very handsome; the latter is rarely met with. A remarkably fine specimen of the rare *Picea bracteata*, about 20 ft. high, stands here; it always thrives best in elevated positions. A little further on *Alnus imperialis asplenifolia* is very graceful; and one receives a pleasing impression from the glossy green foliage and beautifully curved shoots of *Celastrus scandens*. The white flowers of the golden-stemmed *Diplopappus chrysophyllus* are out, but they are not nearly so showy as those of the New Zealand *Olearia Haasti*, which is grown here in quantity. The rare *Abies firma*, from Japan, is represented by a good tree, and a grand specimen of the true glaucous variety of *Picea nobilis* rears its stately form decorated with beautiful cones. This was a graft from the original plant sent home by Douglas. There are also very fine examples of *Quercus Cerris variegata*, 16 ft. through, *Castanea vesca aurea*, and other pictorial trees, their ornamental properties being well brought out by the winding character of the drive. Higher up, on a well-drained slope to the north-west, may be seen a grand old tree of *Sophora japonica pendula*. The undulating nature of the ground affords a variety of aspects, and the altitude excludes the early and late frosts. Many a large *Araucaria*, *Wellingtonia*, *Thuja Lobbi*, or *Abies Albertiana* give character to these hillsides on which a magnificent pair of *Picea grandis*, 40 ft. high, do full justice to their name. Roses are budded in yearly increasing numbers on the *Manetti*, and large breadths of this stock seem to be this season in unusually good condition; *Rose White Pet* worked upon it forms a dense bush covered with buds. In a moist gully the hardy *Bambusa Metake* forms quite a feature; *Aucubas* enjoy the shade of row after row of standard trees, and seed beds of trees and shrubs are a speciality. *Laburnum Gumperi*, with its curiously cut leaves, is worthy of note; it is grown upon the common stock. There is a quaint look about a row of *Fraxinus globosa*, which suggest its use in the rock garden, where the small, slow growing head would not interfere with the access of sun and air. A capital lawn tree is *Abies orientalis*. One of the most prominent features of these nurseries is the fine collection of

American plants, for which the soil is well adapted. A roadway stretching up the hill nearly a quarter of a mile long is planted on either side with broad masses of them, and one familiar with these plants when in a flourishing condition can imagine the striking display which they make in April, May, and June. *Rhododen-*

drons, grown largely from layers as well as grafts are represented not only by the good old named kinds and many distinct species, but by numbers of seedlings of a free flowering strain, many of them beautifully fringed, others with telling spots or blotches. The hardy *Everestianum* as a parent has left its stamp upon many of these. *Azaleas*, *Ericas*, *Gaultherias*, *Andromedas*, &c., may be seen in all sizes, a considerable area being devoted to the layering of these, as well as to that of other plants. *Azalea mollis* is so much better on its own roots, free from troublesome suckers, than in any other way. A portion of this nursery on the top of the hill is still called the forest, reminding one of the character of the place when the persevering founder of the firm commenced business here some fifty years ago. The stock on this part is divided into broad belts, with roadways along the centre, and is sheltered by capital Hornbeam and Beech hedges, some 12 ft. high. A large breadth of purple Beech of all sizes is very conspicuous. From this spot many charming views may be obtained, the outlines of the specimen *Coniferae* below standing out well against a pretty peep at Tunbridge Wells, with its picturesque common and scattered villas, and beyond is that range of chalk hills known as the backbone of Kent. Southwards the broken country is enriched by the wooded estate of the Marquis of Camden, and in that direction lies the Sussex Weald. Where the Frant Road dips away to the south a large portion of ground has been broken up for nursery purposes; here on a cool moist bottom are grown *Irises*, *Pampas Grass*, and other plants of a similar description. Even small plants of *Picea ajanensis* are here coning freely; large numbers of seedling Clematises are on trial, and prominence is here given to Mr. Cripps' other specialities.

W. T.

NOTES OF THE WEEK.

TRANSPARENT GAGE PLUM.—Of this delicious Plum—one of the finest of all dessert sorts—we have received some admirable fruits from Messrs. Elsdon, The Vineries, Milton, Cambridge, who state that they were gathered from pot plants grown in a cool orchard house. They say also that several of their trees have borne this year from fifteen dozen to twenty dozen fruits as fine as those sent, but even these are not so fine as they had earlier in the season. Whether grown in an orchard house, or against an open wall, this fine Plum is always good. Its fruit is round, larger than the Green Gage, and has a thin, transparent, pale yellow skin speckled with violet. The flesh is honey-coloured, firm, juicy, and delicious.

TREE AND SHRUB MUTILATION.—This is bad enough every year about Christmas time, and many near large towns have to deplore the loss or at least mutilation of choice trees and shrubs about that season, but to encourage mutilation by offering special prizes for cut shoots, as at South Kensington the other day, seems to us most unwise. It is doubtful if any good whatever can result from such exhibitions, even if confined to deciduous trees, but when it comes to lopping off large boughs of choice conifers for the sake of a small money prize it amounts to little short of vandalism. In one of the collections shown the other day there were branches of *Picea nobilis* and of *P. Nordmanniana* bearing several cones, to cut which from the trees must necessarily have injured their appearance. Happily, till this year the prizes offered for such exhibits have not been competed for, and this year but three collections were shown. The largest of the specimens exhibited failed to convey an adequate idea of the character of the tree or shrub from which they were cut, though large enough to permanently destroy symmetrical growth.

THE LATE DR. LUCAS.—It was with much regret that I saw the death announced of Dr. Lucas, director of the Rentlingen Pomological Institute. It is probable that no single individual has done so much to foster the almost reverential love with which South Germans regard the Apple.

Situated in the heart of an Apple growing country, the Rentlingen Institute was resorted to by a large number of young men desirous of acquiring a practical knowledge of hardy fruit culture; indeed, a Wurtemburger would hardly consider himself entitled to the name of Pomolog (this, by-the-way, does not mean pomologist, but is a title given to such as undergo a special training for and follow up hardy fruit culture) without having passed three years at Rentlingen. The good practical instructions given at Rentlingen have borne fruit not only throughout Germany, but in more distant lands, especially in America, where I have reason to know the lessons learnt under Dr. Lucas have been well practised. His fame was so great as to draw to him students from far-off climes; as, for example, from France, Italy, America, Russia, and even from Japan aspirants for cultural knowledge in hardy fruit culture made their way to the establishment so ably conducted by him. Those who have travelled in Wurtemberg, especially in that portion running southwards in the direction of Tubingen and Rothweil towards the Black Forest, will have been struck with the excellence of the roads there and the number of admirably cared for fruit trees bordering them. The roads and fruit trees are under the care of the same individuals, who, to qualify themselves, must pass a preliminary examination in fruit culture and a probationary term at Rentlingen. Hence the reason why both roads and trees are so well cared for; and well would it be for us if a few such places as Rentlingen were established in this country.—J. CORNHILL.

AUSTRIAN GARDENERS.—There is at present in London three young Austrian gardeners, Messrs. Kropatsch, Ehrlich, and Vesely, foremen in the Imperial Gardens at Vienna, sent by the Austrian Government on a tour of two months' duration to visit some of the principal gardens in this country and on the Continent. They have already visited the principal parks and gardens in South Germany, Belgium, and North France. After visiting the gardens in the neighbourhood of London and some of the best in the provinces, they return, *via* Hamburg, to see the gardens in North Germany, and thence home. All their expenses are defrayed by their Government. They have an official programme of the places they are to visit, and each will give a report of what he has seen with regard to horticulture. Such State aid must necessarily advance the interests of horticulture in Austria. Would that English gardeners who, as a rule, seldom travel beyond the British Isles, could be so assisted in perfecting their horticultural training.

SUB-TROPICAL PLANTS in the London parks this season are a failure compared with the fine growth which they make in favourable years. We allude more particularly to the annual plants, such as *Ricinus*, *Wigandia*, *Polymnia*, *Nicotiana*, none of which have attained as yet more than half their proper dimensions. Cannas, too, have scarcely made any growth, and the majority of other things turned out from their warm quarters under glass wear a forlorn aspect. On the other hand, the season has been highly favourable for plants of a hardy herbaceous character, and never have we seen such fine *Funkias*, *Polygonums*, and *Arams* as there are in Battersea Park.

DR. PATERSON'S ORCHIDS.—We learn that a portion of Dr. Paterson's fine collection of Orchids at Bridge of Allan will be disposed of by auction in Edinburgh on the 14th September. It appears that the houses at Fernfield are getting too crowded, a natural result of skilful cultivation. Some of the specimens to be sold represent some exceedingly choice varieties.

LA SEMAINE FRANCAISE, a Weekly Newspaper and Review in French for the United Kingdom—Politics, Literature, Science, Art, Society, Theatre, Music, Education, Varieties, the best Novels. For all who read or study French, or who wish to preserve their knowledge of it through the best French of the day, **LA SEMAINE FRANCAISE** is a complete résumé of the literary, political, and artistic world on the Continent. "Will be highly valued in households where French is cultivated."—*Queen*. Price 3d.

PROPAGATING.

Daphne indica.—Both the red and white varieties of this fragrant greenhouse shrub may be increased either from cuttings or by grafting on the common Spurge Laurel (*Daphne Laureola*). Where but few plants are required the former method is generally followed, but where large quantities are grown for sale the latter is then resorted to. The cuttings should be made of the young growth just as it commences to become woody, that is, when it is no longer so succulent as to snap if bent. The great point is to catch the cuttings just in a favourable condition, as if too soft they speedily decay, and when too hard they stand a long time in the cutting pots without rooting, and many are lost before that takes place, while those that do root are so weakened by long confinement that they seldom grow away freely afterwards. In choosing the cuttings, those are to be preferred in which the young growth is of a convenient length for the purpose, as when such is the case the shoot can be taken off at its very base, a part more favourable to the production of roots than the top of the shoot. If the entire growth is of an inconvenient length, the cutting will be found to root better when a slanting cut extending about half an inch is made than if taken off horizontally. Four-in. or 5-in. pots will be found to be suitable for the insertion of the cuttings; they should be half filled with broken crocks—coarse at the bottom and fine towards the top. A peaty soil is the best; a mixture of about two parts peat to each one of sand and loam makes a very suitable compost. The whole must be sifted fine and pressed moderately firm, leaving just space enough for a layer of sand on the top. Do not remove more leaves from the cutting than is absolutely necessary, yet enough must be taken off to prevent any being buried. Be careful to secure the base of the cutting; otherwise it will remain a long time without rooting and often instead of that taking place will shrivel up and die. After the pot is filled give a thorough watering—enough to cause the sand to form a smooth and even surface; then put all into a close case, the temperature of which should be slightly higher than that in which the plants have been growing. If the ordinary routine of shading, watering, &c., is followed a good measure of success may reasonably be expected; that is to say, but few deaths will be recorded. When rooted harden off by degrees and pot into small pots when ready. Care must be taken in potting, as the roots are brittle and so sparingly produced that if any are broken a severe check is sustained. In grafting, the best stocks are young seedling plants established in pots, and the scions young shoots as for cuttings. Graft as low as possible in order that when potted the union may be kept down out of sight; place them when grafted in a close case as for cuttings.

Andromeda japonica.—This pretty little shrub, which promises to be so great a favourite, possesses one great advantage over many of the *Ericaceae*, and that is cuttings of it root freely. A method which I have adopted with complete success was as follows: Having some small bushy plants in pots, I placed them in spring in an intermediate house with this result, that they were quickly covered with young shoots. As soon as these had acquired a slight degree of firmness I took them off and put them in a case in the propagating house kept at a stove temperature. In about a month they were finely rooted, the losses being not more than 5 per cent., a very satisfactory average for that class of plants. If out-of-doors, the cuttings should be taken when the young growth is in about the same condition as that just named, but they must not be put in such a high temperature as that recommended. In this case the best way is to place them in a cold frame, which should be kept close till they are callused, when a little heat will assist their rooting. To the first method, however, belong many advantages; not only is a greater percentage of cuttings struck, but when put in so early they make good little plants the first season. Clean, well-drained

pots are essential, and I find the best soil to be fine peat with a liberal admixture of sand—say about a third. T.

SOCIETIES.

ROYAL HORTICULTURAL.

AUGUST 22.

THE chief exhibits of interest on this occasion were the large collections of single Dahlias, Balsams, Gesneraceous plants, and the collections of cut specimens of ornamental trees and shrubs shown in competition for special prizes.

First-class certificates were awarded to

LILIUM SPECIOSUM MELPOMENE, a splendid variety, finer even than *Rubrum verum*. The outspread flowers measure fully 8 in. across; the petals broad, and of a beautiful deep rosy crimson margined widely with pure white, and are copiously spotted with the deepest crimson. The growth is stout and robust, the leaves being as much as 3 in. broad. It was shown by Mr. G. F. Wilson, Heatherbank, Weybridge, who received it from the raiser, Mr. C. M. Hovey, Boston, Mass., to whom the certificate was awarded.

CARNATION MARY MORRIS.—A beautiful border variety of vigorous growth; the flowers large and full, the petals of good substance and of a lovely rose-pink, very pure and bright. The plant shown bore an abundance of flowers and buds, and had been grown in the open air by the raiser and exhibitor, Mr. H. G. Smyth, Coal-yard, Drury Lane. It was certificated as a decorative variety.

Other exhibits included a fine stem of the white album variety of *Lilium speciosum* from Mr. G. F. Wilson's garden, where it had been grown in a pot. The stem was fully 5 ft. high, and bore seven flowers and buds of the purest white, barred with green down the middle of each plant.

A very fine variety of *Celosia* called *Crimson Superb* was shown by Mr. Woodbridge, Syon House, Brentford. It grows about 18 in. high, forming a symmetrical pyramid, each branch being terminated by a cluster of feathery blossoms of the richest crimson. The stems and stalks, too, partake of the crimson hue. It is one of the finest varieties we know. A vote of thanks was accorded to the exhibitor.

Some half-a-dozen well-grown dwarf Cockscombs, with combs about 9 in. across, were shown by Mr. Young, gardener to Captain Patton, at Alpha House, Regent's Park, also a plant, bearing several flowers of the rarely seen *Lisianthus Russellianus*. The deep mauve of the large flowers combined with the glaucous grey hue of the foliage renders it a very beautiful plant.

A collection of single Dahlias, numbering upwards of 500 blooms, was shown by Mr. T. S. Ware, Hale Farm Nursery, Tottenham. The majority were named varieties, representing a marvellous range of colour—white, crimson, pink, yellow, red, magenta, and a variety of intermediate shades and mixtures. The lovely *White Queen*, the best white yet raised, was shown finely, better than we have yet seen it. Among other named varieties were *Ruby*, *Beauty of Cambridge* (deep crimson), *Cuprea* (copper coloured), *Aurantiaca superba*, *Pantaloon*, *Ascalon* (crimson-magenta, very fine), *Mauve Queen*, *Rob Roy* (scarlet), *Yellow Queen* and *Lutea grandiflora* (the best yellows), *Albion* (brilliant crimson), *Stars and Stripes*, a singularly striped and spotted sort. The almost black flower, *D. Zimapani*, was also shown numerous and well. Mr. Ware also showed a basketful of plants of *Eulalia japonica zebrina*, a most graceful Japanese Grass, with its leaves transversely barred with creamy white and green.

The new white Rose, *White Baroness*, was shown by Messrs. Paul, Old Nurseries, Cheshunt. Each of the dozen blooms shown bore out the high character of the Rose. It is large and full, of excellent form, white, suffused with a delicate shade of pink; early in the summer, however, it is pure white. It is a distinct Rose, and one that must become as popular as the favourite variety from which it sported, the well known *Baroness Rothschild*.

A dozen blooms of African Marigolds, lemon and orange, came from Messrs. Cannell & Sons, Swanley. All were extremely fine, being very large and perfectly globular. A new white Lobelia, named White Emperor, a dwarf compact sort with pure white flowers, came from Messrs. Brown, Stamford; and a purple flowered Lobelia of the cardinalis type was shown by Mr. Grimshaw, Balham. It seems identical with *L. Milleri*, a very old variety.

A pretty collection of Sweet Peas, Pansies, Carnations, and Picotees came from Mr. Eckford, Boreatton Park, Shrewsbury, all of which were good for the season, particularly the Sweet Peas, which represented some new colours, those named Duchess of Albany, Lottie Eckford, and Grandeur being specially noteworthy.

A large collection of double-flowered Balsams was shown by Mr. F. Smith, Dulwich, every variety of which were perfection as regards size, compactness of flower, and variety of colour, maintaining the high quality of this nurseryman's strain. A vote of thanks was accorded to the exhibitor.

FRUIT.—Some new Melons were shown by Messrs. Cheal, Lowfield Nurseries, Crawley. These were named severally Crawley Paragon, Shepherd's Model, and Excelsior. The two last were large and oval fruits. The Paragon, a round scarlet-fleshed variety, is of delicious flavour, one of the finest we know. The committee considered it of "very good flavour, similar to Turner's Scarlet Gem, probably the true old sort." Fruits of a seedling Raspberry were shown by Mr. Faulkner, Inkpen, Hungerford; the variety was pronounced inferior in size and flavour.

Messrs. Rivers & Son, Sawbridgeworth, sent a collection of seedling Nectarines, including Newton, Byron, Dryden, Chaucer, Rivers' Orange, and Lord Napier. They were considered deficient in flavour, and tasted of the packing material—old Moss. Two Pears, Beurré de l'Assomption, a handsome large early variety, and Clapp's Favourite, of no flavour, were also shown by the same exhibitor.

Some two dozen very fine fruits of a seedling Tomato were shown by Mr. J. Moore, gardener, Bray Court, Maidenhead, to whom a cultural commendation was accorded. The committee considered the variety a very fine strain of Excelsior.

A seedling Potato (Fidler's No. 1) was shown by Mr. Fidler, Friar Street, Reading. No comment was made respecting it, as it is now being grown at Chiswick, and will come before the committee there. It is a large white tuber, rather flat in shape.

SPECIAL PRIZES.—The two prizes (£2 and £1) offered by Messrs. Ewing, Eaton, Norwich, for cut shoots of two dozen ornamental trees and shrubs were competed for on this occasion. There were but three collections shown. Mr. Harding, gardener to the Dowager Marchioness of Huntly, Orton Hall, Peterborough, was first, and Mr. Moorman, gardener to Miss Christy, Coombe Bank, Kingston, second. The other collection was shown by Mrs. Hardie, Mayfield, Falkirk.

The first collection consisted of fine branches of *Wellingtonia gigantea*, *Picea amabilis*, *P. nobilis* (with cones), *P. Pinsapo*, *P. grandis*, *P. bracteata*, *P. lasiocarpa*, *P. Nordmanniana* (with cones), *Taxus baccata aurea*, *Thuja borealis*, *T. gigantea* (Lobbi), *Abies Smithi* (Morinda), *Cedrus atlantica*, *Cupressus Lawsoniana* and variety *aureo-variegata*, *Torreya myristica* (with fruits), *Thujopsis dolabrata*, *Pinus Montezumae*, *P. Mugho*, *Buxus sempervirens aurea*, *Berberis japonica*, *Silver-leaved Holly*, and *Aucuba*.

The second best collection was admirably arranged in bottles, which added much to its appearance. There was more variety in this collection than in the other not so many conifers, but the specimens were not so fine. The most noteworthy were *Berberis trifoliata* (named *mucronata*), *Taxus adpressa*, *T. baccata aurea*, *Comptonia asplenifolia*, *Rhus Cotinus*, *Azara microphylla*, *Abies polita*, *A. Albertiana*, *Larix Kämpferi*, *Garrya elliptica*, *Prumnopitys elegans*, *Retinospora filicoides*, *ericoides*, *obtusata aurea*, *plumosa*

aurea, *Cupressus Lawsoniana gracilis*, *Hollies*, *Oaks*, &c.

The Scotch collection was a very large one, numbering nearly 100 different kinds, but the specimens were individually poor, so much so that in some cases one could scarcely recognise the variety. The long journey, too, and the early date at which the shoots were cut, no doubt added to their deterioration. Judging by the specimens shown, there must be a very rich collection of ornamental trees and shrubs at Mayfield, and the exhibitor was wise not to mutilate the specimens for the sake of gaining a small prize. It was stated that every specimen shown had withstood 14° of frost. The variegated and coloured foliaged deciduous trees and shrubs predominated in the collection, though there was also a rich collection of *Coniferae* shown.

MEETING AT CHISWICK.

AUGUST 16.

THE FLORAL COMMITTEE inspected the collections of *Achimenes*, *Tydas*, *Verbenas*, *Heliotropes*, &c., when the following awards were made. The names of those varieties to which an asterisk is affixed were granted first-class certificates, the others, not in italics, being recommended as worthy of culture.

VERBENAS.—**Phlox* (Cannell & Sons).—Plant of fine vigorous growth, very free flowering; the trusses of medium size; flowers large, rosy crimson, with mauve ring round distinct white eye. **Auguste Reuz* (Cannell & Sons).—Free habit, free flowering; the trusses of medium size; flowers rosy scarlet with distinct yellowish eye. A showy variety. **Kentish Beauty* (Cannell & Sons).—Plant of vigorous growth, free flowering; trusses and flowers large, well displayed, of a beautiful rosy claret, with pure white eye.

AGERATUM.—**Malvern Beauty* (Cannell & Sons).—Close compact growth, free flowering; the flowers well displayed, pale blue. A fine variety.

IVY-LEAVED PELARGONIUM.—**Rossini* (Lemoine).—A free-growing variety. Stem short-jointed; the trusses of medium size; individual flowers very large, of a beautiful magenta-scarlet. A very fine addition to the single-flowered section.

HELIOTROPES.—**Bouquet Perfume* (Lemoine).—A dwarf and compact free-flowering variety; the trusses large, well displayed; flowers dark lilac blue. A good variety for pot culture. **Madame P. Athles* (Lemoine).—Vigorous habit, free flowering; the trusses large and well displayed. Dark blue.

PENTSTEMON.—**Virginalis* (Lemoine).—A variety of fine free habit with pure white flowers.

TROPÆOLUM.—**Bedford Rival* (Dean).—A fine free-flowering variety, with flowers of an intense orange-scarlet colour.

ACHIMENES.—The collection includes about a hundred sorts, from which the following were selected as the best in their respective classes, and received three marks of merit: *Margaritæ* (Vallerand).—Pure white, fine, large flowered. Good habit. Mauve Queen (Vallerand).—Mauve, with orange-spotted eye; tube shaded orange. *Longiflora macrantha* (Vallerand).—Pale blue; tube shaded orange; large showy flowers. *Longiflora* (Vallerand).—Blue; more compact in habit than the above; leaves reddish beneath. Mauve Perfection (Vallerand and Van Houtte).—Mauve purple, veined with crimson; fine large flowers; very free. This was received from Van Houtte under the names of *Cassiopée* and *Mauve Perfection*. *Ambroise Verschaffelt* (Vallerand).—White, shaded mauve, deeply veined with purple; lemon, eye. From Van Houtte under the name of *Diamond*. *Sir Treherne Thomas* (Vallerand and Van Houtte).—Rosy purple, with orange-spotted eye; leaves reddish beneath. *Floribunda* (Vallerand).—Deep violet-purple. Very dwarf. *Carl Wolfarth* (Van Houtte and Vallerand).—Violet-purple; pale yellow eye, spotted with red; very free flowering. *Frau Schiller* (Van Houtte), *Pink Perfection* (Van Houtte), and *Baumanni* (Van Houtte) are the same as the above.

Diadem (Vallerand).—Bright rosy scarlet; yellow eye; lobes of flower serrated. *Unique* (Vallerand).—Bright magenta; orange-spotted eye. *Firefly* (Vallerand).—Bright scarlet with orange eye.

The following received two marks of merit: *Celestial* (Vallerand).—White, slightly veined with mauve; mauve eye. *Cherub* (Vallerand).—White, with mauve eye; dwarf habit; leaves brownish beneath. *Dentonia* (Vallerand).—Pale mauve with purple veins. *Longiflora picta*.—Rosy lilac; large flowers. *Tubiflora* (Vallerand).—Copper-red, with orange centre; long orange tube. *Georgiana* (Van Houtte).—Bright scarlet; orange throat; long open tube, and small lobes. *Dr. Hopft* (Vallerand).—White, with mauve centre. Dwarf and very free flowering. *Ami Van Houtte* (Vallerand and Van Houtte).—Deep violet-blue; throat yellow, with dark spots; leaves pale green. *Liebmanni* (Van Houtte).—Mauve-purple, shaded with white in centre. *Grandiflora* (Vallerand).—Rosy lilac, white centre. *Masterpiece* (Vallerand and Van Houtte).—Violet-purple; white throat; large brownish leaves. *Admiration* (Vallerand and Van Houtte).—Rosy purple; whitish throat; rough brown leaves. *Hofgartner Neuner* (Van Houtte).—Magenta-rose; orange-spotted eye. *Dazzle* (Vallerand).—Bright orange-scarlet; small yellow eye. *Hofgartner Wendscanch* (Vallerand and Van Houtte).—Violet-purple; small flowers; compact habit.

The two following *Gesneraceous* plants were also regarded as meritorious: *Rosonowia ornata* (Van Houtte).—Creamy white covered with rose lines on the tube and on the two superior lobes; interior striped with purple. *Gesnera macrantha* (Van Houtte).

TYDEAS.—**Cybèle* (Vallerand).—Soft rosy carmine; lobes spotted and striped with crimson. **Magician* (Vallerand).—Deep orange-scarlet; lobes spotted and striped with deep crimson. *Chiron* (Vallerand).—Bright scarlet; lobes spotted and striped with crimson. *Harlequin* (Vallerand).—Tube purple; lobes greenish yellow, heavily spotted with purple. *Venosa* (Van Houtte).—Tube red; lobes soft carmine, spotted and striped with red.

Books received.—"Transactions of the Massachusetts Horticultural Society, Boston." "New Commercial Plants and Drugs," Christy & Co. "Essay on the Pelargonium," by C. E. Pearson, Chilwell.

Waterproof ink.—We have received a sample of this ink from Messrs. Fisher, Clark, & Co., Boston, Lincolnshire. It is jet black, and stands wet well; even after immersion in water it does not rub off. It will therefore be useful for writing upon labels exposed to the weather.

Catalogues of bulbs have been received from James Veitch & Sons, Chelsea; W. Cutbush & Sons, Highgate; Little & Ballantyne, Carlisle; William Paul & Sons, Waltham Cross; Strike & Hawkins, Middlesborough; B. S. Williams, Upper Holloway; J. S. Ware, Tottenham (Bulb Guide); Dicksons & Co., Edinburgh; Haage & Schmidt, Erfurt (General Bulb List); A. A. Henry, Hounslow; R. J. Wood, Haverstock Hill; Sutton & Sons, Reading; E. Webb & Sons, Wordsley, Stourbridge; Dickson, Brown, & Tait, Manchester; Robert Veitch, Exeter; J. Dickson & Sons, Chester.

Names of plants.—*Miss Howes*.—*Asclepias incarnata*.—*M. S.*—*Echinops exaltatus*.—*S. Owen*.—*Peperomia arifolia*.—*G. J.*—1, *Cichorium spinosum*; 2, *Galium purpureum*; 3, *Tenacium polium*; 4, *Aster cordifolius*. All South European plants.—*Mac*.—*Epilobium hirsutum*. Species of *Agrostis*.—*F. R. M.*—1, *Filago germanica*; 2, *Calamintha acinos*; 3, *Epipactis latifolia*; 4, *Agrimonia eupatorium*.—*E. Molyneux*.—1, *Euphorbia cyparissias*; 2, *Lilium tigrinum splendens*; 3, *Sidalcea oregana*; 4, *Matricaria inodora fl.-pl.*; 5, species of *Artemisia*; 6, *Aconitum autumnale*.—*W. B. H.*—*Salvia glutinosa*.—*Old Sub.*—1, species of *Populus*; 2, probably *Kœlreuteria paniculata*; 3, *Acer Negundo variegata*; 4, *Symphoricarpos racemosus*; 5, *Retinospora squarrosa*; 6, *Arabis albidia*.—*Rudbeckia laciniata*.—*T. M. W.*—*Teconia radicans* (perfectly hardy in England and Ireland).—*P. N. F.*—next week.—*S. S. J.*—1, *Jasione montana*; 2, cannot name.—*T. W.*—1, *Scabiosa pteroccephalus*; 2, *Nicandra physaloides*.—*G. F. (Beeston)*.—*Veronica virginica*.—*S. W. C.*—*Valeriana*.—*Mrs. Newton*.—*Linaria anticaria*.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

SOME "GOOD THINGS."

MR. BURBIDGE invites mention of some "good things" in your columns. I shall venture to act on the lines he has marked out. I only feel that on such a subject as this it is difficult not to run on to excess. There is doubtless a tendency to effusiveness in some of the panegyrics where our favourites are concerned. But how can it be helped? When you have watched over a plant for four or five years, and guarded it from the cold, and it may be from the heat, and it turns out after all better than the wildest dreams which you had about it, what wonder is it if you sing its praises in rather a loud refrain? It is easy to be modest where only herbaceous "rubbish" is concerned, but the contrary is the case when some floral idol is worshipped.

Ipomœa pandurata.—Of good things, then, which have been very lately in blossom, or are in bloom now with me, I place at the head of the list this North American plant. I am unfortunately away from home just at present, so I cannot go round my garden and see with my own eyes how it is getting on, but I know from past experience that if the summer be hot it is an exceptionally beautiful climber, and it is at its best in August and September. The only drawback to it that I know of is that it does not like overmuch rain; in a wet season it seems to contend with the elements for two or three weeks, and then to give up in despair, but when we have a dry and hot summer it is a glorious sight. *Ipomœa pandurata* was sent to me by Mr. Falconer, of Cambridge, Mass., U.S.A., and its arrival marked a red-letter day in my calendar. Its large bells, of the purest white, have an eye of deep purple, which serves to accentuate the whiteness in which it lies embedded. It is true that comparisons are odious, and it is especially the case about flowers, but they may now and then be pardoned, and a comparison will set forth its excellence more than anything else. For years I have thought that a large white *Convolvulus* which covers the porch of my house and runs riot over an arbour, festooning it everywhere, was quite unapproachable. In its own line it was king, and many are the encomiums which have been passed upon it, but you would not look on the *Convolvulus* when the *Ipomœa* has its way. It seems to lack lustre, and to be quite cold and tame by the side of its congener. I never knew anything to be so completely put out of court before, and I almost grieve over the dethronement of a very old favourite. But the hard fact remains, and it tells me how to appraise my gains from America. This *Ipomœa* has a large tough root, which very much increases through age; it year by year becomes stronger, and in the course of five or six years there will be a possession in my garden even better than what I have now.

Vitis humulæfolia.—This is the second thing about which I could rave. I cannot imagine why this is not more commonly grown. It came to me from Newry, and a better investment of 5s. was never made than for it. I refer, of course, to the clusters of sky-blue berries, which put all other berries to shame. A comparison, again, may assist

me. Mr. Burbidge makes mention of the berries of a glossy purple hue of *Billardiera longiflora*, and very pretty they are. But by the greatest ill-luck *Billardiera* is next door with me to my blue-berried Vine, and the one completely kills the other. Its very name is not mentioned by anyone. I sent a tinfal of these beautiful Grapes some few years ago to an accomplished artist, and his words of admiration were far beyond mine. He simply said it was the handsomest garden product he had ever beheld. This may be a trifle too much in the way of praise, but I should agree with him if he had said that in the way of berries they are quite unsurpassed. A bright summer is wanted for the Vine to do well. The year before last the spectacle it afforded left nothing to be desired. Last year I counted my chickens before they were hatched, and, metaphorically, I had not many chickens to boast of. The deluge in July and August, which ruined the farmers, worked a lesser ruin for me. My Vine looked out of spirits, and its clusters of berries were intermittent and few. I am, moreover, not sure that the colour was quite so good as before. I am very curious to know what state of things I shall find on my return home this autumn. All looked well with the Vine a few weeks ago. Let me just add that it strikes very easily towards the end of the month of January, and I believe I have some five or six rooted cuttings which I shall be pleased to give away to anyone who applies for them.

Mandevilla suaveolens.—A third cause of rejoicing is this beautiful climber. This blossomed towards the end of July. By taking good care that the young plants are strong and healthy, by planting them out in April, so that they may have time to become established before winter sets in, and by binding the stems tightly round with list when they are first exposed to frost, I have managed to bring five out of seven of these deliciously fragrant and pure looking shrubs out of the reach of all danger; and I hope to have the south side both of my church and my house embowered in *Mandevilla* before very long. The specimens I have alluded to can now, I believe, quite take care of themselves, and no further trouble is needed for them. I only wish that this experiment were repeated all over the Undercliff. *Mandevilla suaveolens* ought to be as common there as a Passion Flower, and no greater ornament could be found for it. But good things would call for a long enumeration just now, and I must draw to a close. Of veritable gems

Oxalis lobata takes precedence with me at this season of the year. A plant may be very good, but I scarcely call it a gem unless it be of a rather diminutive size and of a somewhat sparkling appearance. Just such an one is this bright little thing. It glitters in the border on some fine September day; you could not possibly fail to notice it; its foliage is of the brightest emerald green, and the blossoms are golden. The gold, however, is surrounded with emeralds, instead of the emeralds being set in gold, and in this respect it differs from jewels. This *Oxalis* is perfectly hardy, and I therefore am surprised that it so seldom finds its way into trade catalogues and good collections of plants, and even the pages of THE GARDEN seem to know it not. I believe it is at home at Bitton, and old Wheeler, of Warminster, sold me a plant some time ago for a shilling, but if it had not been for these two sources I should never have heard of it.

I will but mention the names of *Hedychium Gardnerianum*, *Milla biflora*, *Exagonium Purga*, *Ismene calathina*, *Bouvardia splendens*, and *Zephyranthes carinata*, all of which either have been lately or are now in blossom with me. I feel sure, also, that if I were at home some other "good things" would start up before my eyes, and I should wonder that they had been forgotten. To the climate and my surroundings in the Isle of Wight I owe it entirely that so many things do well with me. A short stay in Yorkshire more than ever convinces me that the island is a real home for flowers. When I find *Iris susiana* almost sulking in the garden of Sir Charles Strickland at Hildenley, and *Rosa rugosa* in difficulties under Mr. Wood's care at Kirkstall, and *Campanula Allioni* just condescending to live, but not to blossom with Messrs. Backhouse at York, I see, indeed, that I have much to be thankful for at Ryde, but I should be very glad to put up with herbaceous "rubbish" if I could grow nothing else.

HENRY EWBANK.

SELECTION, OR NOT SELECTION.

THE opening admission of "J. D." that rubbish is only so because it happens to be in the wrong place, goes nearer the mark than anything that has been said before. There has been far too much black-balling of good plants lately, and it is quite time that something was said on the other side. Once the high censor sets the ball a-rolling by sending this plant to the right-about—that to the rubbish heap, another to the back of a ditch, a wet country lane, the wild wood, and so on, he will soon have plenty to follow him. And so the tale goes on until the folly is consummated by some one or other sending such a fine plant as *Campanula Van Houttei* to perpetual banishment because forsooth its flowers don't stand up. Could folly farther go? It is of course open to anyone to like certain plants to the exclusion of others, but this does not make those others bad. My dictum is, there are no common plants, and I use the expression in its fullest and widest sense. "J. D." is fairly right when he makes it merely a matter of arrangement so placing each plant that one sets off another. Just so. It has yet to be shown that in a well-arranged garden any and every plant may be made to tell; a tuft of Grass, a common Rush, or even a Rag weed, for each one a position might be found and in which it would be effective; and I know cases where these things are all worked in with excellent results. [Not a line to be drawn at Ragwort even! Well, if we must use such "stuff" in gardens, where are our eyes to miss it in every neglected field, bank, or hedge-row? Is a garden to be given to the plants that Nature gives us everywhere around us in the fields or ditches?—ED.] But it is also a question of space and numbers. Where the room is limited and the taste runs in the direction of the greatest number and variety, as a matter of course such fine things as *Polygonum Sieboldi*, *Silphium perfoliatum*, *Astilbe rivularis*, *Hemerocallis fulva*, *Lupinus polyphyllus*, *Heracleum eminens*, *Lathyrus grandiflorus*, *Telekia speciosa*, and even the *Ferulas* must be excluded, and yet with a little judgment it is astonishing the number of plants one can accommodate in even a small garden. Again, individual taste runs in so many directions; one has a strong penchant for the curious and by no means sweet-smelling Arums; another is content to have Pansies in plenty; and a third, could he have a Carnation for his button-hole every day in the year, would consider he had attained to the very topmost height of floricultural happiness. In the face of this is it not absurd for any man or number of men to presume to dictate to the rest what shall or shall not be admitted to a garden? [It is about as absurd as to over-praise a number of plants of no real use to the gardening public. Nurserymen and amateurs are quite right to grow

what they like; and we, who have gone further than any others in pleading the charms of variety, are too ready perhaps to welcome and to praise anyone who, like the late Mr. Joad, makes a full collection of plants. Our gardens benefit by it. But we have other interests than those of specialists and nurserymen, and we mean to protect them. We every day see and hear proofs of the useless plants that are sold to the public, and we know well that the cause of good gardening is impeded by this, and by the poor weak plants which are sent out.—ED.]

In a garden of even moderate dimensions all those plants named above, and every one of those recently anathematised, could find a suitable and effective position. I often think that the censor, in order to get rid of the difficulty (in his case) of finding suitable positions, simply gets rid of the plants, and, besides, he is not always consistent. Even here the Michaelmas Daisies are sent off *en masse*.—[Not so; they have been much praised—the good kinds, and a number of them drawn and engraved for THE GARDEN]—and in another place probably he has admitted that they are amongst the very few things that succeed well in confined town gardens; and really if you shut out such things as these, German Iris, Tussilago fragrans, and a few similar things, what would you have in the same gardens? There is, however, a good deal to do before the whole subject of hardy plants is made plain. What is required first of all is that gardens shall be laid out in a more natural manner than hitherto. I know of nothing more difficult than to make the ordinary straight and stereotyped herbaceous border “always gay,” and I am almost tempted to say that it cannot be done. I have mended, and packed, and patched at the same thing, and know others who are doing it, and their complaint is that they “cannot fill it,” do what they will. First of all the straight walks must go, followed closely by the orthodox Box and other prim edgings; let your walks, instead of being evenly defined, meander as it were through the plants; place along the margin Sedums, Saxifrages, dwarf Phloxes, dwarf Heaths, Veronicas, Arabis, Armerias, Aubrietias, Primulas, Iberis, Gentiana, Violas, Vincas, Sempervivums, Helianthemums, Arenarias, and hosts of similar things. Place them so that they will grow into each other and to some extent over the walk. You may put first a few stones if you like, but it is not important. In the arrangement have an eye to the natural vigour of each subject, and do not plant two vigorous things on opposite sides; plant a moderate grower opposite a strong one, and so on. This forms by-and-by a beautiful carpet, through which your walk winds. Now here from a low growth of Sedum a Fern may spring; there from a Saxifrage a Hypericum rears its head. Again, from an Arenaria, Dactylis variegata springs, and so on. Some of these may grow even from the walk itself; then, with the borders behind, some shrubs should be first of all introduced; then the bottom should be paved with bulbs, and then comes the general arrangement, and this is where another departure has to be made. To my mind no greater mistake is ever made than in the advice, so generally given in arranging herbaceous borders, to put all the tall growing things at the back, then the next and the next, and so on until you have the shortest at the front. Of course if you wish for some special effect, if you desire to imitate closely the ordinary parterre and see all your border or borders from one end at the same time, then the old advice must be followed; but if you wish your border to be a succession of interest at every step, if you wish to make it quite impossible for your visitor or even yourself to pass along without stopping frequently to admire the numerous glades and pretty effects it is quite possible to produce, then, as I said above, make a departure. I think it a mistake to plant things of great beauty or interest at the back of the border simply because they happen to grow tall. Having your charming edgings that will by-and-by group themselves into the most natural and beautiful pictures, begin the filling up by placing close to the margin such things as Eryngium amethystinum, Centaurea babylonica, Helianthus giganteus,

Lilium superbum, &c., at irregular intervals, and to grow, as it were, out of the edging; then plant your other tall things so as to form dells and hollows, in and around which the medium and dwarf subjects may be grouped. It is next to impossible to lay down accurate instructions on this head, as the selection of plants would be almost certain to differ in every garden; but hardy plants are such accommodating subjects, that if one gets wrongly placed, it may be moved almost at any time of year. In the ultimate arrangement the periods of flowering have to be known, so that a regular succession of flowers and beautiful greenery shall girdle the year round, and be spread evenly over the whole garden.

One of the most noticeable features about this style of gardening is the few flowers which produce a sufficient effect at any given time; anything like a blaze is never wanted. At one time a single towering white Foxglove may be the most noticeable feature of the whole garden, simply because it is properly placed. At another the whole place is illuminated by half a dozen rosettes of Meteor Marigold; and not because they are the only flowers, but because they occupy a position that catches the eye, and they are enough of their kind in such a garden. There should be no large masses of colour, no repetition, but variety of kind and variety of arrangement should exist everywhere; no sameness anywhere. Yes; “J. D.” is quite right; we may have Pansy glades and Rose or Clematis walks. I have seen the former, and wonderfully fine it was; but when he speaks of a winding walk, with 30 ft. or so of sloping ground on each side planted with Pansies, he is going at big things. Such a walk in order to look regular would have to be many times its width in length, and so would soon cover as much ground as many a garden does altogether. No doubt there is much room for improvement in even very large places, but Pansies on such a scale bring us right back again to the “bedding out,” and I think that something very much better could be done with the Pansies even here. I take it that the selection of hardy plants is mainly directed to assist amateurs, owners of small gardens, and those who at present know next to nothing about it; and they can be better assisted by, as “F. W. B.” puts it, reading the published lists of “good things” than by having it put to them that this plant is rubbish and the next one worse.

T. SMITH.

[We wish to say a word for those who have taken the trouble to do the good service of pointing out some of the large number of useless plants in our gardens and nurseries. No thing wanted doing much worse. In the interest of the general public our correspondent will, we feel sure, not doubt the opportunities we have of ascertaining our readers' wants and knowing their complaints in some of these respects. We believe no other readers are so much interested in this special matter. Apart from the nurseryman and the enthusiastic grower—people who can very well protect themselves, and who do infinite good in their way—there is a far larger number for whom we chiefly write. They do not always know what to select; they may give precious space and important position to plants that no matter how grown or arranged would never give a satisfactory result, from poor weedy habit, resemblance to types which are already represented in our fields and hedgerows, shortness of bloom, and various other bad qualities. Up to the present time a comparatively small amount of space has been given to hardy plants even in many large gardens. It is desirable that space should be well and wisely occupied by a variety of beautiful, distinct, and high class and varied plants. Where the poor, indistinct plants, that attention has been called to, abound, it is not often that one sees a tithe of the fine ones that might be grown. Selection—careful selection—is absolutely necessary

in every department of horticulture and agriculture. We mean the selection that adds to the variety and life of a garden—not that which steals from it. Anyone who knows hardy plants knows what we mean by a reference to, say, the Speedwells (Veronica), many of the yellow Compositæ, and the Spurges. In these and many other families it is easy to grow so many of the species which resemble each other, that one cannot see what beauty or character any of their families have for gardens. In fact, a well chosen set of three kinds well grown and well placed will illustrate the value and charms of a given family, whereas a lot of species “running into each” may conceal it too well. It is more necessary to select carefully hardy flowers than any others from the facility with which many of these plants grow and multiply. Coming from countries as cold or colder than our own, there is no narrow limit to their growth, and we have frequently seen gardens devoted to hardy plants entirely destroyed by the predominance of poor, short-lived, and mean plants; to wit, Golden Rods (Solidago) and the poorer Michaelmas Daisies (Aster), of which there are hosts. The best are worth a place in a queen's garden. More than this, what directly gave rise to the most exaggerated stupidities of the bedding system was the presence of a poorly-selected, ill-grown, and ill-arranged series of hardy plants. It was and is a common thing to see the herbaceous border with no good plants in it. In several cases we know of from £50 to £100 were spent on a collection of border plants, and now, owing to bad plants being in the majority, there is scarcely a really good plant to be seen. Mr. Smith can well help us to find out the best kinds, and we should be glad to welcome his aid in that way. There are hundreds yet unknown in gardens generally.—ED.]

GARDEN IN THE HOUSE.

FLORAL DECORATIONS.

“AMATEUR” (page 174) inquires respecting arranging epergnes for exhibition. Some ten years ago the kind of epergne he describes as being desirous to arrange for an exhibition was first brought under notice; nearly all floral decorations about that time were arranged in what are termed March or exhibition stands. At that time I used this style of epergne, and with it I won the first prize in a numerous competition at the Crystal Palace. The arrangement was somewhat as follows: For the centre part I had light Grasses, pink and white Rhodanthe, a few sprays of Spiræa japonica, and some choice blooms of Orchids, chiefly Oncidiums, and the lighter forms of Odontoglossums. In the three larger sides or branch portions I had in each a bloom of Pancratium fragrans, and one or two flowers of Phalænopsis amabilis or grandiflora. These latter were wired so as to hang over the side, along with which were used the graceful spikes of Dendrochilum filiforme and a few light pieces of a Gleichenia; in the three lesser branches I suspended three blooms of Lapageria rosea and one or two of the white variety, then filling in with a few flowers of Agapanthus umbellatus and white Bouvardia. The base of the stand consisted of blossoms of Eucharis amazonica and Vallota purpurea, and again a few flowers and buds of the Agapanthus and some spikes of the stronger kinds of ornamental Grasses. This arrangement was at the time much admired. The drawback to it, however, was that it interrupted the view across the table. This objection I afterwards modified by taking out all the branch glasses and leaving only the centre or largest cornucopia. After a few experiments in decorating at home I ventured on exhibiting a single

cornucopia arising from a saucer-like base, and I was very successful. I have adhered to this style, and this season it has taken a first prize in open competition. I therefore advise "Amateur" to proceed in like manner, leaving out the side glasses and rely only on the centre one and the base. This stand was thus arranged: Around the stem of the upright part I entwined a spray of *Stephanotis* that had four or five trusses of expanded flowers and buds. In the erect vase I placed some fronds of *Adiantum amabile* sufficient to cover the top of the glass and to hang well over the sides. Among the Maiden-hair fronds were placed sprays of *Begonia nitida odorata* intermixed with the same of one of the brightest of the high coloured tuberous section; then a few spikes of *Spiraea japonica* and pink and white *Rhodanthe* were lightly arranged with some light Grasses. The base of the stand was composed of flowers of *Eucharis amazonica* and *Dipladenia amabilis*, arranged on a fringe of Fern fronds inserted in sand, the latter of course being hid from view. Above these, with stems as long as I could get them, I arranged a few blossoms of the erect flowering *Gloxinias* and two or three spathe of *Anthurium Scherzerianum*, and here and there a spray or two of *Bouvardia*. This, with a sprinkling of ornamental Grasses, composed the arrangement. At the same time I also arranged a stand composed of nearly all hardy flowers, the one above described being, as will be observed, chiefly done with tender exotics. This other stand was somewhat after the following fashion, arranged in the same style of *epergne*: For the cornucopia I had some sprays of *Spiraea japonica* and *Myosotis dissitifolia*, intermixed with the same of London Pride. The Oat Grass and Quaking Grass were also added, and a fringe of fronds of *Pteris serrulata*. Against the stem of this centre glass I lightly fixed a long growth or two of a strong growing species of *Panicum* in lieu of a climber. The fringe of this base consisted of fronds of hardy Ferns (*Lastreas* and *Nephrodiums*), on which were five blooms of the common white Water Lily, and here and there a few blossoms of the German Iris towering above them; some Corn flowers, bright blue and pink, were dotted between these, with several nice sprays of *Gypsophila elegans*. These with some fronds of Maiden-hair Fern completed this arrangement, which many considered surpassed the other composed of tender exotics.

For an arrangement of this kind at this season I should choose among hardy flowers the white Water Lily, *Anemone japonica alba* (*Honorine Jobert*), two or three small spikes of a bright coloured *Gladiolus*, and a few blossoms of the Corn-flower, chiefly blue, adding thereto some spikes of the ornamental Grasses. In lieu of the *Gladiolus*, a few spikes might be advantageously used of the scarlet *Lobelia fulgens*. This composes the base; for the cornucopia (central) spikes of *Chelone barbata* and the same of *Salvia patens*, with some *Rhodanthe* and Grasses. The three larger side branches might have white and yellow Paris Daisies, or a few blooms of the single Dahlias; the smaller ones could be filled with sprays of blue and white *Campanulas* (*C. Loreyi* and *alba*), or of two or more distinct colours of *Scabious*.

In an arrangement of tender exotics I should now use *Eucharis amazonica* intermixed with *Vallota purpurea* and *Agapanthus* (blue). The central cornucopia could be done with pink and white *Begonias* and a few sprays of light-flowering Orchids, adding Fern fronds to fringe the base, and allowing any pendent flowers to hang over the sides. Three of the side branches might consist of *Gloxinia* flowers, selecting the colour to harmonise with the surroundings; the other three could have a few blooms of *Lapageria rosea* and *alba* suspended from them, after which they could be filled in with either single blossoms of *Pancratium fragrans*, or of the lighter kinds of *Dipladenias*, such as *D. boliviensis* or *splendens*. *Lygodium scandens* is an elegant climbing Fern wherewith to entwine the stems, or failing this *Myrsiphyllum asparagoides* is an excellent substitute. "Amateur" should

avoid the too frequent error of overcrowding. Another point I have found essential is to use nearly all the Fern, such as Maiden-hair, as soon as the more prominent flowers are fixed; the lighter ones will stand out in better relief with the greater part of the Fern beneath them. A slight sprinkling with a syringe over all when completed will tend to keep them fresh.

Gunnersbury House.

JAMES HUDSON.

FILMY FERNS FOR THE TABLE.

A CORRESPONDENT in New Zealand, happening to see in *THE GARDEN*, of March 18, my notes on the suitability of filmy Ferns for cultivation in a dwelling-house, writes to me as follows: "You mention an aquarium with an arch covered with Killarney Fern springing out of it, and bell-glasses as coverings for *Hymenophyllum* and *Trichomanes*. The following makes a nice centre ornament for a table: Get a circular plate of zinc a trifle larger than a bell-glass and solder a ring of the same metal, about 1 in. wide, to its upper edge. About 1 in. within this solder another ring, about 2 in. high, the soldering being quite watertight everywhere. Inside the inner ring plant delicate Ferns, such as *Hymenophyllum*, in some of the Moss among which they grow. The bell-glass drops just within the outer ring, and a little water between the rings keeps the interior cool and moist. A few small holes should be punched in the zinc plate below the plants to allow of drainage and prevent the roots rotting when the plants are watered occasionally, and it is well to put a waterproof mat or a dish of some sort beneath the arrangement to protect the table. Paint the outer rim green and the inner one red to set off the Ferns. I have several such glasses at home and have made many for friends, and they require little or no attention. I sometimes put a cylinder of Tree Fern, about 6 in. high, covered with *Trichomanes venosum*, erect within the inner circle, and plant some drooping Fern, such as *Hymenophyllum pulcherrimum*, dilatatum, subtilissimum, bivalve, or polyanthos, or *Lindsæa viridis* in a hollow cut in the top of the cylinder, and the ring with the *Hymenophyllum tunbridgense*. The whole under a tall bell-glass looks very well."

Such is the description, and the case would, I am sure, when established make a lovely and interesting object. Perhaps some of your readers may be tempted to try it. One difficulty is that the plants mentioned are far from common. A small *Todea*, however, might take the place of the central *Hymenophyllum*. P. NEILL FRASER.

Murrayfield, Edinburgh.

The Flowering Currants.—If these were tender subjects and required the heat of a stove or the protection of a greenhouse, how greatly would they be appreciated; but, as they are perfectly hardy and will flourish in almost any soil or situation, they appear to be little cared for. There are numbers of large gardens in which there is not a single plant of any of these beautiful shrubs to be found, and yet at this season there is nothing half so effective as a bush of any of the varieties, loaded, as they always are, with their lovely racemes of gay blossoms. *Ribes sanguineum* has this year been very fine with us, and also a pale-coloured kind that blends well with it, and shows it up to advantage. Where these *Ribes* do best is in borders or other sheltered positions, backed up by evergreens to keep the cutting winds off them; for, as they flower so very early, they are otherwise apt to get much knocked about. Although they grow freely anywhere, they bloom best in poor soil where they can be fully exposed to the sun; there they make less growth, and the young wood gets thoroughly ripened and becomes studded with blossom buds. I am of opinion that we do not make half enough use of many hardy plants; these *Ribes* appear specially adapted for pot culture, as they are of graceful form, medium and compact habit, and flower at a time when they are of great value. The wonder is that our mar-

ket growers do not take them in hand and have them by thousands in small pots for the embellishment of rooms and windows in towns, for which purposes one would think a ready sale would be effected, and their stock cleared out in no time. For greenhouse or conservatory work, again, what could be more charming than a few standards of the bright coloured sorts? and, being naturally early, a very little warmth, or even shelter under glass, would bring them on a month at least before those in the open; and yet for all this we devote much heat and room to far more unworthy things. For cutting to place in glasses, the *Ribes* has few equals, as the racemes of blossoms are not only rich in colour, but elegant in form, and, with a few sprays of *Berberis Darwini* or *B. stenophylla*, a vase presents a fine finish, as the whole associate well together.—S. D.

PLANTS IN FLOWER.

LINARIA THYMIFOLIA.—This pretty little plant is now in flower on the rock garden in the York Nurseries. It has yellow flowers, reminding one in their effect of the common Toadflax, but with small leaves, and is a very distinct plant.

PARNASSIA ASARIFOLIA.—This fine plant, the best of its race perhaps, and very distinct, is now flowering at York, as is the common Grass of Parnassus, which is so plentiful in many parts of our country, as well as on the Continent at this season.

AMARYLLIS RETICULATA.—This is charming as it comes to us from Mr. Peacock, the fine delicate rose and the pretty veining making it, we think, more beautiful than any of the larger and more showy kinds. We hope Mr. Peacock may succeed in flowering it freely, and keeping it in abundance.

LYSIMACHIA LESCHENAUULTI is now in flower in the Edinburgh Garden. It is one of the most distinct of its race, and not without a certain beauty of flower of a pink hue. None of the genus, however, surpass the common Creeping Jenny in utility or beauty. The above named is a tallish plant, nearly 3 ft. high.

SEDUM CYANEUM.—This pretty little plant is in flower at the Edinburgh Botanic Garden, and those who know it only in the potted state would be surprised at its fine rosy purple trusses of flower, seated on tufts of leaves an inch high. It flowers well, owing to the plant being so fully exposed on a level bed.

ABELIA RUPESTRIS.—This pretty little bush comes to us from Mr. J. Stevens, and its delicate blooms are always welcome. We mostly see it in the west country, where it does well, but it is pleasing to note that it thrives in less favourable localities. Where collections of the choicer dwarf shrubs are grown it should find a place.

CLEMATIS GIPSY QUEEN.—This is a charming kind, as rich and deep in its imperial purple as any flower we know of. What it might do well placed in the open air one could hardly form an exaggerated estimate of. It comes to us from Mr. J. Stevens, Byfleet, where it grows well on trellises. It is one of the very best of the Jack-mani type.

TROPÆOLUM SPECIOSUM AT YORK.—Beautiful as this plant is everywhere, we have never seen it more rightly placed than in the nurseries at York, at the back of the bog garden, where it runs about in a most graceful manner from bog plant to bush. But we have not seen for many years the plant in Scotland, where they say its beauty transcends belief.

CALCEOLARIA KELLYANA.—This strange and pretty little plant is now flowering in the Edinburgh Botanic Garden. It was raised by a gentleman named Kelly, who is still, we believe, alive in or near that city. It is said to be abundant in the park at Dundee, where it grows with great freedom and flowers well. It is quite hardy, living over the hard winter,

HABENARIA CILIARIS is a charming hardy Orchid, sent us by Mr. Ware. It is a buff-orange colour, a very good colour, with a pert-looking bristly lip.

CAMPANULA VAN HOUTTEI.—A pale variety of Van Houtte's Bellflower is sent to us by Mr. Ware. It is a delicate lilac-purple, very quiet, and large.

LILUM BATEMANNIÆ.—This comes to us from Tottenham, and is a fine, cheery, light orange, distinct in tone from any other Lily, and coming in as a good autumn flowering kind.

CAMPANULA ISOPHYLLA ALBA.—This is an excellent plant, as we have seen in many parts of the country of late. It comes to us from Mr. Ware. It is a fine rock flower which we have seen in its native country on walls and rocks, always a distinct and bright plant.

CEANOTHUS AZUREUS GRANDIFLORUS is one of the finest of the varieties of *Ceanothus* that are hardy enough to be planted in the open standards. At this season it is covered with long feathery clusters of tiny flowers of the most delicate shade of blue. We have some flowers before us from Grasmere, Byfleet, where it makes a sturdy shrub, growing vigorously and flowering freely every year in the open borders.

A MINIATURE SPIRÆA.—There is now a little bush of *Spiræa* in the Edinburgh Botanic Garden bearing rosy flowers, and in full bloom at 4 in. high. We are not quite sure what the name of the plant is, but we look forward to it as proving a very interesting thing for our rock gardens. It will no doubt be christened in good time, and if its character keeps good we shall figure it in *THE GARDEN*.

TRITOMA GLAUDESCENS.—A noble plant bearing this name is now in flower at the York Nurseries, and makes a better display than any we have seen this year. The stately and splendid flower-stems attain a height of over 7 ft. It is simply in a nursery row, but the plant, equally well grown and arranged with taste, in association with other fine hardy plants of the season, would produce an effect not easily surpassed.

THE WHITE HYDRANGEA.—I send you blooms of *Hydrangea* Thomas Hogg. The plant from which these blooms were cut is growing in a 9-in. pot in a cool greenhouse. It has been in flower three months, and is now bearing nineteen trusses of bloom. I have not seen it growing in the open border, I intend to plant it out next season, and if it succeeds it would prove most useful.—T. B. FIELD, *Stanley Hall Gardens, Bridgenorth*. [Very beautiful indeed; it will be a fine addition to our autumn flowering hardy shrubs.—ED.]

TECOMA RADICANS.—Although this plant is hardy against a wall in the south of England, it flowers much freer and is more satisfactory when grown under the shelter of a cool greenhouse, where, if planted out and liberally watered (occasionally with liquid manure), it yields a good crop of its deep red flowers. Under the name of *Bignonia grandiflora* a plant in no way different from *Tecoma radicans* is sometimes offered at double the price. *T. radicans* is the same as *Bignonia radicans*. It is in flower in No. 7 house at Kew.

RUDBECKIA SPECIOSA.—Under this name Mr. Stevens brings flowers of a gigantic Composite with large yellow flowers having high cone-like centres, and with huge spreading leaves, as handsome in outline as an *Acanthus*. It is too coarse a thing for a border; its place is in those parts of the shrubbery where it would not obtrude, except at flowering time, when it sends up stately heads of flowers. It is strong enough and big enough to hold its own against shrubs even.

AFRICAN MARIGOLDS.—From Messrs. Webb, of Stourbridge, come some orange and canary coloured kinds of these, which are very fine indeed. We only wish that they would be more effectively used in gardens. They bloom a long time, and are within the reach of everybody, and always excellent for town gardens. It is a mis-

take to overdo these, as it is a mistake to overdo any flower in a garden; but a good bed or two, well placed with autumn flowering things, is always worth having.

TORENIA RUBENS VAR. GRANDIFLORA.—A pretty species from Hong-Kong. It was introduced into this country as early as 1846, and was figured in that year in the "Botanical Register" under the name of *T. concolor*, but seems to have disappeared from cultivation until this year, when it was re-introduced by Mr. Ford, of Hong-Kong, who sent seeds to Kew, where the plants are now in flower. It most resembles the well-known *T. asiatica*, but the colour of the flowers, which are 1½ in. long and 1 in. wide, is deep purplish blue, with a lighter shade towards the centre.

BONAPARTEA JUNCEA.—I have seen the plant alluded to in your last number. The flower-spike is now over 15 ft. high, and there cannot be fewer than 1000 flowers on it. Each flower is trumpet shaped, measuring about 1½ in. long by ¾ in. wide, and is of a pale yellow slightly suffused with pink. The stamens are bright pink, the anthers profusely bearing yellow pollen. The flowers only expand for about 1 ft. at a time up the stem, so that it will be some weeks before it has done flowering. Mr. Cornhill will be pleased to show it to anyone interested in it.—A. I.

LASIANDBA MACRANTHA IN THE OPEN AIR.—One is surprised to see this growing in the open air at Mr. James Backhouse's, where it is turned out in the early summer to bloom in autumn. It is curious that such a fine tropical plant should bloom in the open air so well, and the fact suggests that a greater variety of greenhouse plants might be tried in the open air in the same way. The thorough cleansing which many a plant would get, that could be depended upon to grow in this way, would be a further reason for the practice.

EXACUM MACRANTHUM.—We have already noticed the flowering of this pretty Gentian-wort at Kew, and we hope soon to give a coloured plate of it in *THE GARDEN*. The plant noticed some two months ago is still bearing a quantity of its rich deep blue flowers, proving beyond doubt its strong claims to popularity as a stove plant. Each flower measures about 2 in. across, and lasts for some days on the plant; therefore we have in this *Exacum* a really useful addition to summer flowering plants.

RHODOCHITON VOLUBILE is an old, but little known, greenhouse Mexican climbing plant which during at least half the year forms one of the most attractive of the climbers at Kew. Both in the temperate house and the greenhouse (No. 4) the long, pendent, thickly-flowered shoots hang down from the rafters on which the plants are trained with beautiful effect, looking like a curtain of dark green thickly studded with black and purple flowers. It is a free-growing easily managed plant, covering an extraordinary area in a season, and as it never fails to flower profusely it ought to become more popular.

SWAINSONA OSBORNII.—A very handsome Australian climbing plant with rose and white Pea-like flowers, which are borne in large umbels from the axils of the leaves. Like many of the plants of the Pea family from Australia, the *Swainsonas* are always happier when planted out than in pots, which is, no doubt, owing to their surface-rooting nature and their preference for a uniform moisture at the root. There is a well-flowered specimen of the above species trained on a rafter in No. 4 house at Kew. For such purposes or for covering a trellis this plant is specially adapted, its handsome sweet-smelling flowers being freely yielded during the summer months, and which are useful for cut-flower purposes, as they stand well in water.

TRITOMA SAUNDERSI AND NOBILIS.—From time to time inquiries have been made as to the respective merits of these two *Tritomas*. In Mons. Godefroy-Lebeuf's interesting garden at Argenteuil, where several plants of both species are growing side by side with the best forms of *T. Uaria*, the latter do not bear comparison with

either *T. nobilis* or *T. Saundersi*. There I found these two rare species bearing flower-spikes 6 ft. high, 24 in. of which on each spike were thickly set with flowers of the brightest colours. These plants were all growing in the same soil and under similar treatment, the intention of Mons. Godefroy-Lebeuf being to make as fair an experiment as possible. In the same collection there is also the very curious tuber-producing *Tritoma comosa*, but what greatly attracted my attention was a pair of *T. caulescens*, the habit of which is very peculiar, as it forms a robust stem, furnished with stiff, spirally arranged leaves of a beautiful glaucous colour.—S.

EUCHARIS BLOOMS.—We are indebted to Mr. Ley, of the nurseries at Croydon, for certainly the finest batch of these we have seen. It is needless to say how beautiful the plant is, but many well grown specimens cut with long stems, showing blossoms and buds in all stages, make a noble bouquet. No plant, perhaps, among all growers has ever had a more brilliant success. It still, although tropical, bears, as it were, the graceful form of our choicest northern bulbous plants. If Mr. Ley had time he might help our readers by telling them how he grows the *Eucharis* so well. We are having a group of the flowers drawn life size.

CRASSULA DEJECTA.—Although not so handsome as *C. coccinea*, nor so pure a white as *C. jasminea*, this species is worth growing in a cool greenhouse from the compact and dwarf habit it assumes and the prettiness of its white, freely produced flowers. Until recently the now largely grown *C. jasminea* was as little known as this species, and it was not until special attention had been paid to its cultivation that its real value for market purposes was discovered. It may be that *C. dejecta* would prove as serviceable as the *Jasmine*-flowered species, for even as grown at Kew, where it takes its chance among the many other species, the plant is really attractive, and no doubt with better treatment it would prove a first-class plant.

PANCRATIUM SPECIOSUM.—We have on more than one occasion called attention to the species of *Pancratium* as plants which would prove invaluable to the florist for cut flower purposes. They are so easily cultivated, and yield such an abundance of richly-scented pure white flowers of the most delicate texture and grace all through the year, that where such flowers are wanted these plants cannot be too plentiful. Especially may this be said of *P. speciosum*, of which several specimens in the Palm house at Kew are now bearing large bunches of their beautiful flowers. Another species, *P. illyricum*, is also in flower in the hardy herbaceous collection. This species is quite hardy in the south of England, and is cultivated in quantity in the Tottenham (Ware's) Nursery.

VALLOTA PURPUREA.—Several good specimens of this old favourite are now among the brightest flowers in the temperate house at Kew, reminding one what a valuable autumn flower it is. It appears to be impatient of disturbance at the root, judging from these and other plants seen elsewhere which seem to be grown on the let-alone system. A plant whose bulbs completely fill the pot invariably produces abundance of flowers; whereas plants which are repotted every year do not appear to flower nearly so freely. This rule applies to many bulbous plants, and cannot be too carefully borne in mind by those who desire to succeed with these often unsatisfactory subjects. A good rich loam with a little well rotted cow manure form a mixture in which the *Vallota* delights, while for position a cold greenhouse, from which frost is excluded, is exactly what it requires.

CHOICE PLANTS AT ARGENTEUIL.—Mons. Godefroy-Lebeuf not only grows Asparagus and Strawberries, for which this nursery is so celebrated, but his well-kept garden is full of choice herbaceous plants. The *Platycodons*, single and double, in blue and white, are very fine just now, and so is an improved form of the curious and still scarce *Clematis coccinea*, the flowers of which are fully

half as large again as in the ordinary species, and much brighter in colour. But the plants which are the most attractive, inasmuch that they are rarely, if ever, seen in such a state of perfection, are the *Eulalia zebrina* and *Juncus zebrinus*, both planted by the side of a brook; their vigour renders them most decorative plants. The *Eulalia*, although very beautiful and nearly 7 ft. high, is still surpassed by the Zebra Rush. Some of the shoots attain the height of 6 ft., and are most beautifully marked with transverse bars of ivory-white. When the plant bears leaves by the hundred, as it is the case there, it is highly effective. M. Godefroy-Lebeuf has found the way not only of growing this noble plant to perfection; but he has also succeeded in propagating it by hundreds, and we can only hope that it will soon occupy the place which it richly deserves as a highly decorative plant wherever there is a brook or a rivulet in which to show it to the best advantage.—S.

FLOWER GARDENING IN THE LONDON PARKS.—Generally speaking, these are beautiful just now, the flowers bright, and the whole of the flower department well kept and attractive. It is quite refreshing to see them after coming from some of the northern counties, where people already begin to suffer from storms and rains. The only regrettable thing about the condition of these parks is the extreme stiffness into which all these lovely flowers are trained, and out of which there does not yet seem much hope of emergence. In places, such as Battersea, where the Canary Creeper and the Clematis mix on a rustic trellis, one sees the enormous superiority of the natural and artistic way. Flowers, and brilliant flowers, we want in any case, and there is not the slightest reason why we should not have them naturally as well as geometrically disposed.

BATATAS PANICULATA.—It would be difficult to point to a more ornamental and useful stove climber than this giant Sweet Potato; although there are many which perhaps surpass it in some points, it is nevertheless a first-class plant. For training round houses in festoons, covering bare trunks or pillars it is an admirable subject, as it grows at a rapid rate, and flowers quite as freely as the common *Convolvulus*. Moisture, heat, and light it appears to revel in, as is abundantly evident in the old Lily house at Kew, where the house is quite gay with the large flesh-coloured flowers, hanging thickly on the branches, which are trained in all directions round the roof and the iron rails surrounding the tank. In another house a variety sometimes to be met with as *Ipomœa natalensis* is also in flower. This is by no means so handsome as the first mentioned, nor does it grow so freely. This species appears to vary considerably judging from herbarium specimens, and the Kew plant is apparently one of the finest forms of it. *B. paniculatus* was figured last year in THE GARDEN.

FLOWER GARDEN.

FLOWER BORDERS IN HYDE PARK.

THERE is not a place in Europe where there is a better site for making a beautiful and interesting flower border than in Hyde Park. Nothing can be more unsatisfactory or more disagreeable in these days of variety in gardens and fine collections in nurseries than the state of Kensington Gardens and the places there specially set apart for flower borders. There is manifest every vice of the old mixed border which made people fly to bedding plants—large areas of bare soil when the soil in our fields teems with life; 20 ft. of the border bare, and a wretched annual, sown in April or May, and next to it a miserable bedding plant, dibbed out the beginning of June, and standing in the midst of a primly raked Sahara of bareness; along the whole of the front, to give it the stamp of vulgarity, a line of grey *Stachys* on each side, running for nearly half a mile, keeping us comfortable all the way! There is generally a fine

lot of trees and shrubs mutilated and overcrowded here and there, but still very beautiful in spring, and often, too, in berry in the autumn. They are good wherever let alone. They and the trees overhead are forgotten in the eternal and motiveless moving of the soil of the border, and come out pretty well overhead. These mixed borders in Kensington Gardens are so large, that, without some special man to look after them and improve them, with a considerable knowledge of the flowers that ought to grow there, nothing can be hoped for without a change in system. The ordinary gardener and labourer can do little. So far as gardening is concerned, it would be better for the public if the borders were turfed over or planted with Ivy. The important fact remains, that there are no sites in any gardens more fitted for a beautiful variety of fine plant life such as now abound in our private and some nursery gardens. What should be done is not hard to see. First of all a selection of fine things, not bought exactly when wanted; but for the supply of these enormous parks there ought to be nurseries of good plants either in the park or out of it. We believe Kew supplies trees; why should it not supply young hardy plants which it could spare? though in any case there is plenty of State land which could be used for this purpose. But if this were not the case, some strips of ground in the park itself might be obtained. A border should be prepared and carefully grouped and planted bit by bit, covering the whole ground with such things as suited the position and climate, great care being necessary in the selection. But there is such a large space devoted to borders, that no permanent success can be obtained unless by the employment of a man of skill and taste to take charge of the whole under the superintendent. If many men are employed in houses the public never see, a good one might surely be spared, for what is always so much in evidence as these long and ill-treated and ill-stocked borders?—Field.

YELLOW FLOWERS IN AUTUMN.

WHILST in the spring we have Violas and Pansies, *Alyssum saxatile*, *Cheiranthus alpinus* and *Marshalli*, and other hardy plants, ample supplies of rich yellow colours in the garden, we have less of that striking colour in summer, though in some places *Calceolarias*, especially such kinds as *Kayi* and *amplexicaulis*, still give masses of the popular colour, but as a rule Golden Feather is relied upon for the desired hue, and it is usually obtained far too abundantly. It is in the autumn, however, when bright yellows are most needed, and then no flowers will excel the various forms of the easily grown *Tagetes*. A big bunch of African Marigolds of some fine double kinds makes a fine show, and never more so than during the autumn months, for these bloom incessantly up to the end of October. There are several shades of colour in these fine border flowers, and all are very pleasing. I am growing a good double form of the bedding *Tagetes* known as *patula* fl.-pl. Its height is about 10 in., blooms profusely, and has flowers of medium size, quite double, and of a rich orange hue. Its habit is not dense, but planting thickly will enable it to produce a striking mass of flowers. No Marigold, however, can compare for the production of a striking and even effect to the bedding form of the French section known as *aurea floribunda*. Plants of these grow to a height of about 9 in., and when in full bloom the entire height does not exceed 12 in., and in breadth from 18 in. to 20 in., carrying from forth to fifty fully expanded and perfectly double flowers. No plants could give a more compact or brighter mass of colour than these do. Single plants dotted here and there would have a charming effect. That all these *Tagetes* or Marigolds can be raised easily from seed in the spring tells largely in their favour. Whilst once in bloom in the summer they never cease flowering till cut down by November frosts. A. D.

[There are yellow flowers in abundance in autumn besides those of tender and annual plants. For example, what are finer than *Rudbeckia Newmanii* (1½ ft.), *Coreopsis lanceolata*

and *auriculata* (3 ft.), *C. tenuifolia* (1 ft.), *Helianthemum autumnale pumilum* (2 ft.), *H. Hoopesii* (2 ft. or 3 ft.), *Oenothera fruticosa* and its varieties (1½ ft.), *Æ. riparia* and *linearis* (both dwarf), *Æ. macrocarpa* (9 in.), *Helianthus multiflorus* fl.-pl. (3 ft.), *Solidagos* in abundance, *Harpalum rigidum* (4 ft.), yellow *Gaillardias*, *Hypericum olympicum* (1 ft.), various *Lysimachias*, *Venidium calendulaceum*?—Ed.]

VARIETIES OF LOBELIA.

I SEND you herewith four different varieties of herbaceous Lobelia. The scarlet is a very old one, and was given me about twenty years ago by an old gentleman who in his day had been a great amateur florist. When I tell you that I have ever since had it out of doors all the year round, you may judge of its hardiness. I sometimes in the winter give it a mulching of old rotten manure, but more for the purpose of enriching the soil than for protection, and each winter many of the clumps do not get even that; the severe winters of 1879-80 and 1880-81 damaged some of the more exposed plants, but did not kill them, whilst all the plants of *Lobelia Victoria*, growing in the same garden under precisely the same conditions were killed. It appears to me like *Lobelia fulgens* var. *propinqua*, figured at p. 52 of Paxton's "Magazine of Botany," vol. ii., 1836. The purple Lobelia I have had for a longer time than the scarlet one, and is much harder, as it is never even damaged by the severest weather. The other purple variety, although not very different in colour, varies greatly in leaf. I procured it this spring from an old-established local market garden where it has flourished for many years without any protection. The plum coloured sort I procured two years ago from a florist in the eastern counties, and it is apparently hardy. The scarlet and the purple now form a very distinct and prominent feature in my garden, and the former is generally admired. R. BROWNE.

Kidwelly, Carmarthenshire.

SUMMER AND AUTUMN CLEMATIS FOR BEDS.

IN order to grow Clematis well in the open air choose a well-drained site fully exposed to the sun, but sheltered from cold winds if possible; then trench in a good supply of manure, leaf-mould, or similar material. It is very important to make the bed well, so as to insure a vigorous growth that will give a long season of bloom. In spring, or preferably autumn, plant the Clematis about 4 ft. apart; by so doing, every other plant may be taken out in two years' time. Fill in the spaces amongst the plants with dwarf Roses—if on their own roots the better, as the suckers do not become troublesome amongst the Clematis. For the first two or three years let the Clematis ramble over the Roses with a little training and tying; no other support will be needed. Clematis do not make much show for a year or two, but with a bed of Roses one can afford to wait. Eventually the Roses will be smothered, then the Clematis will need some wire or other support. I prefer to fix wirework in the spring rather than have a permanent framework, and c'ear it away in autumn when the Clematis are cut down to within 6 in. of the ground, for bare wirework is objectionable during winter. Cutting down of course applies to the Jackmani type. For a mass of one colour the following are

Varieties of the good summer and autumn flowers: Jackmani type—*Rubella*, rich claret-purple; *Prince of Wales*, pure-purple; *Gipsy Queen*, dark velvety purple; *rubro-violacea*, maroon-purple; *Star of India*, reddish plum with red bars; *Jackmani superba*, better than the original. These are strong growers, and are capable of forming a mass of bloom. The following are good for forming a mixed bed in addition to the above: *Tunbridgensis*, deep lilac mauve; *Victoria*, deep reddish mauve; *Ilacina floribunda*, grey-lilac. Of the *Viticella* type are *Lady Bovill*, greyish blue; *Mrs. James Bateman*, pale lavender;

Thomas Moore, puce violet; *Viticella Menosa*, reddish purple, veined.

Of the *lauginosa* type—*Alba Magna*, white; *Fairy Queen*, pale flesh, pink bars; *Henryi*, creamy white; *Lady Caroline Nevill*, French white, mauve bars; *lauginosa candida*, tinted greyish white; *Otto Fröbel*, greyish white; *Madame Van Houtte*, white; *Beauty of Surrey*, greyish blue.

All the above are good for making a display during summer and autumn. No doubt there are newer varieties that are an improvement on some that I have mentioned. Now is the best time to visit a nursery and purchase them while in bloom, which is far better than relying on descriptions. I consider the early flowering varieties are quite unsuitable for planting along with late varieties; they all grow together in such a tangled mass that it is almost impossible to separate them at the time of pruning, and to cut the early flowering types down is to cut off the bloom.

Lonicera japonica aurea makes a first-rate edging to the bed. When it is well established cut it down close to the ground every spring; it will then soon shoot up afresh, but it is best not cut down until spring, as it forms a bright edging during winter, being perfectly hardy.

A very effective bed can be made by mixing *Clematis Jackmaci* and *Rose Souvenir de la Malmaison* together, edged with *Lonicera*. N.

Polystichum munitum in the open air.

—A very handsome and remarkably hardy Fern, and stately in habit. It grows out-of-doors in a shady shrubbery at Messrs. Backhouse's, and is, we believe, the finest hardy Fern away from the water side, where the Royal Ferns spread their large fronds. The plant at York is about 4 ft. high, and a model of fine form. It is a North-western American species.

The Maiden-hair Fern in the open air.

—We know nothing more graceful than a few tufts of this in a little cave closed on all sides but the south in Mr. Backhouse's garden at York. No tropical Fern, however fine, is better, and the fact that it can be grown so far north should encourage many to get the Cornish variety, or any variety they can secure of this native Fern for well-chosen spots in the open air.

Spring in summer.—A season genial and warm with many showers has proved highly favourable to the autumn blooming of the lovely old white Primroses, Auriculas, Trollius, Anemones, *Myosotis palustris*, and many other favourite flowers which we associate with vernal days rather than with the moons of harvest time. The Trollius, or Globe flowers, have been especially bold and pure at this season; so also blooms of that loveliest of all Anemones, the Pasque flower, with its soft downy buds and rich purple-stained sepals. Pansies have quite escaped their usual summer attack of red spider, and have been continually gay since earliest spring days.—W.

Schinus Molle.—May I say a word to my fellow amateurs in favour of this Peruvian plant? I brought a few of its fragrant red berries home with me from Cannes a few years back, and sowed them in a cold frame. They germinated quickly and easily, and after giving away my surplus, I have now a very good specimen over 1 ft. high. It bore last winter bravely in a cold frame, only losing its leaves. It started again in the spring, breaking irregularly all up the stem. Wishing to preserve more of the standard form, I removed some of the lower branchlets, and inserted them at the sides of the pot, and much to my surprise they are growing nicely—all, be it remembered, in the open air. I have had no berries yet; I suppose they are only produced when the tree has attained a certain age.—F. R. MORRISON.

Dried seed-pods of Honesty.—In the winter months, when flowers are scarce, and many persons have no more pleasing decorative material than may be found in dried Grasses, Everlastings, or artificial flowers, the delicately formed and almost transparent inner division or white of the seed-

pods of the common Honesty, if carefully cleaned, forms in small branches a really pretty and acceptable decoration. I prefer the white-flowered kind, not only because the stems are light in colour, but the habit of the plant is more compact, and thus the branches of seed-pods are also more compact. The seeding plants should stand till quite ripe before being pulled or cut. Then when quite dry and crisp the pods may be gently beaten, and the seeds with the outer casings will come clean away, leaving the thin paper-like division intact. Gently rubbing each pod between the finger and thumb will also free the seed, but it is a slower, if safer, process. Sprigs of this dried Honesty put into vases endure all through the winter.—A. D.

Aponogeton distachyon.—I have not seen this aquatic plant thriving so luxuriantly anywhere as at Langport. In a small pond in front of Mr. Kelway's residence it is in the most robust health and flowers profusely, every inch of the surface of the water being covered with leaves. I did not ascertain the depth of the water, but I should say it is not more than 2 ft. deep, and the diameter of the pond probably 8 ft. It seems pretty certain that a great depth of water is not necessary in order to grow this plant successfully; but, according to my experience, it does not like to be disturbed. We grew it for several years in a fairly satisfactory manner, but circumstances occurred which necessitated the removal of the plants for a time, the result being that we lost our stock. Previous to that it used to propagate itself from seed very freely. From what I know of its habit, I should say if it were planted 18 in. under the surface of the water, frost would not do it any harm, and if the pond were not too deep, I would rather plant it in a bed of soil than keep it in a pot.—J. C. C.

Varieties of Everlasting Pea.—These have all bloomed very freely this year, and in some instances I have seen the old deep coloured form of *latifolius* 8 ft. in height, and presenting a huge mass of leaves and bloom. No doubt these deep rooting perennials delight in a cool moist soil, and not least in a cool atmosphere. I have no doubt that in northern districts they are exceedingly beautiful and enduring. Drummond's, one of the least robust kinds, blooms very early, and here in hot, dry weather the flowers soon become burnt and faded, but some late growths now blooming produce flowers of the richest reddish carmine that show no signs of fading. It is just possible, were the earliest shoots to be pinched back, that a later growth would ensue, producing in the autumn, as is the case here, flowers of the richest hue. A variety, named *roseus*, having white ground heavily flushed and veined with rose, is one of the most charming kinds. Strong roots of all these perennial Peas, if planted at the base of tree stems, and just supported during the summer by means of a few ties, would prove of infinite service to gardeners in supplying an abundance of varied and elegant flowers.—A. D.

SHORT NOTES.—FLOWER.

Polyanthus Narcissi (Mac.). These are suitable for perennial planting in warm, open situations. In good light soil plant the bulbs about 6 in. in depth.

Weed Scufflers (R. H. B.).—Where can the horse or pony weed scuttler for avenues or garden walks be purchased? I have had one many years and found it very effective.

A pink Celsia.—Can you tell me whether there is a pink Celsia (or Verbasum)? Many years ago I bought a potted plant so named, but I cannot find it in any catalogue. I feel sure, however, that Sweet mentions it in his book. [Probably you mean *Verbasum phoeniceum*, of which there is a pink flowered variety.]

Tigridia Pavonia.—I send you this beautiful old, but uncommon, flower to show you what a grand thing it is for decoration as well as for the herbaceous border. Each spike will contain of three or four blooms, and if you will put the spike in a glass of water the buds will expand in succession.—DANIEL DOWDESSELL, *Nash Court, Faversham*. [A good specimen of a beautiful plant which every garden should possess.]

Lily of the Valley well grown.—Our readers would do well to see that this is grown well in their gardens, not merely thrown in some neglected corner, thick and matted. Nothing repays better for a good soil and choice border, where the beautiful flowers may come to us in strength every year. Our Lily of the Valley has been so badly grown in gardens, that it has been the fashion to import roots every year for forcing. There is no reason why we should not each grow it where the soil is suitable for this purpose, too, by isolating the plants, so that they may make plump buds; but merely cutting a piece out of an old thick tuft in a neglected border will not do to force. For two reasons, then—for its beauty out of doors in various positions, and for forcing indoors, either rapidly early in the year, or slowly later on—this favourite flower is worth growing well. It would be well to have it on warm borders or aspects to come in early, and in north borders to come in late; and also, where people can do it well, it would be charming to naturalise it in shady or northern shrubberies or woods, so that it may come in later than the garden specimens. We grow the plant fit for forcing small, but good plants must be set apart, so that they may form the strong flowering crowns which those who force this Lily require.

ORCHIDS.

Cœlogyne Cumingi.—A fine spike of this pretty species is sent by Sir William Marriott. Though one of the earliest introductions, it is not often met with, especially in flower. It has fine white flowers, with a conspicuous bright yellow blotch on the labellum; they are produced on spikes much in the same way as those of the well-known species are. If it habitually flowers at this time of the year, it is indeed a valuable plant. It is a native of Singapore; hence requires a somewhat warm and moist stove.

Gongora superbiflora is the name attached to an extremely fine Orchid from Mr. Peacock's garden, Sudbury House, Hammersmith. The flowers, nearly an inch across, are clustered rather densely and numerous towards the end of a long spike. They are of thick, wax-like texture, and their colour is a bright yellow, copiously spotted with chocolate-brown. We have never before seen this handsome species, and it is the first *Gongora* we have seen that we could recommend for general cultivation, as most others are more curious than attractive. We should like to know more about this species.

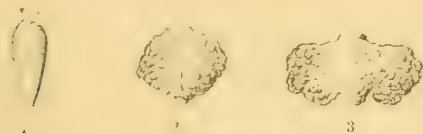
Oncidium macranthum.—Of this noble Orchid Sir William Marriott sends us from Down House, Blandford, an extraordinary fine flower-spike, which measures upwards of 14 ft. in length. The spike has numerous long straggly branches, each bearing a few flowers, some 3 in. across, handsome in outline, and of a sort of bronzy yellow—a colour distinct from that of most Orchid flowers, and one that in a room is very soft and beautiful. This is another instance of the excellent culture Orchids receive in Sir W. Marriott's garden.

Orchid culture.—Mr. James Backhouse remarked to us the other day that his Orchid houses really required less attention than the ordinary greenhouse. We need scarcely say here how fine and large these houses are, and how rich the collections they contain. It is greatly to be desired that this truth were established among the gardening fraternity generally, as the tendency is still to make too much mystery about Orchid growing. We wish some competent person would put the essence into a small book, in which the object of the author would not be to show how very difficult it was to grow Orchids. No doubt it will one day be thought a simple matter, but then simplicity in such things arises from knowledge.

Odontoglossum vexillarium.—A fine branched spike of this Orchid reaches us from Mr. Sunley, gardener to Mr. W. N. Champion, Shibden Hall, Halifax. There are sixteen flowers, several of which are borne on slender side branches 8 in. long.

ORCHIS LATIFOLIA.

THE Orchis of which a figure is here given is one of many which have been growing in my garden for several years, and was originally dug up from a wet meadow in the neighbourhood of Eton, in Buckinghamshire, where *O. latifolia* and *O. maculata* grew together. The large and stout bracts and the thickly set spike seem to come nearer to the type of *O. latifolia*, but an examination of many thousand specimens has led me to conclude that it is hardly possible to draw a line of distinction between the two species. One must be guided more by general appearance and habit of growth than by any definite and constant characteristics in determining the difference. Neither tuber nor leaf nor bracts afford any certain criterion, but I found the most satisfactory test which gives a standard of type to be the form of the lower lip or petal of the corolla. In the extreme type of *latifolia* (No. 1), which is to be found in the true *O. incarnata* of Linnaeus, a plant very common in many of the bogs of Carnarvonshire and Anglesey, as well as in parts of Hampshire, this lip is very narrow, and tapers gradually to



Various types of Orchis petals.

a point. The growth of these plants is low, and the flower-spike even in breadth throughout and less ornamental than any other form of the species. The intermediate form (No. 2), in which the lower lip of the corolla becomes broader, includes the strongest growths and the most ornamental varieties to be found, and both leaves and flowers are most thickly marked with spots. The other form (No. 3), which is that of the typical *O. maculata*, has the lip divided by two deep indentations into three parts, the central point of which does not descend below the side lobes. These are the only characters upon which I have been able to rely as constant.

Cultivation.—It is best to select the plants for this when in flower, as they vary much in colour and habit. The tubers make feeding roots, spreading horizontally from the crown; in very wet, mossy places these will be found to run along the surface of the ground, but they are generally from 2 in. to 4 in. beneath the surface. A ball of sufficient size should be taken up to include all these, and the tuber and roots should be packed in wet moss and never allowed to get dry. The bog bed is a good place to plant them, but if the soil of the garden is moderately moist and retentive they do well in an ordinary border. The tuber should be about 4 in. underground, and surrounded with a handful of coarse road sand. When first planted, and at all times when growing until out of flower, copious waterings should be given in dry weather. A top dressing of leaf mould and decayed manure in winter, and again when coming into flower, helps strong growth, which everything should be done to promote. I find it best to leave the roots quite undisturbed, unless they have increased so much as to require dividing; different bulbs vary much in this respect. In selecting the plants, besides the question of colour, which varies much, especially in the mountain forms of *O. maculata*, care should

be taken to choose those which show at once the tallest and most robust growth and the closest spikes of flowers, as these habits are retained in cultivation. What I have described as intermediate forms between *O. latifolia* and *O. maculata* are generally the best. I have had some of these growing nearly 4 ft. high, and with close set spikes fully 1 ft. long when all in flower. A well-known garden Orchis, sold by dealers as *O. maculata* *superba*, or the Kilmarnock Orchis, be-

Spike of *Orchis latifolia*.—Grown by Rev. C. Wolley Dod, Edge Hall, Malpas.

longs to this class, and is one of the best, though I have found plants growing wild in North Wales which I consider as good. Those who adopt the cultivation of this class of terrestrial Orchis, and give them liberal treatment, and allow them time before disturbing them to develop their full growth, will not be disappointed with the result.

Edge Hall, Malpas.

C. WOLLEY DOD.

Galeandra Devoniana.—This handsome Orchid has been seen rather plentifully in flower

this season, much more so than for some years past. By far the finest variety we have seen of it comes to us from Mr. Peacock, Sudbury House, Hammersmith, whose gardener appears to be particularly successful in its cultivation. The flowers sent number five, in one cluster; they have large tubular lips, large enough to admit a man's thumb, and are pure white, heavily streaked and pencilled with reddish crimson. The narrow sepals, which stand vertically behind the labellum, are a deep greenish brown margined with yellow. As represented by such a fine variety, this is really a distinct and attractive Orchid, and flowering at this season, when comparatively few others are in flower, increases its value. It is about 2 ft. high, and very graceful.

ORCHIDS AT CLEVELANDS, SOUTHPORT.

At each visit I pay to this place I find the grand collection of Orchids (the growth of a few years only) exhibiting marked progress, the improvements taking place not only in a general way, but also in those particular plants which at the time of my former visit did not seem up to the mark. Mr. R. P. Percival, who grows only good and showy varieties, is one of those careful buyers and thoughtful growers who does more for the advancement of Orchid culture than any number of haphazard collectors who buy anything and everything merely for the sake of having them. Such collectors, by having their good plants mixed up with poor ones, obtain in their houses a generally untidy look, which does not recommend Orchid culture to the uninitiated, and which goes far to deter many from commencing. Mr. Percival rightly contends that in order to give a plant a fair chance with a reasonable prospect of seeing its beauty when healthy and in bloom, a good clean specimen must be obtained to start with, and he finds that that end is never better attained than when some of those grand plants now imported so frequently are obtained, and in the treatment of which he has attained something like perfection. As many valuable imported plants are annually killed in the earlier stages, it will be well to note the treatment which they receive at Cleveland's and which is as follows:—

Freshly imported Orchids.—With these Mr. Percival pursues the system which I have always advocated, and that is placing them in a cool temperature which will not excite them into untimely growth, and in a genial moist atmosphere which will not cause them to become more shrivelled by drawing from them sap which they can but ill spare. If put in a too hot, dry, or sunny place, the eyes and other soft parts of the plant are hardened, and when the proper time comes for it to grow, it is not equal to the effort, and consequently dwindles. On freshly imported plants being received at Cleveland's, they are at once placed on a cold bottom, either under the stage where the drip does not reach them, or on a cool moist stage; here they are allowed to remain for a week or two until they have recovered the effects of the journey; then, in the case of *Cattleyas*, *Laelias*, and other large growing plants, they are suspended from the edges of the stages (always taking care to keep them from the heat of the hot-water pipes), and in that of small growers, like *Odontoglossums*, they are put in crocks in small pots and placed in a shady part of the house. In either case they are watered sparingly at first, and afterwards more liberally, until the eyes plump up and start. Soon afterwards those suspended from the stages are each, as soon as they are advanced enough, taken and crocked into pots and placed on the stages. It is necessary to well observe this, for if the plants grow while suspended head downwards, the growths will be spoiled by being turned the wrong way. In no case is peat or Sphagnum used for freshly imported Orchids, until by their rooting and growing freely they seem to ask for it. By the observance of these simple rules Mr. Percival succeeds in making good flowering plants of most fresh importations of the stronger growing kinds on the first home-made growth, while it would

take a good cultivator years to flower an unhealthy so-called established plant.

Oncidium Marshallianum here has attained a size and vigour unusual to it under cultivation. It was tried in different houses, but with poor success until it was suspended in the large lobby adjoining the entrance to the Orchid houses. This is laid out as a rockery and planted with Ferns, Begonias, &c.; it has a cool intermediate temperature, and that and the moisture given off by the rock seem to be just what all that class of Orchids require. Many fine plants of *O. Marshallianum* are here in great vigour, the last made growth being in many cases twice the size of that of the preceding season, without a wrinkle and giving promise of a great show of bloom. In the first house some fine examples of the Amazon variety of *Cattleya superba* called *splendens* are in bloom, and as seen here they well bear out the high character given them, being furnished with from three to five grand rose and crimson flowers on a spike. In the same house are plants of *O. prateum* with from fifty to 120 flowers on a spike; well bloomed plants of *Dendrobium bigibbum superbum*, and a grand mass of the dark crimson *Miltonia Moreliana*. In the Dendrobe house, which is moist and airy, but not hot, the plants are growing with great strength, many of the specimens being very large. For example, there are numerous fine specimens of *D. Wardianum*, one of them having over thirty very thick new growths each from 2 ft. 6 in. to 4 ft. in length; *D. Dalhousianum* with growths 5 ft.; and *D. densiflorum*, with over twenty new growths. The East Indian house contains some fine *Saccolabium*, *Aerides*, *Vandas*, &c., and a grand plant of *D. chrysotoxum superbum*, which this year produced thirty-five spikes. Here in the coolest, shadiest, and most moist corner Mr. Percival has that often stubborn plant, *Cypripedium Schlumi*, growing very freely; in such a position it will probably make a grand specimen, but if placed in a sunny, dry place its time is short. *Calanthes* grow here with great strength, the plan under which almost every one now succeeds with them being adopted, viz., to give them plenty of light, but no sun, and plenty of heat and moisture, with occasional waterings of weak liquid manure. In the same house also are some good specimens of *Cattleya Dowiana*, producing in tolerable abundance their rich yellow and crimson sweet-scented flowers. The next house is a warm intermediate one, containing good specimens of *Cattleya Eldorado* and its varieties in bloom, one large white one with a orange-lip, being particularly fine. Associated with them are *Odontoglossum Roezli*, &c. Passing through the *Phalænopsis* house, the plants in which are doing well mounted on the tops of tall wood cylinders, we come to the large

Cattleya house, the occupants of which are in a very creditable condition, good showy things being there in quantity. A quantity of *C. labiata Percivaliana* is furnished with a quantity of flower-sheaths, giving promise of a great show soon, and a number of *C. Trianae* have from ten to fifteen flower-sheaths. Many of these plants have not been in Mr. Percival's hands a year, I know, and they do not exhibit any sign of being recently imported, the leaves which they made in their native habitat being as fresh as those of home growth. In this house, too, are some very fine plants of *Lælia elegans*, very healthy and robust, a fine plant of the variety *Schilleriana* being in bloom. *Cattleyas* and *Lælias* are certainly among the finest of Orchids, and when grown like some which Mr. Percival has, with from twenty to fifty blooms open at once, they cannot fail to attract universal attention. Leaving the *Cattleya* house, we enter one almost filled with *Lælia anceps* bristling with flower-spikes; also *L. autumnalis*, *L. albida*, *L. flava*, and others of the smaller growing *Lælias*. This house is kept rather drier and more sunny than the *Cattleya* house, and the short, thick growths show that the treatment is relished by the plants. Beyond is a still sunnier house for resting *Cattleyas* and *Lælias* of the *L. purpurata* class; here they get the full sun and plenty of air,

and I have no doubt it will cause them to bloom much more freely than they would do if kept shaded. *L. purpurata* and its numerous varieties are among the grandest Orchids we have, and if healthy, fresh imported plants are obtained, started as recommended, and afterwards grown near the glass where a tolerable amount of sunlight can reach them, they will be found to be very free-flowering. If kept close and shady, they often make fine plants, but do not produce as much bloom as they ought to do. The long range of

Cool houses contain a rich collection of *Odontoglossum*s (nearly one thousand plants of *Alexandrae*) and *Masdevallias* in fine condition, thereby indicating that their cultural requirements are well attended to. The present season of all others is, perhaps, the scarcest time for bloom, but go where you will there is always enough to make the houses bright. Still in bloom are *Masdevallia ignea*, many varieties of *M. Harryana*, *M. Davisii*, *M. Chimæra*, *M. bella*, *M. trochilus*, many varieties of *Odontoglossum crispum*, the pretty scarlet *Ornithidium coccineum*, *Sophranitis grandiflora*, *S. coccinea*, and *Epidendrum vitellinum*, &c. In the farthest compartment are nearly a houseful of *Odontoglossum vexillarium*, healthy and strong, and without one of those spots to which the plant is so liable when not doing well being visible. On one side a goodly number of the variety *roseum*, which always flowers at this time of year, is very showy. It is a valuable variety, as it prolongs the time of *vexillarium* flowering, and what it lacks in size of bloom is fully made up by neatness of habit and the bright tint of its flowers. Throughout the whole place not a sickly specimen is to be seen, and cleanliness and order everywhere prevail. In order to make room for coveted specimens and future purchases, Mr. Percival has just completed three new model Orchid houses in which everything that he could think of as being good for the plants has been studied. They are the most complete houses I have ever seen, and I should advise those intending to build new Orchid houses to go and see them. Before leaving I cannot help noticing Mr. Percival's

Sunk garden, protected from the sea by a high embankment (which also forms a promenade), and also divided by another embankment running across it from the house to the sea. The one half is used as a lawn tennis ground, and is connected with the other half by means of a tunnel under the embankment. The second half is a triumph in the way of herbaceous plant and mixed flower gardening. The beds radiate from a neat little summer-house in the centre, and the garden has a broad border all round, with short greensward for the groundwork. I may safely say that I never saw such a quantity of flowers in so little space before. The thick planting system has been followed and even annuals used, but due care has been taken in arranging them that when they go off no space is left. Large masses of *Phloxes*, *Delphiniums*, *Pentstemons*, *Antirrhinums*, *Lychnis chalcedonica*, &c., were overtopped by fine *Lilies* and edged with *Godetias*, and other annuals and perennials, and relieved occasionally by a bright patch of scarlet or pink *Pelargonium* or other bedding plant, the result being a charming mass of bloom, rustic, yet neat, and in my opinion much more effective than any attempt at a set design with pre-arranged beds.

Harrow-on-the-Hill.

JAMES O'BRIEN.

Habenaria viridis.—This Orchid seems to be extremely rare. I have sought for it in Middlesex, Sussex, and Surrey, but never found it. I have, however, found it occasionally in the damp districts of Kent. It seems to me to only inhabit very rich, damp soils. The only place in which I ever heard of or found it growing in any quantity was in the neighbourhood of Richborough Castle, in Kent. I remember on one occasion, when a friend visited these old ruins, he brought some five or six plants of this Orchid back with him, but when placed in fresh soil they soon died.—*W. H. G., Hammersmith.*

GARDEN DESTROYERS.

RED SPIDER.

ALTHOUGH I agree with Mr. E. Burrell that this troublesome pest is the result of a too dry atmosphere, and that when once it has gained a footing on plants, nothing but the most radical measures will dislodge it, I am inclined to believe that one of the principal, if not the principal cause of red spider occurring on plants under glass is growing them in a temperature higher than that which is essential to their well-doing. I have had many opportunities of proving the truth of this view. I have often under my care plants about which little or nothing is known, and whenever I perceive that spider is making an appearance on them, I at once conclude that the temperature is too high for them. As the houses in which such plants are kept are well shaded, and the atmosphere always at saturation point, neither sunshine nor dryness can be the cause of the appearance of the insects, and on removing the plants to a cooler temperature, it invariably turns out that the spider was the result of too high a temperature. Such plants as *Rivinas*, *Linum trigynum*, &c., will, if kept in a hot-house, become infested with red spider, and that no matter how moist and shaded such house may be. Some years ago I had a large batch of *Chorozemas* almost destroyed by red spider in spite of frequent dippings and syringings with various insecticides, and it was only after one who had had longer experience than myself among hard-wooded plants told me to remove them to a cold frame, and give them more air and sunshine, that I succeeded in saving the whole batch from the ravages of this fearful little pest. Of course too high a temperature, along with dryness and bright sunshine, would, as Mr. Burrell remarks, soon destroy the plants. Many plants have with me proved fearfully subject to red spider in a shaded, moist, but too warm house. These when removed to a lower temperature where the light was stronger and the air almost dry during the day the spider no longer troubled them, therefore there seems good reason for believing that in many cases too high a temperature is the principal producer of red spider.

W. N.

Destroying insects under glass.—The following method, says the *Revue Horticole*, has given most satisfactory results, and the inventor, M. Boizard, gardener to Baron Rothschild at Paris, assures us that success is infallible—at least for three years during which he has been experimenting with it it has been so with him. He says, "Having procured 2 quarts of Tobacco juice, I boil it over a slow fire on a furnace in the house. An hour and a half or two hours afterwards, the liquid being reduced to about one-third its bulk, becomes viscid and almost solid, when, after having diluted it into 1 quart or 1½ quarts of water, I boil it more quickly until all get converted into vapour and fixed in the form of dew on every portion of the plants. I remarked no damage done, not even amongst the most tender plants, such as *Adiantums*, young plants of *Blechnum braziliense*, *Coleus*, &c. Some young fronds of *Adiantum* alone suffered, but it should be added that they were on the stages." If danger were apprehended in the case of certain plants, they might be taken out or their safety assured by means of paper caps; and if it was a question of flowers or fruits, similar precautions might be taken to preserve them. M. Boizard assures us that no insects can resist this treatment and that the greater portion of them do not appear again for six months. In the case of such as reappear quickly, it is easy to renew the operation, but then 1 quart of Tobacco juice and 1 quart water will suffice. This method is as economical as any other, and M. Boizard says that it is possible to remain in the house during the operation without being inconvenienced thereby.—*J. CORNHILL, Byfleet.*

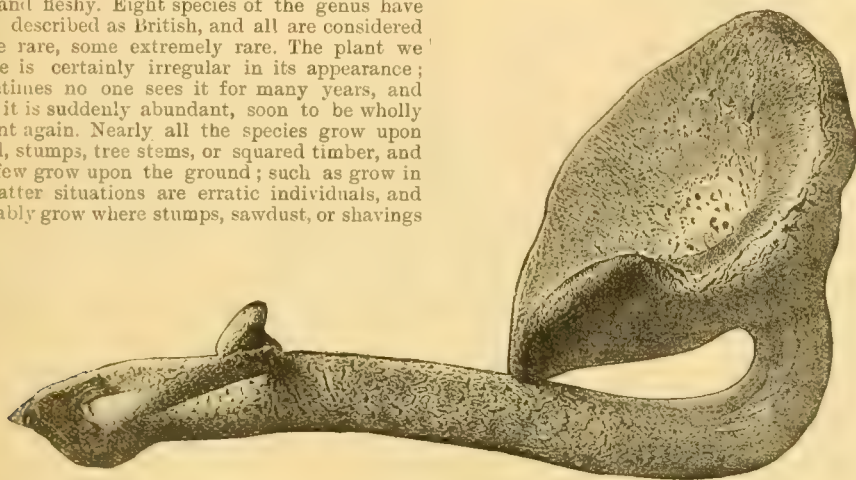
A rat covert.—In the gardens at Lullingston Park an attempt to get rid of a plague

of rats was made repeatedly, but without success, owing to their possession of a large and fine old Yew hedge. No inroads could be made upon their numbers, owing to their having made a perfect covert and storehouse of the Yew hedge. It was found necessary to cut the hedge in two lengthways, and in this way their numerous stores were destroyed and the garden eventually delivered of the pests. Melons, Grapes, and other less precious fruits disappeared before their raids, a fine crop of Melons being cut down in one night; hence the necessity of taking such steps to destroy the vermin.

CELLAR FUNGUS.

(*LENTINUS LEPIDEUS*.)

THE fungus of which we give an illustration is a remarkable one; it belongs to the Agaric tribe, but it differs from Agarics proper chiefly in being very tough and almost woody, instead of soft and fleshy. Eight species of the genus have been described as British, and all are considered to be rare, some extremely rare. The plant we figure is certainly irregular in its appearance; sometimes no one sees it for many years, and then it is suddenly abundant, soon to be wholly absent again. Nearly all the species grow upon wood, stumps, tree stems, or squared timber, and but few grow upon the ground; such as grow in the latter situations are erratic individuals, and probably grow where stumps, sawdust, or shavings



The Cellar Fungus.

have been. All the members of the genus are tough and leathery, and although one or two are sweet smelling, or at last Anise and Tarragon scented, yet from their intolerable toughness they are unsuited for the table.

Lentinus lepidus generally grows upon Fir stumps, or Pine or Deal when squared. It causes dry rot of the worst description in Fir timber, and we have seen railway sleepers by hundreds reduced to a state little better than tinder by its ravages; we have even seen it bursting through Fir timber that had been treated with creosote. A few years ago this fungus made a sudden appearance almost everywhere in Britain. Correspondents were sending up specimens to be named from all quarters; it was everywhere on railway sleepers. At this time we were asked to look at a heavy timber bridge over the railway at Abergavenny, which was dropping to pieces with rot. On going to the spot we saw that the bridge had been attacked by this fungus, and all the timbers were reduced to the last stage of rottenness.

The example we illustrate came from a cellar where it is said to come yearly. A cellar is one of the characteristic habitats of the fungus; it delights in perfectly dark places, it luxuriates under floors, in dark roofs, in mines, in the middle of Pine trees decayed at the heart, and in underground dark places of all sorts. It generally fixes on Fir timber, and into this material it sends its mycelium or spawn; the spawn reduces the wood to rottenness and dust, and if the fungus once makes an attack on buildings constructed of Pine the woodwork is certain to collapse. It is a popular error to suppose that one fungus only causes dry rot, for numerous species perform this office; there is probably no timber tree but is provided with its own special dry rot fungus.

F.

MUSHROOMS.

By W. DELISLE HAY.

(Continued from p. 176.)

Fungi that grow on trees are usually too tough in substance to be used as food. Some of them are of strong fibre; such, for example, being the German amadou, which used to be in such request in the early days of the manufacture of matches and fuses. Such, too, is the *Polyporus* used for razor-strops, and that huge brown excrescence, all woody fibre and gummy juice, which is so common on Apple trees (*P. hispidus*). But there are several tree-growing edibles besides the two just mentioned. Of such is the Jew's-ear, or, more properly, Judas'-ear (*Hirneola auricula-Judæ*). There is a species of *Hirneola* akin to the Jew's-ear, which grows throughout the South Sea, and which is largely gathered for Chinese

criterion to go by in selecting edible species either among the *Russulæ* or among other tribes. Some species of the most brilliant hues are perfectly safe; others, again, are poisonous. We have the Redmilk with its flaming juice, as safe as bread; so, too, *Agaricus violaceus*, a splendid purple-yellow, growing among dead leaves, and very much better to eat than to look at. But then there is the large scarlet cap, spotted with white, of *Agaricus muscarius*, the most poisonous of all Toadstools, and perhaps the prettiest. To return to the *Russulæ*. Among them are at least four edible species—*A. heterophyllus*, *A. lepidus*, *A. vesicus*, and *A. virescens*. These are common, and are happily the most widely distributed of all the tribe. Moreover, I regard them all as among the best esculents. But amongst them one is pretty sure to come across examples of *A. emeticus*, *A. sanguineus*, or *A. acris*; and these three latter are virulently acid species, more or less poisonous. If one or two of them got into a dish of the others, unpleasant consequences might ensue. I have often gathered and eaten plentifully of all the first-mentioned species of *Russulæ* without any accident, and I think that the risk of making mistakes is very slight if only a little circumspection is used. At the same time it is right to say that some cautious mycologists have advised debarring *Russulæ* from the table altogether, thinking that the acknowledged good and excellent species should be avoided on account of the evil qualities of their near congeners. Others, again, are far from careful. I think the good *Russulæ* are both too nice and too plentiful to be altogether rejected; but certainly no one ought to gather them who is not well acquainted with them, and who does not possess enough of discriminative talent. Growing frequently in the same situations and amid the *Russulæ* is a Mushroom that does not belong to that tribe. This is

Amanita rubescens, or the Blusher, if I may be allowed to call it so. It is a thick and rather solid-looking Mushroom, with a brown green cap studded with whitish warts. The gills are white, and the plant remains in the "button" stage till it has attained some size. The stem is thick and bulbous, often being slightly tinged with red towards the base. A peculiarity of this Mushroom is that, when any part of it is broken or injured, the white broken flesh speedily blushes, or becomes tinged with a brick-red colour on its exposed surface. It is very good eating, cooked in any of the ways used for the field Mushroom. If all Mushrooms were, like the *Russulæ*, so intimately connected with Toadstools that only a keen and experienced eye could tell them apart, then it would be easier to understand the superstition that prejudices our countrymen and countrywomen against them. But, as the reader will have seen, more than a dozen abundant species are readily distinguishable, and are so distinctively marked that anyone knowing them might gather them fearlessly in the dark. Because there do exist some poisonous species is no reason for rejecting a large number of others which are perfectly safe and agreeable food. It is a reason in the case of the *Russulæ*, and in their case alone, for particular care and the exercise of experienced judgment; but no such reason can apply in the case of the Urchin, the Chantarelle, the Morel, the Redmilk, and the rest of those I have described separately. It has been objected also that Mushrooms could be of little use to the poor, because they mostly need sauces and adjuncts which the poor could not add to them. This is certainly a mistake. Most species of fungi can be made into appetising dishes with no further addition than salt, pepper, and such herbs as every cottager possesses. They require some care in cooking, but no more than it is within the capacity of any labourer's wife to exercise. People sometimes say that there is nothing to be gained by adopting

The family of *Russulæ*.—It is a large family, comprehending a number of species, some of which are esculent, and some of which are very deleterious. Unfortunately, it is not very easy to describe the differences between the good and evil species; at least, not so as to make them clear to amateur fungus gatherers. They can, however, be distinguished with ease and certainty by those who have learnt them through ocular demonstration. But I would recommend people to be cautious when first attempting to discriminate the *Russulæ*. The tribe are common in every wood during the summer and autumn, and appear on lawns or on the turf of pastures near copses. They are an elegant class, with neatly-formed caps of red, crimson, pink, violet, fawn, white, and green of various shades. The gills are white or cream coloured. But colours are no

A freer fungus diet, unless it be augmented risk to health, or even to life. Of course there is risk if people refuse to learn something of the species before setting to work to gather

the esculents. But if they will first learn to distinguish them, just as they learn to distinguish the various vegetables in a garden, then the risk disappears altogether. If you reject wholesome Mushrooms because they have acrid Toadstools as near relations, then, to be consistent, you ought also to reject the Potato and Tomato because Belladonna, Henbane, and Stramonium are congeners of them; you ought to reject all vegetable esculents, in short, since there are innumerable poisonous plants in every tribe. That is what such an objection ends in if carried to its logical conclusion. The advantage to be gained by using such Mushrooms as come in our way is shortly this. We should gain a whole series of dishes to add to our usual *menu*, some of which are quite luxurious, and which would cost us nothing. To wealthy people this may not be of moment; but it should be a valuable boon to the large class of country-dwellers whose means are limited. And Mushrooms are a very wholesome and nutritious kind of food if not abused. Chemically, fungi more resemble meat than other vegetable aliment. That is to say, they are nitrogenous, and give to those who eat them the "flesh-forming constituents" of animal food. One mycologist, who for some time resided in a remote part of Germany, where during certain seasons the peasantry lived almost entirely on Mushrooms, has told us his experience. For six or eight weeks he ate nothing but Mushrooms, usually raw, with bread and salt. At the end of that period his health had improved, and he had put on some pounds in weight. But no kind of Mushroom should be abused. Though light, the fungine calls into play quite as much digestive energy as does strong meat. Hence, we ought not to eat too largely at a meal, and ought to add plenty of bread to the repast. Again, it is important to remember that fungi are unfit for food if at all decayed or if grub-infested. Moreover, they should not be kept longer than the day after they are gathered, and, indeed, are best if eaten quite fresh. They go bad with the same celerity as meat or fish in hot weather, and are decidedly unwholesome when mouldy, withered, or if the process of decay has at all commenced in them.

The little popular and cheap treatises on fungi of Badham, Berkeley, Cooke, and Smith will be found to be sufficient guides to the knowledge of most of the commonest esculents. I have spoken of a dozen species that are abundant and universal throughout this country. I have described these with such care as might be, without the use of technical terms, and have attempted to specify the individual characteristics of each. I certainly think that anyone possessed of only ordinary discriminate talent in the garden or the field should be able from these to pick out and identify some, if not all, that I have named.—*Field*.

HINTS FOR DAHLIA CULTIVATORS.

THE fact that a large exhibition of Dahlias is to take place at the Crystal Palace at Sydenham in September is calculated to put the cultivators of this flower on their mettle. In all probability this exhibition will become an annual one, and thus another society will be added to the list of those which come under the denomination of special societies. Be that as it may, it is certain that the cultivator of Dahlias must prepare himself for the fray if he would acquit himself with honour at the coming show. It is equally certain that in order to have good flowers at the proper time, a considerable amount of attention must now be given to the plants, and not only in regard to watering, thinning, and disbudding, but also to destroying insects.

The earwig constantly infests Dahlias, and though from time to time earwig traps have been invented, they have failed to displace the old plan of an inverted flower-pot, with a little Moss in it, placed on the main stake. This becomes their hiding-place, and from it they issue forth with the audacity of freebooters to occupy and disfigure the blossoms. They require

to be looked after daily, and indeed oftener, when the existence of a good show flower or two is at stake. But the earwig is not the only depredator; and an old Dahlia exhibitor once said he had become quite a secondary consideration, for thrips, both black and brown, were a source of much greater danger to the flowers and concern to the exhibitor.

Thrips.—The best remedy against thrips is water. Any plants imported with this pest should be freely sprinkled overhead, and the thrips do not like a shower-bath of this kind; but these overhead sousing should be done before the buds show colour, and as soon as a promising bud is cleansed it should be inserted in a small muslin bag, and remain there till nearly full bloomed, and then be replaced by a cover used for shading purposes. I have known a successful exhibitor of Dahlias, in the days when there were more shows and a much keener competition among Dahlia growers than there is now, have as many as 1500 of these little bags in use at one time, and it was absolutely necessary all these coverings be put on to have blooms fit for showing.

Mis-shapen buds should also be cut away, as they never develop into good blooms. They will be certain to come cross-eyed and irregular in shape. Shading is a matter of great moment, and requires close attention. All dark coloured flowers simply require to be protected from the sun, but light ground varieties should be covered as close as possible as soon as the petals are perceptible. It is the act of shading that brings out the purity of the ground colours, and gives that delicate tipping of colour to the petals which makes edged flowers so delightful. Shades made of tin are generally used (also called cones), likewise inverted flower-pots.

Mulching about the roots must also be looked after to keep the soil cool and moist. Very much depends upon attention, and it is the observance of small attentions that leads up to good show flowers. The coming exhibition will be certain to give an impetus to the cultivation of the Dahlia for show purposes; and the better the show is, the more satisfactory will be the revival of the practice of growing Dahlias for exhibition.

R. D.

Plantains on lawns.—A question has been asked with regard to the best means of getting rid of Plantains from lawns. Some thirty years ago my father came to reside in this rectory; the lawn at that time was one mass of Plantains that made it an insult to call it turf. He tried with his own hands every known way to exterminate them. He at last bethought himself that a poison might answer his purpose, so he invented himself a solution of arsenic which he tried, and to this he steadily devoted his summer evenings, until in three years not a single Plantain was to be seen, nor has there ever since appeared any, except a stray one here and there, which were immediately pounced upon. For twenty-five years hardly a Plantain was to be seen on our lawn. Late my father, who is advanced in years, has been unable to stoop or see; consequently there may be a dozen or two Plantains on the lawn now; and, as he never lets anyone but himself touch the bottle, they will probably increase. His *modus operandi* was as follows: He took a small garden basket, to which he lashed a small vial containing the solution of arsenic; he cut off just the top of the Plantain with a small penknife, and dropped one drop of the solution into the centre of the root. In twelve hours the whole of the plant was dead. A small circle of earth appeared for a day or two, after which time it was entirely covered. No turf was killed by the arsenic, as my father was always particular as to not allowing any to run over the root. In all the years that he used this process he never hurt his hands or his clothes, or anything else. Cats, fowls, and dogs have always been kept here, and no injury has ever befallen any of them. In my experience, not only in my father's case, but in that of many others to whom he recommended his plan, that only is the effica-

cious method of eradicating Plantains from a lawn. But it must be done properly and carefully.—*VERB SAP, Winslade, Basingstoke.*

— If the correspondent who complains about Plantains will take a pocket-knife and pick out the centre or eye of each plant, and then pour a little paraffin oil on it, he will find the oil will penetrate to the roots, and the Plantains will wither away. It should be done when the weather is fine and hot.—*E. G. L., in Field.*

GARDEN FLORA.

PLATE CCLII. IMPATIENS SULTANI.*

THIS pretty Balsam has been accidentally introduced from Tropical Africa by Sir John Kirk, who sent a Wardian case of plants to Kew, and on the soil in which they were packed some seeds germinated, among which was this new *Impatiens*. Although the beauty and variety of the Balsams already in cultivation are considerable, this plant possesses sufficient distinctiveness and beauty to win for it a great deal of favour. The habit of this *Impatiens* is, so far as is known, rather dwarf, otherwise it resembles the common garden Balsam, except as regards the flowers. These are of the richest carmine-red, the little knob in the centre formed by the united anthers being deep purple. The spur is narrow, about 1½ in. long, and greenish white. These flowers are produced in axillary corymbs, or on weak plants singly. On strong plants they are arranged rather thickly round the ends of the branches, so as to form as it were a handsome bouquet. On older ones the arrangement of the flowers is irregular, but there are always sufficient flowers to make the plants attractive.

CULTURE.—The cultural requirements of this species are those of the common Balsam, namely, a rich light soil with plenty of heat and sunlight whilst they are making their growth. As soon as the plants have done flowering, they may be cut back and started afresh at once, when in about a month's time they will be as gay with flowers as ever. Plants at Kew have by this treatment been kept flowering all the year round. Like most species of *Impatiens*, this appears to be an annual, and although no plants have produced seeds at Kew, yet there is no difficulty in rapidly increasing it by means of cuttings, which strike quite freely all the year round. Plants of this new Balsam have this year been planted out in the open borders at Kew, and at the present time are covered with flowers, producing a charming effect associated with other plants. Its dwarf neat habit of growth and profuse and continuous flowering specially adapts it for "bedding out." Hence its value as an ornamental plant is considerably increased, there being but few cultivated plants that adorn the stove and the open border at the same time. The species was named by Sir Joseph Hooker in compliment to the Sultan of Zanzibar, from whose country it was introduced. It has been exhibited two or three times this season.

There are some hundred and fifty species of *Impatiens*, and although many are worthless weeds, there are a few handsome plants amongst them. Little need be said of the common garden Balsam (*I. Balsamina*), which ranks among the finest and most valuable of summer herbaceous plants

* Drawn in May last from a plant in the Royal Gardens, Kew.



IMPATIENS SULTANI

for the greenhouse. The great improvements made through skilful cultivation in both colour and size of the flowers, as well as in the habit of growth, must be apparent to all acquainted with the species in its original form. It is no unusual thing to see Balsams 4 ft. or 6 ft. high, and are much through in places where they are well grown, while the flowers themselves in some "strains" almost rival Camellia blooms in size and doubleness. *Impatiens coccinea* is a beautiful crimson-flowered annual, of good, pyramidal habit, and also very free flowering. It thrives well through the summer out-of-doors, and is deserving of a place in the open herbaceous border. *I. Walkeri* is a dwarf stove species with pretty sack-shaped flowers, bright scarlet slightly mixed with green and yellow. In some respects it approaches very closely *I. Jerdonia*, another stove kind. The very unusual combination of colours which occurs in the flowers of this species is very attractive; the lower portion or spur, which is so inflated and blunt as to make the whole flower resemble a French *sabot*, is of the brightest red, the upper portion being a mixture of deep yellow and green. The flowers are borne in axillary racemes on the ends of the stems, which are purplish-coloured and interrupted, or "pinched," so as to look like articulations. *I. Hookeriana*, a native of Ceylon, is perhaps the largest flowered species of all, and were it not for its shy flowering character it would become a very popular plant. The stems are rather thick and sturdy, habit shrubby, and the foliage is pale shining green. The flowers are large, pure white, the lower portion being marked with rich blood-coloured streaks, spur bending round so as to form a hook.

Other good species are *I. platypetala*, which appears to be not unlike *I. Sultanii*; *I. pulcherrima*, a purple-flowered, tall growing stove plant; *I. glandulifera*, a hardy annual rather common in gardens; and *I. scapiflora*, a very curious tuberous rooted kind without any stem, the leaves springing from the tuber, as also do the pale lavender-coloured flowers, the whole plant looking very like some of the stemless Begonias. B.

FRUIT GARDEN.

DEAR F. CHEAP FRUIT TREE BORDERS.

NOTHING perhaps strikes the horticulturist in this country so much as the difference between the methods of culture in a private garden and in a market garden, and this difference is more observable in the matter of fruit culture than in anything else. In private gardens the most expensive plans are as a rule adopted, and in the market garden the cheapest, and the results in both cases are about equal. Take the position of fruit tree borders for example. Instances could be named in which the proprietor has been induced to spend sums that would have kept him supplied with Apples and Pears, &c., almost for a lifetime in simply forming the fruit tree borders of his kitchen garden by means of soil carted at great expense from a distance, and carting the existing soil away; while outside his garden walls his tenants and cottagers have been growing fine crops of the same fruits for generations on the natural soil just as they found it. And this does not apply to Apple tree borders only, but in a still greater degree to Vine and other fruit tree borders under glass. The mania for robbing the park of turf for every fruit tree border that has to be made indicates, as Lindley said nearly thirty years ago, nothing but "mere ignorance." It is quite inexcusable going to the expense often incurred in this way without good reasons. When proprietors have es-

timates furnished them for the erection of vineries and Peach houses and the like, it is seldom that the expense of border making is taken into account, although it is always one of the most serious items of the cost, only it is not discovered till afterwards. To dig out a vinery border, perhaps 100 ft. or more in length, 3 ft. deep, and maybe 20 ft. wide, before it is finished costs a large sum of money; and to cart soil, and add expensive manure to it, to fill the border up again, costs more—in all probability as much as would have considerably extended the range of glass. But this is what has been going on in gardens for generations under the pretence of high-class gardening. Take an example that came under my notice.

Costly Vine borders.—A vinery over 100 ft. long was put up for what was regarded as a fabulously small amount, and an account was given of the same to others intending to build. Further inquiry, however, brought out the fact that the wall against which the vinery was built was in existence previously, and that, in addition to the cost of wood, glass, and building, &c., something like £50 had to be added for the cost of the border, which included the carting of the turf a mile and bones and manure. In this case the cost of the border was sheer waste, as for some 20 years before, fruit trees, including Figs, had grown in the soil that was there, and which had been frequently manured, so that all that was wanted was to trench it over and manure it again. This was proved by the fact that Vines afterwards planted in the existing soil of the garden did just as well as those in the imported turf from the pasture. No one denies that turfy soil from an old pasture makes a good border, but it is by no means certain that such a compost is lasting—evidence tends to prove the contrary, if anything. But that is neither here nor there at present; what we have got to realise thoroughly is the fact that, in gardens, where mostly all kinds of vegetables and fruit trees grow fairly well and bear in good seasons, turf from the pasture, to form either Vine or Peach-tree borders, is not needed, and that it would be needless expense to fetch it. Nothing is better known than that all fruit trees, and especially the Vine and Peach, thrive in soils of the most diverse description. There does not, indeed, seem to be any soil fit for ordinary farming and gardening purposes in which they will not grow and bear good crops. The difference between a poor and a rich soil is not of so much consequence, as the trees can be fed with appropriate manures at any time. The main constituents of the Vine, stone fruits, and Apples, &c., are potash, lime, soda, and phosphoric acid; and there are few soils where these do not exist in sufficient proportion to produce trees and crops of fruit, for a time at least, and they can at any time be added in the form of manures of a suitable kind. Lime, which yields potash and soda as well as other foods, by decomposition of the matters in the soil, is very easily applied in the form of fresh lime, or as lime scraps. But where other trees thrive satisfactorily, the soil will suit fruit trees as it is. Far too much importance is attached to special mixtures, and especially to the advantages of loam, its open, fibry texture being regarded as more favourable to root production—a question by no means settled. A spongy border of turf produces thick and strong shoots, but it is not more fertile than a common soil rich in the same kind of food that is also of firm texture.

Pasture loams differ greatly, according to the formation on which they lie; and one has no guarantee whatever that the loam of one locality is the same as that in another, or as suitable for the same purpose. Lindley has said there is hardly ever occasion to go out of the garden to find a compost rich in all the essential elements of loam from an old pasture for borders, and experience has proved that he was right times without number. We have known amateurs with small opportunities prove this by using the common soil of their garden for Vines and Peaches, and producing fine crops, when expensively prepared borders not many yards dis-

tant did not produce results one whit better. Lindley's prescription for an artificial loam that would form a substitute for turfy sods was simple enough. The great advantages of turf in the gardener's eyes are the fibrous roots of the Grasses it contains, and without which it becomes just like the soil of any garden. This fibre, Lindley tells us, consists of nothing more than "underground straws of a more compact texture than usual. The two are chemically as well as organically the same, so far as cultivation is connected with them. Replace roots with straw. Stable litter, but little fermented, contains all the equivalents—organic matter, saline matter, an absence of azotised matter in excess, and mechanical properties. Provided proper soil is procurable, everything else is thus furnished; and thus litter is better than even decayed leaves, because it keeps the soil more open." What Lindley means is, that common garden soil of a loamy character, enriched with half-decayed stable litter, will make as good a compost for a fruit tree border as turfy loam. One of the best of Grape growers, Mr. M. Henderson, of Cole Orton, once told the writer, in a letter, that he made his borders pretty much after the recipe of Dr. Lindley, judging from the description of the materials furnished. In forming a fruit tree border, what the cultivator has got to do is this, and it is exactly what we have many times done, with the best and most lasting results, as far as relates to Vine and Peach borders. In preparing a border, first note the character of the soil where the border is to be. If it consist of very old kitchen garden soil that has been manured for many years and looks black, as if laden with humus or decayed vegetable matter, add plenty of old lime scraps to it, or even freshly slaked lime—the smaller it is pounded the better—and, in addition, add burnt clay or loam with or without fibre. Burnt clay and loam are the best materials, and these two will do much towards restoring the compost to its original virgin fertility, only they must all be turned over and thoroughly incorporated, and this is necessary in all cases where mixing is needed. Should the soil, on the other hand, be poor and sandy, it should be stiffened by additions of stiff loam, burnt clay, or any kind of good heavy soil; and should it be heavy and clayey, then sand, rotten stable litter, old hotbed refuse well rotted, and lime should be applied. The object should be to make it friable and permeable to the roots. About seventeen years ago I had to make a

Peach border, and it has produced grand crops almost every year since. The foundation of the Peach house was first dug out, throwing the soil into a ridge out of the way as much as possible in the centre, and after the house was finished it was levelled down again. It was such a soil as most gardeners would probably have condemned and removed bodily; but we could not do that at the time, and it was decided to keep it and make the best of it. With that object, a portion of the surface of the border was wheeled on to the nearest vegetable quarter, and as much taken from the quarter to the border, the vegetable soil being much lighter, having been cropped and manured for many years. In addition to this, lime scraps from an old building and a good quantity of charcoal were put to it, and then the mixing of the soil and draining of the border began. An opening 5 ft. wide and 3 ft. deep was taken out at one end, the whole width of the house, and some 5 ft. more. The soil, with the additions mentioned all laid on the top of it, was then turned over, not as in trenching, but like a heap, every particle being broken up and mixed, and the whole left in a finely-divided condition. The cross and longitudinal drains were put in at the same time, and after the border had been trenched in this way, it was levelled down and planted, and has not been disturbed from that day to this. It was all made of the soil and the refuse composts from within the garden, without an additional penny of expense; whereas, had it been formed of turf, it would have cost many pounds extra. It is often necessary to deepen fruit tree borders, owing to a thin

soil lying perhaps upon a rocky or hard foundation, and we would desire nothing better hardly than to deal with a border of that kind. A hard-bottomed soil is the best to begin with, because the hard sub-soil saves the necessity of concreting and all that sort of thing, which is seldom or ever necessary. When the soil is shallow, the plan is to trench it over, take out the bad bottom to the requisite depth, and add fresh soil to make up the depth again. But no border requires to be very deep. In this climate one might say the shallower the better. Deep borders in a climate where the summer is uncertain and the sunshine scarce mean rank and unfertile growth. There is nothing more certain than this. A shallow soil does not necessarily mean a poor soil, but only one better under the influence of the sun and air, and that will give the roots an equal chance with the branches.

J. S. W.

AMSDEN'S JUNE PEACH AT LA DÉCAPRIS.

M. RAYMOND AURAU, the proprietor of this estate, who, for his remarkably successful cultivation (especially of American vines) has just obtained the prize of honour at an exhibition at Draguignan, was one of the first to plant on a large scale that remarkably early Peach, Amsden's June, of which some thousands of young trees have been imported from the United States. In the spring of 1879 a hundred trees were planted at Décapris on the same piece of ground in which a number of Jacquez Vines were at the same time planted. In the rich and deep soil of Décapris the Jacquez vine makes the most luxuriant growth, but the growth and development of Amsden's June Peach on the same soil is quite extraordinary. Planted three years ago, as one year's grafts of ordinary strength grafted on Peach stocks in America, these trees now have stems with an average circumference of 8½ in. The heads of those grown as standards, about 3 ft. high, measure over 5½ ft. in average diameter. These heads take naturally, and almost without any pruning whatever, the most regularly rounded form. I saw these trees on the 28th of June last, and I may say without exaggeration that I have never seen, except in America, Peach trees in the open air so well developed at the age of only three years. I never before had an opportunity of witnessing such exuberant growth and such an abundant crop. Every tree this year bore at least 105 lbs. of fruit, and there were some on which the crop must have exceeded 140 lbs. At this time (June 28) at Décapris, where the winter temperature is lower than that of Hyères and of the sea coast, and where, consequently, fruit does not ripen so early, Amsden's June Peach had been gathered more than ten days. The fruit, although far too numerous on every tree, was, however, tolerably large, weighing on an average 2½ oz. each. It was particularly well coloured, and I ascertained that it was disposed of at the market in Paris at a very remunerative price of from £7 to £8 per 100 kilogrammes (about 350 lb.) At even half this price the entire crop of these 100 Peach trees at Décapris, which are only three years old, would yield the very handsome sum of from £120 to £160. If we take into account, as we should do, that these trees were laden with far too many fruits, and that the thinning out of the half or three parts of them a fortnight or three weeks after flowering would have had the effect of increasing the size of those remaining to such an extent that the sum total of the entire crop would have lost nothing in weight, we are led to affirm that the amount realised would have been much more considerable. The fact is, that the fruits would have ripened sooner if they had not been so excessively numerous, and would have attained the normal size and the usual weight of Amsden's June, viz., from 3½ oz. to 4 oz. Earlier and larger fruit, as is well known, command far higher prices, especially in the Paris markets. I may mention that the same vigorous growth displays itself under the same conditions amongst other early American Peaches

more recent than Amsden's June, which have also been introduced into cultivation in France, and especially in the south. Of these Alexander, Cumberland, Musser, Waterloo, and Downing are just as vigorous in growth as Amsden's June. They all come from America, grafted on Peach stocks raised from seed.

Peach and Pear growth in America.—The Peach tree, when introduced from Europe into America, acquires (especially in the United States) a very great degree of vigour and a development far superior in energy and extent to that which it attains in France, even in our most fertile, well-watered valleys on the Mediterranean coast. The rich virgin soil of the United States gives both the Peach and other fruit trees a vigour of growth and such abundantly productive powers as are very seldom seen on the soil of Europe. Williams' Bon Chrétien Pear, with its fine melting fruit, is a large tree in the State of New York, in Pennsylvania, &c., and its produce fill the huge markets of New York, Philadelphia, Boston, and Washington. It is said to have been introduced many years ago into the United States by a citizen of Boston named Bartlett, who while travelling in Europe had seen it in London where it was just beginning to be known. He obtained some of the trees, and before long, thanks to them and still more to the very large consignments of the same variety sent by our great French nurseryman, M. André Leroy, of Angers, Williams' Bon Chrétien obtained a well-deserved wide distribution in the United States. It grows there into large trees in the open air, being usually left entirely to itself untouched by the pruning knife. The produce of these trees is very considerable, and in September Williams' Bon Chrétien Pear and Peaches come in thousands of loads into the markets of the towns mentioned above. This Pear is generally called Bartlett in the United States, from the name of the citizen who, it is said, introduced the first trees of the variety. In the Boston cemetery, where this citizen benefactor reposes, may be seen on the tombstone a Williams' Bon Chrétien Pear, sculptured as a memorial of its introduction. As to the Peaches, the early varieties, Amsden's June and those mentioned further on, for which we are equally indebted to the fruit growers of the United States, owe to the American soil their peculiar qualities of very great vigour of growth and great productive powers. These qualities are still more pronounced in Europe when we plant trees which have been grafted on Peach stocks raised from the seed of the vigorous American varieties. The double vigour of stock and scion combined gives the early varieties of which we have been speaking, and which we import ready grafted from America, a vigour of growth far beyond that of our own most vigorous kinds. I have this year seen and tasted at Décapris and at other places on the coast the fruit of various other new early Peaches, and especially that of Alexander, Waterloo, Downing, and Wilder. I now recommend these four varieties with confidence, and especially the first, the fruit of which is quite as early as that of Amsden's June and appears to me to be something larger; it is also very well coloured.

NARDY.

The Currant Grape.—This is now in fruit in the Botanic Gardens, Regent's Park. It does not seem to be a very valuable Grape from our every-day point of view, but it is interesting. Public belief supposes the common dried Currant of the grocer's to be a Currant, but it is really the fruit of this Grape (*Vitis Corinthia*) Currant being merely a corruption of Corinth.

Swarms of earwigs are making sad havoc with the foliage and fruit of Peaches and Nectarines. Anything in the way of traps are, I fear, of little use, as they would hardly forsake a ripe Peach to take refuge in a Beanstalk or snares of a similar character. I can think of no other remedy than a sack well tarred and a soft brush; place the former under the trees at dusk and run the brush gently over them. If this is done early the insects

will hardly have had time to settle to their work. Can any of your readers suggest a more effectual remedy?—E. B., *Claremont*.

Removing Gooseberry trees.—This should be done in the end of September or early in October; dig round them, gradually loosening the roots with a steel fork so as to save all the fibre or small roots; dig out large holes on well trenched soil and spread the roots out evenly, work the finest soil over them, then level and tread it firmly; water thoroughly and mulch the surface with half rotten manure; do not prune until the buds show signs of growth in spring, and a good crop of fruit next year will probably be the result.—J. GROOM.

Successful orcharding.—The following statement has been made by Mr. Wade of his treatment of an old orchard when he resided at Lockport, New York State: After pruning away the dead portions of the trees, the ground was ploughed five times before the fruit was ripe. One manuring was given to the whole orchard, with some extra doses to sickly trees. This was the even or bearing year, and 208 barrels of Apples were sold that autumn at 63 cents a barrel. The Roxbury Russets were so large that twenty-two covered a barrel head. The next year, or off year, over 300 barrels of Apples were sold at 1 dol. 94 cents per barrel.

Grafting the Grape.—At a meeting of the Ontario Fruit Growers' Association the president stated that he had been perfectly successful in grafting the Grape, and in one case where he took up a Brighton Vine grafted on one of Rogers' Hybrids, the union was so perfect that he could scarcely discern where it was. The secret of success, he said, lay in the one essential requisite of lifting the Vine before grafting, and when the operation is performed setting it back again. This checks the flow of sap which otherwise drowns the graft. He stated that every scion he put on last year not only grew, but did well. He would prefer a cutting with one good eye than with two poor ones.

Strawberry Polissier.—A correspondent of the *Revue Horticole* writes as follows respecting this Strawberry: "Some ten years ago this variety was scarcely known in the environs of Paris notwithstanding the excellence of its fruit, and its being robust, vigorous, and fertile. It is very early; at Montreuil, where we remarked it this year, it ripened its fruit ten days in advance of the earliest varieties. The berries are of good size, and call to mind those of Marguerite, although better shaped and less pointed; they are of a fine vermilion-red, the flesh being dark red, melting and sugary, with an agreeable aroma." This Strawberry is probably worth the attention of English growers. Judging from the description, it is probably a seedling from Marguerite, which only needs improvement as regards flavour and firmness to be one of the best Strawberries we have.—J. C. B.

Late Peaches and Nectarines.—It may be a matter of opinion, but, so far as I have tried the new introductions amongst late Peaches and Nectarines, we have not gained very much. It is true we have gained something in the way of variety, and the season may be extended a little, and as regards size, no one would wish to dispute their claims to notice on that score; but what are they fit for when we get them? As far as my experience goes, they are deficient in flavour; they do to look at, and to make a dish when other choice fruits are getting scarce, and that is about all that can be said in their favour. It seems to me that after one gets through the month of August it is useless to expect good-flavoured Peaches and Nectarines. I do not wish to deter anyone from growing them. There may be some, perhaps, who feel sufficient interest in them to devote time and space to them. But for those who are seeking for advice I would say, do not plant them at all if your space is limited, and only sparsely if you have long lengths of walls. Such large Peaches as Lord Palmerston and the Princess of Wales are very handsome on the table when

well grown, and some may think fine appearance sufficient compensation; but in gardens where the houses are small I consider it better to devote the space to those varieties that are known to be of good quality. I do not say that the late Peaches are necessarily inferior to the others in quality, as I believe they would be much better in this respect if they could be ripened in the same temperature as the early varieties; but as the temperature gradually gets lower after the end of August in our unheated houses, there is not heat enough in the cold and damp days of September to bring up the flavour. I should like to see these late Peaches and Nectarines grown in pots in an unheated house up to the end of August, and then be transferred to another house, where the temperature could be maintained by fire heat at 70° by day and 60° by night, allowing a rise of 10° to 20° during bright sunshine, with plenty of air. This plan would be, I think, a proper test to prove whether they are naturally inferior in flavour or not. The best-flavoured late Peach for an unheated house I consider to be the Salwey, and the best Nectarine Queen Victoria. It is only right to say I know nothing about the merits of any of the introductions of the last five years.—J. C. C.

ROSE GARDEN.

AMONG THE BRIERS AND BUDS.

SELDOM has there been a better take of buds than this year. With clean strong Briars, and the selection of the fittest—that is, as a rule, the strongest and plumpest buds—the results have been so satisfactory, that already most of the ties have been burst off, or if too strong for this have cut deeply into the bark of the stocks. Where this is the case such ties should at once be cut. The growing wood will then speedily push them off, which is safer practice than removing them bodily at once. If the ties are left too long they not only retard growth, but so grievously wound the bark, and even young wood of Brier and bud, as to endanger the future soundness of the union between them. Various plans and substances are employed to bind the bud firmly in its new position, such as elastic bands, wool, bass, grass, &c. Neither of them can be said to have yet reached perfection. The ties of buds should be so strong as to hold the bud in its place without unduly wounding the bark and so perishable as to decay within a month or so of the time of their being used. Then as the union between bud and stock were completed, and active growth progressed, the ties would drop off, and there would be an end of them. With our present materials the bud has to cut most of his ties off within a month or five weeks after the budding season. Occasionally, too, a fresh tie will be found needful in the case of those buds that have taken imperfectly. This, however, is seldom necessary, for buds not united in a month are mostly dead or useless.

Second budding of failures.—There ought not to be any failures, but nevertheless there are a few in most roseries, and at times a good many among those inserted by prentice hands. It may, therefore, be useful to point out the most business-like way of treating them. Some bud the same shoot higher up. This is a simple and easy method, and in every way perhaps the best for the sure taking and rapid growth of the second bud. But then by budding so wide of the main stem of the Brier we lay the base, for an unsightly Rose tree and a constant crop of Brier suckers in its centre. Therefore, it is better, though it needs more skill, time, and patience, to bud in the same place of the bark as before, if possible only going as far to one side or under the old cut as possible. If ties are removed and the condition of the buds examined within three weeks or so of the time of budding, the process of rebudding, when found necessary, will be found far more simple and easy.

Treatment of started buds.—The showery weather of late may have induced a few on many of the strongest buds to start into

growth. Where this is the case, and they are growing with vigour early, or indeed any time in August, it is safest to foster their growth as much as possible by cutting back the Briars to within a few eyes of the growing buds. The whole of the strength of the growing Brier thus being forced into the young Rose shoot, it may be able to grow to such good purpose as to mature its wood sufficiently well to withstand the severest winters. Such precocious buds do in fact two seasons' work in one, and look more like two years old than six months at the end of the season. This practice is most different from that sometimes advocated of forcing dormant buds to break by the removal of the Brier shoots so soon as the union between buds and Brier is perfected. That plan is full of danger, and is to be avoided. But buds that will break of their own accord, and that with vigour, early in the season are far safer pushed on without being hindered with the growing Brier ahead of them. Of course in such cases the growing Rose will be carefully tied to a guide stick or some support to prevent it being blown out by the wind, an accident to which unseasonably precocious shoots are far more liable than those that start and grow at the more normal time.

Briars with dormant buds.—A great deal has been said and written on the stopping, beheading, and cutting back of Briars. Writing broadly and with many years' experience, they are best left alone till the following season. It used to be thought that the early stopping of Briars during the current year plumped up the Rose bud, at their base. This is now held to be doubtful, inasmuch as it checks the forces and reduces the volume of the current of sap that secured their union with the stock and fed them with food afterwards. And besides, if the Brier sap is so suddenly or severely checked, the result would be to force the Rose buds to break at a dangerous season. Hence it is safest for the bud and most conducive to the health and vigour of the Brier to let the shoots of the latter run almost or altogether wild throughout the first season. By shoots, however, is meant one vigorous shoot to each bud. All beyond this and even the subordinate laterals on this should be removed, so as to concentrate a full current of nourishing fluid or sap on the buds throughout the growing season. With this ensured a perfect union is effected between buds and Brier, and all wounds and bruises healed. There is little fear of the maiden Rose bud turning out a complete success in the coming Rose season of 1883.

D. T. FISH.

Moving Rose trees.—Will someone give me a few hints upon moving Rose trees budded this season, and which have made long shoots? YOUNG BEGINNER.

Fungus on Roses (*G. M.*).—The name of the orange fungus on your Roses is *Phragmidium mucronatum*. Its spores or seeds are different in form and nature at different periods of the summer and autumn, and at one time it was supposed that different fungi grew from the same pustules or spots, but the fungi are now known to be all forms of one and the same species. *Uredo rosæ*, *Lecythea rosæ*, and *Aregma mucronatum* are all the same thing. Long continued dry, hot weather is said to favour its growth. As far as practicable gather the infected leaves, &c., and burn them. Cures are almost hopeless; prevention should be aimed at.—F.

Roses from cuttings (p. 160).—I do not know Mr. Crook's plan of getting Roses eight months after the cuttings are put in, but for many years I have adopted the following plan: In November take cuttings of this year's wood well ripened from 1 ft. to 18 in. in length. Place them in trenches in the open ground, taking care that three-fourths of the cuttings are below the surface. In most seasons 90 per cent. will make good plants, from half of which, or more, Roses can be cut the following autumn. I have plenty of blossoms now from cuttings put in in November last.—HENRY N. ELLACOMBE, *Bitton Vicarage*.

KITCHEN GARDEN.

TURNIPS AND THEIR CULTURE.

TURNIPS deserve and generally get a place in gardens of all sizes. Professional cooks use them in a great variety of ways, and cottagers find them valuable at all times. Therefore it is important that only the best varieties be grown, and such as will keep up a constant succession from the beginning to the end of the year. This may easily be accomplished by following a few simple directions.

The American Strapleaf is an excellent variety for sowing as a first crop very early in spring. Its leaves are small, and consequently the plants may be grown very closely together. As may be seen, it is flat, and not very deep in the flesh, but it is tender and sweet, and should never be omitted from the list of spring Turnips. Various



American Strapleaf.

varieties or types of the Strapleaf may be found in cultivation, but the accompanying figure of it represents the true variety.

The Snowball is another fine Turnip for early use. It is not quite so early as the preceding, but should be grown as a succession to it, or as what is generally termed a second early. It is larger than the Strapleaf, and to grow it well it must have more space than that kind. The true variety well merits the name "Snowball," as both inside and out it is very white.

The early red-topped Munich is not unlike the Strapleaf in shape, but differs widely in colour, as it is only white below and purple on the top. The flesh, however, is of that pure white colour which is so much desired, and of all varieties it is most suited for frame culture earlier in the season than any of the others can be had in the open air. It may also be grown as an early spring variety in the open, but in this respect its claims are not greater than the two kinds just named, and the place we shall give it is that of a frame Turnip, and I may say that a couple of lights of it well up in size early in April will be found to compare most favourably with any other vegetable to be found in the garden at that season and very acceptable.

Carter's Jersey Lily.—This is a Turnip recently introduced to our gardens, and it has proved to be so handsome and valuable that I have no hesitation in giving it a place here amongst the best standard varieties. It may be described as a large Snowball. It possesses all the good qualities of that variety with the addition of being in prime condition for the table in a much larger size than Snowball.

Golden Ball represents a different class of Turnips from any of the preceding, and it is one of the best of the yellow section. Many object to these Turnips, owing to their colour, but they are very hardy, remaining long tender in hot weather, and not easily injured by frost. They are also longer in "bolting" than any of the white kinds, and owing to this they are

well suited for sandy or shallow soils in summer. In March last we sowed a small patch of Golden Ball, and it was only the other day the produce was cleared off the ground, and not one of the plants ever attempted to run to flower; no other kind would have been so long in doing this.

The **Jersey Navet** was sown at the same time as Golden Ball to see what winter varieties would do in summer, but the Navet was in full bloom in June; therefore, nothing more need be said of it as a summer variety, but it has special claims as a winter sort. As is shown in the woodcut, it is not unlike a large Carrot in form, and it grows in the same way. As the roots penetrate the ground to some depth, they are thus well out of the way of severe weather, and when grown for a winter supply it is seldom they are injured or fail. A deep soil suits this variety best, and where it is shallow it should not be grown.

Chirk Castle Blackstone will meet all wants in winter. Of all Turnips this is our favourite winter sort, and I am sure all who grow it once will never be without it again. Sown in autumn, it keeps on swelling up to Christmas or longer, according to the weather, and it will remain sound and sweet until April. It is by no means an attractive looking kind, being very nearly black externally, but internally it is as white as snow, and is as tender as any of the spring-grown Turnips.

Selection and soil.—As in the case of all vegetables, Turnips may be improved by selection, but the mere multiplication of names is a mistake; no one variety of Turnip will give a choice supply for twelve months running. Seed of all kinds is cheap, and seasonable kinds should alone be grown. My classification is the red-topped Munich for March, Strapleaf for April and May, Snowball for June and July, Jersey Lily for August, September, and October, and Chirk Castle from November to March, varied according to the inclinations and circumstances of the cultivator, with Navet and Golden Ball. As exhibition varieties, none equals Snowball and

Jersey Lily, and good, well-developed, spotless Turnips form no mean "dish" in a collection of show vegetables, but it must not be forgotten that having a good variety or growing the best kinds is not the whole secret of securing the choicest roots in unlimited quantities. This can only be done through good cultivation, and Turnips will repay attention as well as any other crop. Poor, gravelly soil will never produce

Culture.—Early in the season Turnips may form a first crop on the ground for the year; but later on, especially in the case of the winter ones, the seed may generally be sown on ground which has been cleared of Peas, Potatoes, or such like. In spring deep digging and plenty of manure suit them well, but in sowing after other crops, as suggested, manure is not often wanted and the soil need not be turned over; a hoe-

ing and raking of the surface will suffice in most cases. Drills should be drawn not more than 2 in. deep, and 1 ft. apart is a good distance in spring, but 18 in. may be given to those that have to stand the winter. Turnip seed germinates freely; it is rarely bad, and therefore thin sowing should be the rule. The young plants soon appear above ground, and in favourable weather they grow so quickly that it is almost necessary to begin thinning as soon as the plants can be taken hold of, as crowding has an injurious effect on them at first. It is a good plan to thin them all twice. At first they should be thinned out to 6 in. apart, and the second time every other one should be removed, which will leave the plants for the crop standing at 1 foot apart or thereabouts.

Snails are sometimes troublesome; they eat off the young plants, but a slight dusting of lime or soot generally prevents them from doing much harm, and dressings of the kind assist greatly in keeping away the grub and insects that often disfigure the roots. The Turnip fly, too, does not like coming in contact with soot or lime, and altogether a slight

dusting of one or the other or both of these may be given to the plants in a young state whether they are much in want of it or not. At all times the surface of the soil between the rows should be kept open and free from weeds, and this is best done by using the Dutch hoe frequently. So far this season has been a most favourable one for Turnip, as the predominance of rain and absence of long periods of hot weather have suited them particularly well. In hot dry weather Turnips soon become bitter and



Chirk Castle Blackstone.



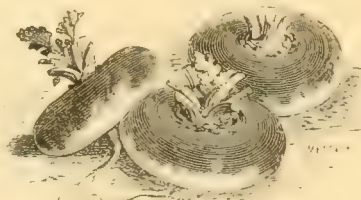
Jersey Lily.



Snowball.



Golden Ball.



Early red-topped Munich.



Jersey Navet.

VARIETIES OF TURNIPS

tender sweet roots. Well manured land seldom fails to bring forth good Turnips. It is, therefore, well to see that the soil has been well prepared for them before sowing the seed. This applies to crops at all seasons. In spring the earliest should be sown on a favourable spot on a south border. The first time the soil is in good working order in March put the first seed in out-of-doors, and sowings may be made monthly from then until the end of August, putting each kind in to follow one another as arranged above.

stringy, and in this state they are far from good; but by a little forethought and attention no one need ever be obliged to use such, as by sowing small patches frequently a constant supply of delicate roots may be secured. When many of them become ready for use together part of them may be taken up and stored in a cool shed. They will keep longer there than they would do in the ground, but Turnips taken up too soon lose part of their flavour; therefore, they should always be left in growing quarters as long as possible. In winter some take up their Turnips and store them away like Beet or Carrots, but nothing is gained by doing that, and it should never be practised unless the weather is unusually severe. I would never store the Chirk Castle except for convenience, as it is rarely injured by frost, but in frosty or snowy weather it is sometimes difficult to get them out of the ground.

Forcing.—Turnips do not submit readily to forcing. A close house would ruin them before they were a fortnight old. Frames are the only places in which they can be treated properly. They must not be forced hard, as this causes them to run to leaf and flower without forming bulbs. The best way is to make up a very gentle hotbed in February or March. Place a frame and some rich soil on the top and sow the seed broadcast thinly. Give abundance of air as soon as the young plants can be seen, and never coddle them up with coverings or maintain a very close atmosphere unless the weather really demands it. As the plants increase in size, thin them out to a few inches apart, and the bulbs may be used as soon as they are the size of cricket balls.

As an artificial manure for Turnips, nothing equals superphosphate. This may be dug into the ground before sowing, or it may be sprinkled thinly in the drills when opened for the reception of the seed.

J. MUIR.

Margum, Taibach.

SOME NEW POTATOES.

DURING last winter some eighteen new varieties of Potatoes were put into commerce, the majority of which I have grown here during the past summer and with varying results. Of that number only two are of American origin, namely, Queen of the Valley and Adirondack. It is true that some few trade growers had got possession of these kinds in the preceding year, but only from America direct. It is obvious, however, that any offer to the trade through an American trade list does not constitute a free and public offer to growers universally, and it is wisely held that new sorts cannot be considered as being in commerce in this country until they have been retailed by a home house. The tubers of Queen of the Valley, evidently of American growth, which came to me last winter, were truly of the biggest and ugliest. It seemed as though the kind had no other merit than its size and productiveness. It was grown last year at Chiswick, where its remarkable productiveness and apparently good quality when cooked gained for it a first-class certificate. No change could well be greater than has been produced in the form and style of the variety in only one season's growth. I have found no ugly tubers. The majority were large, and many quite handsome; indeed it was an easy matter to select a good exhibition sample. With me the tubers generally take the flat, broad form of Bresee's Prolific, and are in colour brick-red with deeper coloured eyes. It is a first-rate variety to grow in poor soil. Adirondack also came in somewhat ungainly form, though the sample lifted last year at Chiswick, where this too gained a first-class certificate, was an excellent one. This is a later and more robust-growing kind than the former, and with me did not produce any large tubers, but some of medium and even size, whilst all were very handsome. It evidently needs a longer season than the present one has been to fully mature its tubers. Its colour is bright red, and has rosy eyes. Its table quality is, for an American variety, very good indeed. Of home raised sorts, Cosmopolitan,

one of my own seedlings, is a very fine second early white kidney, much like International, but with the flesh of Woodstock Kidney. It throws a handsome sample, and is a heavy cropper. It may be safely trusted to make its way into universal cultivation. This, too, received a first class certificate at Chiswick last year. Another of my seedlings is Early Chester, sent out as a first early border, frame, or pot kind. It is the product of a cross between Early Market and Porter's Excelsior, and possesses all the best properties of these two early kinds. The top is very short; the crop for so dwarf a top remarkable; tuber, white and flattish-round in form; this too has had a first-class certificate. Defiance is a large, long flat kidney, raised by Mr. Millen, gardener to the Marquis of Downshire, Hamstead Park, from Irish seed. Its colour is a pale purple, mottled with white, and generally yields a handsome sample. With me this year it is not large, owing to the early loss of leafage, but the crop is clean and good. I think this will be much seen on the show table for a few years. I have not yet cooked it, but learn that it is first rate eating. Mr. Fenn put, through Messrs. Sutton, Reading, several of his new kinds into the market, the most prominent amongst which perhaps is Prizetaker, a handsome long flat kidney, having a stain of pale red hue; whilst it possesses all the fine table quality of Bountiful, it yet is very deficient in that variety's beautiful deep red colour. It is a large cropper, and throughout a capital variety. This has also obtained at Chiswick a first-class certificate. Reading Russet, yet another of Mr. Fenn's kinds, is also of a pale red or rose hue. Its form is flattish-round or pebble-shaped, crops heavily, never runs very large, but is always smooth and handsome. This kind is of beautiful table quality. Yet another of the Fulhamstead seedlings is Early Border; tuber handsome, flattish form, white, and of fine quality; quite a first early; a capital garden Potato. I found it a good cropper, and turned out not a single diseased tuber. Fiftyfold, yet another of Mr. Fenn's sorts, is later, more robust, and heavier cropper; indeed the produce as turned out on the grounds was remarkable, and it is well named. I found this, too, to be quite free from disease. It has a white skin, flattish in form, though not so handsome as I could wish, but none the less a first-rate garden Potato. As somewhat foolishly these with some others of this raiser's kinds were sent to Chiswick under numbers only, I cannot tell whether either of these last two received certificates last year. Between these two sorts were planted a few rows of Sutton's Filbasket, sent out last year; this too is a second early white kind of flattish round form. This when lifted showed nearly one half diseased, and altogether not more than one third the crop turned out by Fiftyfold. Fenn's Early Regent I have not grown, though that is offered for the first time this year, but if it be, as I have understood, a near ally to Bedford Prolific and much like it, then it is a good kind. From Mr. Sharpe, of Sleaford, I had his new kinds, Duke of Albany and Victor. Duke of Albany has exactly the top and flowers of Beauty of Hebron, but has white skin, and with me is somewhat coarser. It is a first early, quality fairly good, and should make a useful market variety. Victor is a small pebble-shaped kidney, white of skin, has a very dwarf top, is a first early, and suited only for frame or pot culture. A very promising kind named Premier comes from Messrs. Downie & Laird, Edinburgh. It is very like Carter's Eight Weeks, as both are of the Climax or Peerless type, but earlier and smaller. Premier is a first early; tubers white, of roundish, but slightly pointed form; crops well and is of excellent quality. Cleopatra, sent out by Messrs. Carter, is of the King of Potato type, but broad and flat, yet having a slightly arched outline on the under-side of the tuber. It is second early, a good cropper, and free from disease. These are the only kinds I have grown of this year's introductions, but there yet remains Myatt's Albert Edward, Edward's Victoria Kidney and

Kerr's Queen of the South kinds I know only by reputation. As to sorts coming on for future introduction, they are legion, and if they really prove to be *bona fide* improvements upon our present most generally grown kinds we must look for a revolution in Potatoes during the next ten years. During the past summer at Chiswick some fifty or more reputed new kinds have been tested with varying results, which will in due time be doubtless reported upon. Nearly thirty of these have come under the supervision of the executive committee of the International Potato Show, as that body itself determined that all seedlings entered for prizes at its shows should first have been grown at Chiswick for trial and inspection. Mr. Fenn, Mr. Clarke, the raiser of Magnum Bonum; the Rev. Mr. Peake, the raiser of the Vicar of Laleham; Mr. Ross, of Newbury; Mr. Lye, of Market Lavington; and many others, myself included, have sorts at Chiswick that will get recognition there according to their merits. But in my own case the troubles of a raiser are but just begun, for I have many others in hand that seem not only to be first rate, but some are in appearance reproductions of older sorts. It is in such cases as that that it becomes important to the raiser to have not only a wide and perfect knowledge of older sorts, but also to be enabled to grow them for comparison. Thus I have almost exact reproductions of both Adirondack and Trophy, but if the new ones, as I trust they will, will excel these in table quality, then very much is gained. Some of the new kinds, especially from the Beauty of Hebron and Woodstock Kidney, are very early, and others of the Magnum Bonum and Advance are late, robust, and heavy croppers, well resisting disease. I hope the time will soon come when we may be able to dispense at the show table with any kind that is not of good table quality, as also in gardens with all those kinds that are notoriously non-disease resisters. There is yet a wide field open for Potato raisers if they have time, energy, and courage to persevere in it.

A. D.

Mildew on Peas.—The mould on "S. H.'s" Peas is almost entirely the product of drought at the roots, though cold nights will help to generate it. The application of dry sulphur is not likely to prove very efficacious, and it is rarely so in any case. It is the fumes emitted from it in vineries which prove so efficacious in checking Vine mildew. Mould on Peas is very common late in the year, and the best check is found in such liberal culture in the shape of trenches, manure, and ample moisture. With these aids the plants grow fast, and outpace the objectionable parasite.—A. D.

Trebons Onion.—This fine winter Onion has attained a great size with me this season, and the bulbs are hard and solid and of good form. When growing it greatly resembles a fine stock of the white Spanish; the skin is light brown, and the upper sides of the bulbs are just the Spanish outline. When pulled, however, it is found that the base of the bulb penetrates as deeply into the soil as it grows out of it; indeed the form is quite globular rather than flat. Its solidity is attested by the fact that twelve bulbs weighed just 14 lbs., whilst all the others are relatively heavy for the size. Ordinarily, winter Onions do not keep long, but the Trebons seems to have had some of the spring-sown kinds for one of its parents. It seems to be yet scarce, but so fine a kind must presently become in great request.—A. D.

SHORT NOTES.—KITCHEN GARDEN.

Cabbages for seed (Defiance).—Leave the hearts uncut, they will in time develop flower stems.

Veitch's early Cauliflower.—From seeds of this sown on April 22 good heads were cut on August 2, barely three and a half months from the time of sowing. Early London sown and planted out on the same day is quite a fortnight later. I should strongly recommend the first named for small gardens; it may safely be planted at 15 in. apart.—E. B., Claremont.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J., SURREY.

CHRYSANTHEMUMS, the early flowering kinds, bright yellow and a few white, are arranged as a wide-spreading bunch in a broad bowl-shaped vase of brown Lambeth ware, with darkest foliage of some of the later sorts. Side shoots of *Yucca filamentosa* are in an engraved glass with Bay twigs. A low glass bowl is filled with flowers and foliage of the common Passion Flower. Heliotropes, pale and dark, combine well with sage-coloured shoots of *Phlomis*. *Hydrangea paniculata* and small boughs of Japan Privet without flowers are in a large oriental blue and white jar. A good white bouquet is of Everlasting Peas and the handsome Daisy flowers of *Leucanthemum lacustre* with *Gypsophila paniculata* and dark foliage of black *Laurustinus*. Sulphur-coloured Stocks are in a large bunch by themselves. Pots of *Vallota purpurea* are now excellent for room decoration.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Veronicas.—Nearly all the hardy herbaceous species of these are worthy of cultivation, and several of them of prominent positions in mixed flower borders. The handsome shrubby kinds, too, are very desirable, their compact growth and long flowering season rendering them indispensable. The following are a few of the best kinds for planting as single specimens or in groups of three: *Andersoni* and its variegated form (both shrubby), *azurea*, *crassifolia*, *grandis*, *leucantha*, *longifolia*, *pinnatifida*, *rupestris*, and *Teucrium*. The dwarf spreading kinds, such as the two last named, are excellent for carpeting the ground beneath taller kinds, also for rockery planting. A few are useful for "carpet bedding," such as *incana*, a white-leaved kind, and the trailing green kinds, like *alpina*, *heterophylla*, *orientalis*, *prostrata*, and *repens*. All may be increased by cuttings from the young shoots, and most of the herbaceous species easily by division of roots.

Propagation.—So far as regards the tender section of plants, it is of the utmost importance that the necessary stock of cuttings be put in forthwith. The soft-wooded tender kinds require a bottom heat of 80°, to produce which leaves and stable litter are best, and the cutting pots to be plunged in it, which, soon as the cuttings are rooted, should be transferred to an intermediate temperature, but with no bottom heat. It is now too late to put in cuttings of *Pelargoniums* in the open border, as advised a few weeks since; they should, therefore, be put directly into boxes and be fully exposed to the sun until the nights become too cold to risk them out, then they must be given ordinary frame treatment. *Calceolarias* are best struck in cold frames, and should be shaded and kept rather close till the cuttings are rooted, but afterwards be fully exposed to the atmosphere. Cuttings made from the young shoots of *Pansies* and *Violas* will strike readily without any protection; a north border having the protection of a wall is the best place, and any kind of light sandy soil will do, provided the cuttings be made firm in it. Of course, if pits or frames are at command, preference should be given to striking them in these that protection may be afforded the plants in the event of its being needed by the severity of winter. The new white *Viola*—Mr. Grey—has done well with us, and is worthy of being classed as one of the most valuable of white-flowered bedding plants. True Blue and Yellow Dwarf are also first-rate new kinds, the best old varieties still being Blue Bell, Mulberry, and Snowflake. Hardy *Sempervivums* are best propagated by offsets, which are now to be had in abundance; plant them firmly at distances according to size on any dry bank or border, well water them and protect with netting to prevent them being pulled up by birds. The tender kinds must be increased by cuttings,

which strike best on exposed shelves in houses or pits. The offsets from *Echeveria secunda* we strike and winter by building them up in the soil against the walls of the fruit and plant house; but in cold districts frames are necessary to successful wintering, and in such case it is best that the offsets be placed in frames at once. All other kinds of bedding succulents need warmth, not a moist warmth, to ensure a good strike.

General work.—The keeping of borders and beds in neat condition by removing bad flowers and pinching and stopping the plants to preserve the outlines of the designs of carpet beds. Tall and top-heavy plants should be supported by ties and stakes; climbers also should be regulated and their fastenings examined; Roses be kept free of old blossoms, and lately budded Briers be examined as to the ligatures, some of which may need to be slackened, and others, those on which the buds are growing well, be removed altogether, and the stocks kept free of Brier shoots. The season for planting shrubs and trees being at hand, preparation should be made for the same by getting together the necessary soil and implements. After the first heavy rain the sooner evergreens are removed the better will they succeed and will get so thoroughly established in the soil before spring that watering will not be needed, which labour is inevitable in all spring planting. Mowing lawns, sweeping and rolling walks after rain, the cutting of turf edgings, and the keeping down weeds in shrubberies come, of course, in the daily routine of garden work.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Propagating stove plants.—Almost all stove and intermediate temperature flowering and fine-leaved plants that can be propagated from cuttings may with advantage be put in to strike now, providing there is enough heat at command through the winter to keep them growing slowly, for without this they are apt to get into a stunted condition. The gain of propagating such things now instead of in spring is that plants so raised have a long start of spring-struck stock, and those that flower naturally in a young state will bloom much better next summer from autumn-struck cuttings than those propagated in spring. Amongst flowering plants the kinds advisable to strike now are *Ixoras*, *Clerodendrons*, *Allamandas*, *Dipladenias*, *Vincas*, *Apelalandras*, *Centradenias*, *Bougainvilleas*, *Aristolochias*, *Ardisias*, *Gardenias*, *Franciscas*, *Hibiscus*, *Hoyas*, *Lasiandras*, *Meyenias*, *Medinellas*, *Toxicophyllas*, *Hexacentris*, *Tacsonias*, *Scutellarias*, *Rondeletias*, and *Pentas*.

Of fine-leaved plants that can also be struck now are *Terminalias*, *Sonerilas*, *Pothos*, *Dracenas*, *Crotons*, and *Cissus*. All that is necessary in each case is to secure shoots that are in the right condition, neither too hard, nor, on the contrary, too young and soft. At this season it will generally be found best to place each cutting in a single small pot, which should be half filled above the drainage material with loam or peat, according to the particular requirement of each kind in its preference for one or other of these soils, filling up the pots with sand. By thus putting soil of a substantial nature in the bottom of the pots, the young plants will have something to support them even if they are not shifted on before winter. A good brisk heat should be used so as to get the cuttings rooted with as little delay as possible, after which they ought to be fully inured to the light and air that is given to the other occupants of the house. Not the least gain of doing all such work now is that it relieves the pressure of other matters at the busy season.

Eucharis.—This useful plant can be so managed as to make growth or flower at almost any time, supposing the bulbs are strong enough. A short rest, either by keeping the plants as dry as they will bear for a few weeks without injuring the leaves, then giving water with a little more heat, will generally throw them into flower; or

after a reduction of temperature and little water for a time they will usually throw up freely when returned to heat. Where there are large specimens composed of a number of bulbs of various sizes, if the whole are shaken out of the soil, and the strongest are repotted together as they should be, the operation usually causes them to flower freely. When this is done it is well to put the smaller bulbs, according to their different sizes, four or five together, in pots just large enough to accommodate them. This will be found better than crowding greater numbers together. Where large specimens are required all that is needful is to keep continually moving as needed into larger pots without disturbing the bulbs more than necessary. When the intention is to grow large specimens, the plants should be shifted on whenever they want more pot room, not deferring the work to any particular season, as usual with most other plants, *Crinums* and *Pancratiums*. As a matter of course the time of active growth is regulated by their flowering season. Such as are yet growing should have every encouragement, so that they may get well ripened before winter. In the cultivation of these plants exposure to full light at all times is all important. The mistaken practice of stowing them away under stages, or letting them suffer under the shade of other plants, is the general cause of failure.

Vallota purpurea.—A sufficient stock of this useful autumn flowering bulbous plants should exist where there is a conservatory to be kept furnished with blooming plants. With a sufficient number to fall back upon by keeping a portion of the plants at an ordinary greenhouse temperature all through the spring, with others a little warmer, such as on a shelf in a mid-season vinery, a succession of flower may be had from the beginning of August up to October. Those that have bloomed will now do to be kept drier at the roots, but having evergreen leaves the soil must never be let to get too dry, and instead of being thrust out of the way after flowering, as is not unusually done, the plants should occupy a greenhouse or pit, fully exposed to the light and air; so treated they will get well ripened, on which their blooming well next year much depends.

Lilies.—All Lilies in pots that have done flowering should have the soil kept fairly moist so long as the leaves continue green, and where any require repotting it is no bad way to shift them as soon as all vitality has left the top. If this plan was strictly followed with all pot Lilies, the work would not be delayed until the bulbs have begun to make new roots, the injury to which through removal is the cause of many failures that occur in the pot culture of Lilies. Young plants of the noble *L. giganteum* that are intended to bloom in pots must not during any period of their growth be kept too much confined at the roots, or the result will be small size and a deficiency of strength at blooming time. Although hardy and thriving well in the open ground in some places, this stately plant will grow to a much larger size, and produce a greater quantity of flowers under liberal pot treatment. When so managed and well cared for, it is one of the noblest objects that can be used for conservatory decoration. Strong plants for next year's blooming should be placed for the winter in about 12-in. pots, and then moved on into others considerably larger.

Tritonias.—If the cultivation of these handsome free-flowering bulbs was more extended, they would do something to relieve the monotony too often existent in greenhouses at this season. The orange-coloured variety is best known, but there are several others worth growing, varying in shade from white to pink, with others combining red and yellow. All are easily grown, simply requiring under pot culture not to have the pots allowed to become too much crowded with bulbs (which results in their getting too weak to bloom well), keeping the drainage right, never allowing them to get dry at the roots either in the early stages of growth or after blooming whilst

the leaves are fresh. To guard against slugs, to which the foliage is favourite food, the plants through the growing season should be plunged in a bed of sifted coal ashes. If a portion of the stock has been kept through the early part of summer at the north side of a wall, they will come in after those that have been exposed to the sun.

Early-flowering Hyacinths and other bulbs should be procured without delay. On potting Roman Hyacinths and Tulips early depends the possibility of having them in bloom early. Where white sweet-scented flowers are largely in demand about the end of the year there should be no stint in the number of Roman Hyacinths, for, as is well known, it is one of the best forcing plants grown. It can be used for all purposes, including bouquet making, for which Lily of the Valley can be employed. At this season the pots containing the bulbs are best plunged in coal ashes or Cocoa-nut fibre in an open situation fully exposed to the sun. Under such conditions the bulbs will naturally make roots more quickly than where there is less warmth, and upon a sufficiency of roots being made before forcing begins depends the ability of the bulbs to flower well.

ORCHIDS.

J. DOUGLAS, LOXFORD HALL.

East India house.—Phalenopsis are still growing freely, and require abundance of heat and moisture. Many fail to grow these charming Orchids well, the reason of which is probably attributed to the plants being too much exposed to the light. They require plenty of heat, shade, and moisture. They do admirably in the warmest houses of Messrs. Veitch, and also in those of Messrs. H. Low, but at neither place have any particular arrangements been made for them. The growth the plants make during the season at these places is remarkable; consequently they flower well. The new *P. violacea* succeeds well with the same treatment as the others. The new *P. Stuartiana* is worthy of being named with the best. If possible the plants should be placed near the glass and plenty of water applied. They succeed best in teak baskets, but they also do well in shallow pans.

Saccolabiums also like plenty of heat and moisture at this season, but not quite so much shade as the Phalenopsis. The plants are now pushing roots very freely, and they must be watched in order that no slugs or other pests attack them at night. Like nearly all our other Orchids, these are liable to be attacked by thrips, which get into the centre of the plants and discolour and injure the leaves if not removed. Late imported plants of *Dendrobium Wardianum* and crassinode, which have not completed their growth, must still be left in the warm house until their growth is perfected. The early flowered and established plants have been removed into a cooler house, and even those that flowered as late as May and June have made their growths. Still maintain a high temperature and moist atmosphere in this house, but as the season advances less shade will be necessary.

Cattleya house.—The plants in this house are still making their growth, and consequently they require the same treatment as advised at p. 152. As many of the plants will have their flower-sheaths in a half formed state, it is very desirable that attention be paid to such, in order that none of the plants may be injured by water dripping into the leaf. There are very few *Cattleyas* in flower now, and one values all the more the lovely forms of *C. Eldorado* now in flower. The varieties of *C. Trianae* are equally or perhaps more valuable for supplying us with lovely flowers at the dull season of the year; the flower-sheaths are now either fully formed, or in course of development. Place the plants near the light, and keep them moderately dry at the roots. If they are over-watered they will not remain long in good health. *C. gigas* if it has been grown and flowered in the warmest house, should be placed

in the cool end of the *Cattleya* house and be kept dry at the roots, or at least as dry as possible without allowing the plants to suffer. Everything in the houses should be kept neat, and the plants must also be kept quite clean. Some persons allow weeds and even the live *Sphagnum* on the surface to grow up and smother the bulbs, while the pots are foul with green mould; under such management no wonder if slugs and other insect pests abound.

Cool house.—As all chance of hot weather is passed, the plants will not suffer from an excess of sun heat, but due attention must be paid to ventilating. If necessary to repot any plants, now is a good time, so that they may be established before the cold weather sets in. All, or nearly all, the plants in this house require plentiful supplies of water, and this must be thought of when repotting the plants; therefore put in plenty of drainage, and use a plentiful proportion of potsherds and broken charcoal amongst the tough fibrous peat and *Sphagnum*. After repotting the plants, especially if they have been divided, the house should be kept close and moist until fresh roots are formed. Keep a sharp look out for green-fly on *Masdevallias*, and also on the unopened blooms of *Odontoglossums*. If the fly gets into the blooms they sadly mar their beauty. Red spider gets on the leaves of *Odontoglossums* as well as thrips, and it is best to sponge it off at once with soapy water.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Figs.—When the early forced trees have been cleared of the second crop of fruit they will derive great benefit from full exposure to the elements for a period of from four to six weeks. If the trees are too large for removal to the open air, the roof lights may be taken off, repaired, and painted in time for the paint to get well hardened before forcing is again commenced. In order to give the trees the full advantage of complete rest all the unripe fruit must be rubbed off the shoots, the foliage thoroughly cleansed with the garden engine, and to prevent them from going too suddenly to rest, some kind of covering in the way of Fern or litter will be needed to protect the roots from sun and air. Maiden trees which have not hitherto been forced if properly managed will now have all the points of the shoots thickly studded with embryo Figs almost too small to be perceptible, but sure to come forward if the wood is well ripened and a decided rest is given to them until the end of October when they may be placed in position and kept perfectly at rest until the time arrives for applying fermenting material to the roots.

Succession houses from which the second crop is now being gathered will require more dry air and less atmospheric moisture to counteract the influence of damp, at all times the greatest enemy to ripe fruit, but most particularly to that of the Fig. The roots must not, however, be allowed to feel the want of good stimulating liquid, as anything approaching a check will bring about a speedy termination to the producing powers of the trees, and where a good late house or wall case for carrying on the supply does not exist, this event just now might not be desirable, as outdoor fruit, with the exception of Peaches and Nectarines, is by no means plentiful. Since the beginning of August we have been gathering very fine fruit from a Brown Turkey in a cold house to which fire heat has not been applied this season, but hot-water pipes are there, and gentle warmth will be given when the proper time arrives.

Pines.—The present month is a favourable time for getting the different batches of Pine plants together, as far as constantly varying conditions will admit, for the winter. All starters or probable starters will, of course, go into the fruiting house, which, by the way, should be thoroughly cleared out to the very bottom of the plunging pit at this, as being the most convenient time of the year. Cleanliness and freedom from troublesome insects being the first object, scalding

and washing with quicklime should precede the introduction of fresh plunging material, consisting of well worked tan or Oak leaves, provided the latter were well harvested last autumn and have been kept dry. If possible, the materials should be thoroughly worked, fermented, and turned over before they are put into the pit, and then, to avoid injury to the roots of the plants, plunging should be confined to placing the pots in a shallow basin, to be filled up when the first violent heat has passed away. Towards the end of the month a few more of the plants most likely to start early should be collected together for undergoing a season of rest, and as these will consist of Queens, Rothschilds, and smooth Cayennes, which were potted last spring, a light airy compartment from which starters have just been drawn should be selected for them. Unless the bottom heat has fallen very low the plunging material should not be disturbed more than is absolutely necessary, as the movement of an old bed sometimes starts fresh fermentation, and this might soon injure or destroy the roots now working round the extremities of the balls. Care should, however, be taken that tender varieties like the Queen do not suffer from the other extreme, as the loss of roots from either cause is the sure forerunner of small or deformed fruit. As days decrease in length and solar heat becomes weaker the general stock of plants from the fruiting house to the sucker pit will require more care and attention to damping, syringing, and ventilation, otherwise growth, which is always rapid in September, will become soft, spongy, and quite unfit for passing through the winter. Atmospheric moisture and fresh air, however, must be judiciously supplied to keep the different structures in a healthy growing state, and when external conditions do not assist, fire heat must be applied. The same rule applies to the supply of water to the roots of the plants; evaporation having greatly decreased, their requirements will be less frequent; but the quantity at each watering should be sufficient to moisten every part of the soil, and keep them in a healthy growing state. The most fatal mistake that can be made is irregular dribblings of water.

Vines.—Where the late houses were assisted with fire heat through the early part of the year, the Grapes will now be well coloured, but still far from ripe; consequently a continuance of gentle warmth with liberal ventilation, until the foliage begins to lose its colouring matter, will be highly beneficial to such kinds as Lady Downes, Gros Colmar, and that invaluable variety Black Morocco, at some places a difficult Grape to manage; but when carefully fertilised, and well fed through the early stages of its growth is undoubtedly the best early spring black Grape we have in cultivation. Unfortunately some failures, for which the management and not the Grape is to blame, have prevented many growers from introducing it, and the Grape has got a bad name; but as all zealous horticulturists wish to overcome difficulties, the following notes may be of service to those who have not hitherto done so, and wish to give it a trial. Although it does well under Hamburg treatment, it finishes best in an intermediate house. With me the roots are in an internal border on the north side of a Muscat house. All the surplus bunches are taken off before they come into flower, and those left are carefully fertilised for a few days in succession with Hamburg pollen. When set, the border, which is above the floor line and well drained, is heavily mulched with rotten manure, and an abundance of warm, diluted liquid is applied to the roots until the Grapes begin to colour. Watering is then discontinued; and to prevent the berries from cracking, lateral growths are allowed to extend in every direction until the Grapes are ripe. They are then shortened back, treated as any other winter Grape, and bottled in December. If the colouring process in the Lady Downes house has been aided by an unrestricted run of lateral growth, these may now be gradually brought into subjection by the constant removal of the strongest, but at no time must any part of the trellis be divested of a regular spread of the foliage of this excellent

Grape which so few grow to its best, because they withhold a little fire heat in the spring and trust too much to cold, sunless summers like the season now passing away. If, as is sometimes the case with vigorous young Vines, the Grapes do not show a disposition to colour well up to the footstalks, a moderate supply of diluted liquid at a temperature of 90° will very often stimulate the interior surface roots into the action which will produce the desired result; but timely resting the Vines at night, not by shutting them up in a cold damp house, but by allowing a constant current of air to pass through the ventilators, and by keeping the pipes warm, is a very important factor in colouring and laying on the bloom.

Melons.—Late Melons to be worth eating should be set or setting by this time. Many attempts have been made to have ripe fruit up to Christmas, but all have ended in failure, if not something worse; as a Melon ripened after the middle of October, like a Salwey Peach in November, leaves a bad impression upon the palate, and in unfavourable fruit seasons, which unfortunately now prevail, this is by no means desirable. When writing some time back I advised growing all the late plants in pots, so placed that the roots would at once feel the benefit of fire heat when setting their fruit, and again later on when the Melons begin to ripen. Where this plan has been adopted, cold and unfavourable as the season has been, there will have been no difficulty experienced in getting plenty of fruit to set, provided other conditions were favourable. From this time forward give sufficient fire heat to maintain a night temperature of about 70° with a rise of from 10° to 15° by day, but economise fuel as much as possible by renovating the fermenting material whenever the bottom heat descends below 85°, and close very early with solar heat and plenty of atmospheric moisture to swell off the fruit. Avoid overcrowding, at all times disadvantageous, by the removal of all spray and laterals, but carefully preserve every old leaf from the rim of the pot upwards, as it is to these we must look for the finish of good fruit, independently of the fact that the ruthless destruction one sometimes sees amongst them is very often the forerunner of canker and premature death of the plants. Let the turning and renovation of linings about pits and frames have ceaseless attention, as good Melons without steady heat cannot be expected. Elevate the fruit well above the soil, as stagnant moisture is the greatest enemy to frame Melons after this time. Keep the foliage clean and healthy by syringing in favourable weather, and flood the beds with warm diluted liquid without wetting the leaves whenever the roots require water. Keep a close watch for canker, to which the tender hairy stemmed kinds are subject. Should any indications of canker appear sulphur and quicklime should be applied to the affected parts without delay.

OXIDE OF IRON IN SOILS.

HOT and sandy soils which give off moisture very rapidly by evaporation and percolation may be successfully treated by manuring with cool manures, or by incorporating stiff clay with it and judicious mulching. Its lightness and perviousness are thereby improved, so far as liquid is concerned especially. But with such soil the rich juices get away too soon beneath, or the gases escape above; therefore, it is well to find a remedy as easily obtainable as Cocoa-nut fibre refuse, a something which, when mixed with such impoverished soil, may obviate the evil—I allude to oxide of iron. Iron in *purus naturalibus* is, I believe, inimical to plant life, but the hydrated oxide (rust) is one of the very best storehouses for those gases—ammonia, nitrogen, &c.—on which vegetable life loves to feed. In this respect it even surpasses humus or leaf mould, and is a veritable sponge for gaseous matters, which evaporate from some soils as soon almost as deposited, be it ammonia after a thunder shower or rich vapours from manure mulching, or be it the same after an application of liquid stimulant. This hydrated oxide

it is which gives such a red tinge to the exceedingly fertile soil of districts where iron ore is got. Now for the practical part. Iron rust in quantities is not to be had, but I know of a waste product, a scaly oxide of iron, which is as easy to obtain as the Cocoa-nut fibre refuse. I have tried it. I mixed a quantity of this scaly oxide with winter mulching for Roses, and delude myself into the belief that the quantity of bloom buds is increased and colour of bloom deepened. I also spread a small dose along a border of Pansies, though not near enough to the plants themselves to fear damage, and I hope I do not delude myself by believing the growth and floriferousness greatly increased thereby. This stuff, if I mistake not, will prove an excellent reservoir if carefully mixed with the poor surface soil in districts, where the soil may be such as mine, for instance, about 2 ft. or 3 ft. deep on Yorkshire sandstone. I do not doubt but that much practical good will result from a little investigation of this subject. In many localities where this scaly oxide can be readily procured, some interesting experiments could be made by gardeners, the results of which would doubtless be valuable. R. A. H. G.

NOTES AND READINGS.

WHO raised the Lord Suffield Apple? Has high honours been bestowed upon him? Anyone who will take the trouble to scan the fruit reports for years back will find that in nearly all parts of England and Scotland Lord Suffield heads the list of Apples, and that it is, as far as the term is applicable to a fruit, a fail-me-never, and has no equal. It is alike the favourite of the gardener and the cottager, and it would probably pay better to grow in this country than any other single variety. It crops in good and bad seasons; it is in use from July till November or December; it is large, handsome, good for all culinary purposes, and is even esteemed by many for dessert when it becomes mellow and ripe. It should be brought prominently before landlords, farmers, and cottagers—everybody, indeed, as the Apple to plant for profit early in the season. The next best croppers are its near allies, the Codlins—all of them. In scores of places during the present year, and in all the late bad years, these have been the only sorts of Apples that have borne regularly and well.

FLORIFEROUS STEPHANOTIS.—Raised from seed instead of cuttings, no doubt better and worse varieties of this plant are obtainable—some shy and some free bloomers—but in estimating the quality of any so-called floriferous kind, culture, or rather temperature, must be considered. It is a most valuable plant for the gardener in a private place, and it pays the grower for market. Grown in a warm stove, it makes long joints, broad leaves, and flowers sparingly. In an intermediate house, approaching the cool greenhouse nearer than the stove, it attains its best development and flowers to excess, every shoot presenting a continuous wreath of blossom from end to end, young and old wood alike, and in a cool greenhouse it will also grow and flower tolerably well, and in both of the last two situations it is all but free from its great enemy, mealy bug. We have seen it under all conditions for a period extending over a number of years and in different gardens, and have not the least doubt on the subject. Perhaps the finest specimen of the kind, whether as regards size or flower, is growing now in a comparatively cool house in a certain midland nursery, and is the admiration of all visitors, and has been for years.

SHOULD ONIONS BE THINNED?—Yes, certainly, we think we hear some grower of prize Onions say; but stay a bit. We never could understand the consistency of the advice to have "button" Onions unthinned in order to produce well-ripened and sound bulbs without thick necks, and to thin the main crop many inches asunder for the same reason; but this season we have

seen a bed of Onions in which one half of the plants was thinned in the usual way, and the other not thinned at all, with the result that the unthinned plants were ripe about three weeks earlier than the others, all sound and firm, with hardly a thick neck in the lot, while the thinned plants were nearly all thick necks and quite green in the stems. True, the unthinned bulbs were the smallest, but what they lacked in size they made up in quantity, as they were in clusters like Shallots, and they were all of a good, useful size acceptable to the cook. Some years ago we saw a bed of Danvers' Yellow Onion that afforded a similar example of the good effects of leaving the plants thick in the rows which were 7 in. asunder, but the Onions had been just thinned, and that was all, perhaps 1 in. or 2 in. apart. It was the most perfect crop of Onions we ever saw, and the bulbs were all good and kept sound till the following July—the effects of thorough maturity. This is a very different practice from the common plan of thinning the plants out from 6 in. to 15 in. apart, but we have a strong conviction that it is the most profitable way to grow Onions.

TRAINING PEAR TREES LIKE PEACHES.—"A Practical Correspondent" in a contemporary, who apparently has become enthusiastic on the subject of "extension," sees "no reason why Pears should not be managed in a similar manner to Peaches," and he proposes thinning out the spurs of "beautifully trained" horizontal Pear trees, and laying in young shoots in their places instead of cutting it away as breastwood. The idea is suggestive, but the "Practical Correspondent" will discover in time that Pears will not succeed trained like Peaches, and it seems a pity to destroy good and fruitful spurs in order to lay in young shoots that will not bear till they have made spurs to take their place. The Pear bears on spurs only, and the shoots do not yield till the third year; whereas Peaches are borne upon the buds of the previous year, and do not require spurs. The above is pushing the extension principle beyond its proper limits, and can do no good. If a Pear tree branch is permitted to extend at its extremities, the part behind will take care of itself, and always be fruitful if it has sun and air.

POTATO DISEASE.—Mr. Jenson in dealing with this subject is an unwelcome intruder among the "fraternity." "There is nothing that is impossible in his book," a fungological critic graciously admits; but then Mr. Jenson is more a practical cultivator than a scientific investigator, and has declared that it is the rain which washes the disease down to the tubers direct, and that the fungus spores do not travel down the stems into the tubers according to the "life history" of the Peronospora, and that hence preventive measures must consist in the impracticable process of destroying the diseased leaves as fast as they appear. Why a leading botanist declined to encourage Mr. Jenson to publish his pamphlet is pretty plain. Mr. Jenson has no vested interest in the Peronospora as we are familiar with it. His disease "spores" do not conform to orthodox rules, and he need not look for any encouragement unless he is prepared to admit that the disease is originated in the orthodox way. If this is not the spirit in which a certain critique on his pamphlet is written we should like to know its meaning. "There is much that is reasonable in his (Mr. Jenson's) proposition," says the critic, "but," and mark the "but"—"it puts aside almost entirely the generally received (?) theory that the fungus operates chiefly through the leaves and stems, and from these passes direct into the newly formed tubers." This is the awkward circumstance in Jenson's book, and if he turns out to be correct in his idea as to the fungus passing direct into the tubers from the soil, he will also have proved a very simple and probable fact, that never seems to have suggested itself to preceding investigators, and not only this, the impartial Mr. Plowright himself has verified Mr. Jenson's assertion that the disease spores can penetrate the skin of fresh tubers. Mr. Plowright

in his communication further laments that "in this country we do not take at all kindly to new ideas on the subject about the physiology of fungi, so it is not surprising that when Mr. Jenson applied to one of our leading botanists, before publishing his pamphlet, he should not receive any warm encouragement to do so. Can it be true that our Potato fungologists have sought to discourage Mr. Jenson because his facts were new and unacceptable? If so, what are the public to think of it?"

PEREGRINE.

THE LATE MR. RENDLE.

MR. WILLIAM EDGUMBE RENDLE was born on the 10th of February, 1820, at the hamlet of Compton Giffard, about two miles from Plymouth. His father, Mr. William Rendle, was a nurseryman of some celebrity and a well-known horticulturist in the days when four-horse coaches formed our best mode of travelling. In consequence of his father's success in business he determined to remove nearer to the town of Plymouth; he therefore purchased the whole of the land between Plymouth and Stonehouse, on which he established the Union Road Nursery. Mr. W. E. Rendle at the age of 18 entered his father's business, in which, owing to the ability he displayed, he was soon made traveller in the counties of Devon and Cornwall. From these journeys he soon increased the business so fast, and his father was so pleased with the results, that he gave up to him the whole of his business. In 1841 he invented the tank system for heating horticultural buildings, a system which became very popular. The nursery business increased so much that he determined to connect with it a seed department, to which he paid particular attention, his first efforts being a descriptive catalogue of garden and flower seeds. This was sent to everyone interested in horticulture in the United Kingdom. Not content with the nursery and seed trade, he turned his attention to artificial manures, and was so successful that he made arrangements for cargoes of guano to be shipped direct from Peru, and he was the first to introduce into the western counties Lawes' Patent Superphosphate, which was largely used. About the year 1847 it was proposed to extend the railway from Exeter to Plymouth, and the station was to have been on the site of the nursery; it was, however, erected nearer to the sea, and, in consequence, the railway went through his grounds. In the year 1852, when the railway opened, Mr. W. E. Rendle thought it a good plan to turn a portion of the nursery into a public place of recreation, and open air concerts, flower shows, &c., were held in it, and it became the favourite resort of the townspeople and visitors to Plymouth. After a few years he determined to give up the Plymouth business and settle in London; he therefore sold all, with the exception of the seed trade, which was transferred to London, and took the name of the London Seed Company. He took up his abode at 36, Cleveland Square, Bayswater. He soon, however, became tired of an inactive life, and, having influence with several important financial men, he was elected on several joint-stock companies' boards, viz., the London and South-Western Bank, of which he was one of the principal promoters, the Langham Hotel (also a promoter), the Metropolitan Bank, Cramer and Company, the Westminster Brewery, &c. This was from 1864 to 1867, during the time of the joint-stock mania. He was very successful until the year 1867, when the great panic came, ruining thousands. He, like numbers of others, had to sell nearly everything—even a beautiful residence he had lately built at Wimbledon.

In 1868 he again turned his attention to matters horticultural, and invented some ingenious garden requisites for the protection of fruit and vegetables, and especially wall fruit. His idea that what was most necessary for covering walls was a cheap,

effective, and durable glass screen, and he hit upon the plan of two metal grooves on wooden frames, in which glass could be easily and quickly replaced. This was very well for a single row of glass, but he thought that where more were required some modification would be necessary, and after a good deal of thought he soon got over this difficulty, and invented a metal groove of an S shape, which would take upper and lower frames of glass, and could be extended for any width. His first extensive transaction with these coverings was at Welbeck, where he erected wall coverings and orchard houses, costing fully £10,000. About the year 1870 he erected for Sir Daniel Gooch, the chairman of the G. W. Railway, two orchard houses, and Mr. Rendle, when in conversation with Sir Daniel, mentioned what a first-rate covering the glazing would be for railway stations, &c., with which Sir Daniel was so impressed that he got the G. W. Railway architect to report on the system. The report was favourable, and shortly afterwards he received an order from the railway company for re-glazing apart of Paddington Station. This was the commencement of the new well-known patent glazing, and orders came in rapidly, and immense areas have been covered with



William Edgumbe Rendle.

it, the largest and latest being the Carlisle Citadel Station, which covered several acres, the contract for which was fully £30,000.

PROPAGATING.

PROPAGATING CONIFERS.

WHERE it is intended to propagate Conifers by cuttings the present is the most suitable time for the purpose, as the growth will be now completed, yet not so hard as if delayed longer. In this latter case the cuttings do not root so quickly as when put in earlier. As the greatest success attends those that are put in pots, I will deal first with that mode of treatment. A cold frame is the best place for the cuttings provided it be prepared for them. If the sides are of brick, give them a good whitewashing; if of wood, clean them thoroughly, and make up the bottom with ashes to such an extent that the cuttings will not be a great distance from the glass. Wash the lights and see that they are perfectly sound; in fact, secure as far as possible an air-tight frame. Six-in. pots are the most convenient size for the cuttings. The pots should be thoroughly clean and filled with broken crocks to within 2 in. of the top. A good way to ensure thorough drainage is to invert a small pot in the bottom and fill up with broken crocks. The soil should consist of equal parts of

peat, loam, and sand sifted fine and pressed down firmly, leaving just enough room for a thin layer of sand on the top. After filling the pots, give a slight sprinkling before putting in the cuttings.

Among all the smaller growing Conifers, such as most of the Cupressus, Thujas, Retinosporas, Biotas, and Junipers, the best cuttings are those taken from the side branches, or at the least they strike more readily, and at the same time form just as good plants as if taken from the leading shoots, which being of a more succulent nature are very liable to damp off. These remarks do not apply to those such as Araucarias, Piceas, or any of a similar class, the side branches of which seldom or never form a leader, but grow away in a one-sided manner. Greenhouse kinds of Araucaria are easily increased where a few ungainly plants exist by taking off the leading shoot and putting it in as a cutting, then after a time several leaders will push forth, which when sufficiently firm, that is about half ripened, may be taken off, when they root readily.

Plants propagated in this way are quite as symmetrical in growth as seedlings. Of the smaller sorts above mentioned the cuttings should be from 4 in. to 6 in. long, and consist entirely of the current year's growth, if possible leaving as the base of the cutting a slight heel of the older wood; but if the complete growth is too long it is much better to use only the upper portion than to exceed the length of 6 in. or at most 7 in.

For the purposes of insertion remove the branchlets for a space of 1½ in. or 2 in., and also the leaves where they are long, such as in some Junipers, Cryptomerias, &c., but with the small scale-leaved kinds it is not necessary. Put the cuttings in firmly, taking care that no cavity exists around the base, and after the pot is filled give a thorough watering, enough to wash some of the upper layer of sand into any irregularity that may exist. After watering, place the pots in the previously prepared frame, and shade whenever the sun shines.

The after treatment consists in removing the first symptoms of decay, and, if moisture condenses too freely on the foliage, in giving a little air each morning, in watering when necessary, and especially in shading during bright sunshine. So treated, success will undoubtedly result, as in about six weeks the cuttings will have callused, when, if they are assisted with a little heat, rooting at once ensues, while if left in the cold frame they stand until winter before it takes place. In the meantime it will be necessary to keep them protected from frost. Considerable diversity exists as to the readiness of the different kinds in producing roots, the easiest of all being some of the Retinosporas, such as squarrosa, ericoides, and the undeveloped parts of R. plumosa; indeed, cuttings of all Conifers strike much more readily when taken from the juvenile portions than from the adult stage. This explains the fact of many of the Retinosporas being easy to root, as they are but immature forms of different kinds. Others that root without difficulty, but not quite so easily as those above mentioned, are the Thujas, Cupressus, Cryptomerias, and most of the Junipers, while those that may be classed as very difficult are the Libocedrus, Arthrotaxus, and Biota orientalis semper-aureascent. This last nearly resembles the Golden Arbor-vitæ, but it is far more difficult to strike than that kind. Libocedrus decurrens will often form a large callus at the base of the cutting without any signs of rooting, and remain in that condition a long time. When such is the case a good plan is to take the cuttings out of the pot, and put them in fresh soil as before, at the same time cutting off a small portion from two or three most prominent parts of the callus, as after that roots will frequently push forth from the freshly wounded parts. Not only is this method serviceable in the case of those herein mentioned, but all kinds that have stood longer than they generally do without rooting are benefited by it.

Where large quantities of one kind are put in, the practice generally followed is to dibble them into a bed of prepared soil, and cover them over with a frame, but for small quantities and choice kinds the preceding method is preferable. When putting them directly into a bed of soil without using pots the place should be well prepared by thoroughly incorporating a quantity of sand with the soil, or, better still, by putting 6 in. of prepared compost, as before recommended, at the bottom of the frame, pressed down firmly, and finish off with a layer of sand on the top. Larger sized cuttings may be employed for this purpose, as they remain longer without rooting, but at the same time it should be borne in mind that among the large ones the greatest number of deaths are likely to occur.

A method by which I have been successful in striking cuttings of the various conifers is to put them in under the shade of a north wall and cover them with hand-glasses, the soil of course being prepared for their reception. So situated no shading was necessary, and as the tops of the glasses were all movable they were easily examined at any time.

Many *Abies*, *Piceas*, and the various species of *Pinus* root only with difficulty, and even after that has taken place they often grow away in a branch-like manner, and refuse to form a symmetrical plant. Where such is the case if the leading portion be cut back hard, a strong shoot will frequently be pushed up which will grow regularly. My practice is to put in the cuttings at this time; when callused assist them with a little heat, so that before Christmas they can be again returned to the cold frame, and by March will all have good masses of roots; then pot them in small pots and keep in a frame till root action again takes place, and when the pots are filled with roots plant them out in a sheltered situation where they can be watered the first season if the summer be dry. The principal points to be observed in cuttings of this class of plants are—take only of the current season's growth, put in firmly, keep them at one uniform rate of moisture, and on the least symptoms of decay at once see what can be done to arrest it, such as giving a little air for a time each day, or if too drying a little can easily be given at night, when damping makes more progress than in the day. T.

NOTES FROM NEW ZEALAND.

Toot plant (*Coriaria ruscifolia*).—One of the plants which may be found throughout New Zealand in most open spaces not under cultivation is the Toot plant (*Coriaria ruscifolia*). Ascending the slopes that lead to the Maungatua spurs, one walks over acres of a dwarf variety of the Toot, the average height of which is about 6 in. The Toot is an exceedingly variable plant, and some botanists have given several species as existing in New Zealand. It is, probable, however, that the different forms are mere varieties, differing according to position and kind of soil. In low alluvial soils or on the moist and rich leaf soil on the skirts of forest tracts the Toot grows to the dimensions of a respectable Holly tree, and, indeed, from the rich depth of green and the glossiness of the foliage, it may be said to be the representative of the Holly in New Zealand wooded landscape. The resemblance ceases, however, with the leaf, for the habits of the shrubs are not the same. The Toot sends up many stems from the same root, and each shoot, as it gains in length and forms the wood, bends over into an arch much like a branch of a luxuriant *Fuchsia*. The main stems are generally bare for some distance from the ground, and sometimes reach a thickness of 6 in. to 8 in. The Mignonette-like racemes of flowers are produced at the axils and depend rather gracefully, being sometimes a

much as 1 ft. long. The flower is succeeded by a beautiful tassel of juicy black berries, and in this fruit stage it is one of the most attractive of our numerous berried shrubs. Handsome as the Toot is, however, in leaf, blossom, and fruit, it is no favourite with the settlers. The foliage is a poison fatal to cattle, and the berry, or rather the seed, a poison equally fatal to man. The purple juice of the berry is perfectly innocuous, pleasant to the taste, and much liked by the natives, but the minute seeds are considered to be a strong poison. The alpine form of the plant is of a trailing habit, lying along the ground like some varieties of *St. John's-wort*. Between the tree form, however, and the alpine occurs a continuous chain of intermediate forms which connects the varieties. Sir Joseph Hooker says the genus receives the name of *Coriaria* from the fact that the bark is used for tanning. Were it not for this authority I should have imagined that the name was given on account of the leathery texture of the leaf.

Acœnas.—Various other plants cover the ground on the spurs leading to Maungatua. The *Acœna* formed wonderful cushions of a peculiar green tint, bristling all over with their aggressive little burr balls. This little plant is well known to growers of alpine plants in Britain. There are several varieties. The commonest kind, and that which grows on Maungatua, and, indeed, everywhere throughout the colony, is the *Acœna Sanguisorbæ*, a long trailing variety of a rusty green colour, the round, spinous, purplish balls being carried erect on a somewhat long stem. This plant spreads in all pastures wherever it can gain a square inch of foothold; and unfortunate the wight who happens to walk in autumn over a well-seeded colony of the Bidi—he will find himself covered up to the knees with a coating of the barbed heads, which stick to his trousers with the usual tenacity of unwelcome acquaintances. This little plant is a great pest to the sheep, for when the burrs once get embedded in the wool it is difficult to dislodge them. With their usual love of reduplicated names, the natives call this plant the Bidi-bidi, which name has been adopted by the settlers. On Maungatua two distinct forms of this plant grow side by side. In addition to the ordinary rusty-coloured Bidi, there is a more robust looking form of a very beautiful metallic green, the blossom balls being half as large again as those of the more common variety. Notwithstanding the dislike that colonists have to this little plant, it cannot be denied that in all its forms it is exceedingly pretty and graceful. It seems to accommodate itself wonderfully to the lie of the ground, sometimes being seen in dense cushions on the edge of a bullock track, sometimes hanging in long trails over a clay bank or a boulder. A very charming variety of this little plant I found growing not long ago in very limited quantities on the shore of Lake Wanaka. It was much more compact than the ordinary form, the flowers being almost sessile, very large, and very spiny. In one patch the foliage and flowers were of a beautiful soft green; in another the leaves were of a reddish tint, and the flowers of a crimson colour. I have seldom seen anything in the way of alpine vegetation more beautiful than these small patches of *Acœna*, and the variety was evidently not plentiful, for although the ordinary *Acœna* was as abundant in the Wanaka district as elsewhere, I could find no other specimens of this particular kind, which I take to be *Acœna microphylla*.

New Zealand Beeches.—The spur that leads up to main ridge of Maungatua dips down about midway from the top into numerous wooded hollows or dells, through which generally trickles a small stream of clear cool water, often falling from stone to stone in tiny waterfalls, and giving moisture to a rich growth of various *Hepaticæ*, Mosses, and *Marchantias*, which luxuriate beneath the cool and impenetrable shade of the thick-leaved evergreen forest trees. Into one of these hollows I made a descent, attracted by the apparent richness of the vegetation and the particularly noble outline of the forest trees which rose above the undergrowth. The trees turned out to be a clump of native Beeches (*Fagus fusca*), or as the colonists call it the Black Birch. The whole of the New Zealand Beeches, the most picturesque of all our forest trees, resemble in their foliage the Birch more than the Beech; hence the popular name. But the resemblance stops at the leaf, for the outline of the *Fagus fusca* is the very antithesis of that of the English Birch. Instead of the graceful flowing outline that characterises the Birch, that which gives such a noble character to the Beech is its magnificent massiveness. The great shaft of the tree shoots straight up into the air, branching out at some distance from the ground into arms which carry huge masses of small, dark, glossy, toothed leaves. Seen in the distance, the outline looks like that of a Cedar of Lebanon, but on nearer approach the masses of foliage are seen to have a rounder and fuller outline curve than the Cedar. A group of these trees is worth going on a pilgrimage to see.

Loranthus Colensoi.—This group of trees was additionally interesting from having upon them luxuriant growths of the handsome parasite, *Loranthus Colensoi*. This plant, like the Ivy, rises from the ground, and sends up a long straight stem, which adheres to the trunk of the Beech with roots which resemble the suckers of certain animals. So firmly do these suckers cling to the tree, that they have the appearance of coalescing with the trunk. When the stem has reached some distance up the tree it sends out a great crown of strong branches, bearing round, coriaceous leaves and producing clusters of beautiful scarlet flowers. Unfortunately, the flowering season was long past but that there had been a rich show earlier in the year was evident from the plentiful crop of greenish yellow berries then on the plants. On the outskirts of this Beech hollow grew various other plants. The ground was carpeted with *Nertera depressa* with its scarlet berries. Under the Beeches grew also another plant with pretty bright juicy berries like Red Currants, one of the *Coprosmas*, a large and somewhat puzzling genus of New Zealand plants. On the edge of the hollow I found a particularly fine specimen of

Alsophila Colensoi.—This is a sub-arboreous Fern of great beauty. Though the fronds, which are of a soft and pleasing shade of green, are of a very large size, some 3 feet to 4 feet long, and 10 inches to 20 inches broad, yet the trunk is rarely of any size, so that it is a Fern particularly suited for cultivation in low Fern houses. The specimen which I came upon on the edge of the Beech hollow was a very luxuriant one, and yet the trunk was not a foot high. Although I already possessed specimens of the Fern, I could not resist the temptation of securing this one for pot culture. Accordingly I dug it up, cut off all the fronds and packed it in

my vasculum, which it went a good way towards filling. The *Alsophila* is a Fern of somewhat local occurrence. From its name it ought to be a "lover of groves;" yet though I came across numerous specimens, I observed they were all in the open. It seems to delight on the shady slope of an unwooded hill, and it grows by preference in the moist bed of the small runnels that drain such slopes. This Fern cannot be too strongly recommended for pot culture. It is a free-growing variety, possessing no delicacy except of tint, but of a bold outline both of frond and plant and very soft in the texture. From its growing in exposed situations on southern slopes at considerable elevations I am inclined to think that with very slight protection it might thrive in open-air ferneries in England, especially in Devonshire or Cornwall, and a well grown plant would be an ornament to my fernery. On nearing the top of Maungatua one gets into the region of the Ericaceæ, plants allied to the Heaths and Epacris. Perhaps the two most abundant members of the order are the

Gaultheria and Leucopogon.—The *Gaultheria*, like so many New Zealand plants, offers a number of forms. The extreme forms present such marked points of difference in stature, foliage, and fruit, that one would imagine botanists would have no hesitation in allotting them to different species. But here again there is an unbroken chain of forms connecting the two extremes. Hooker makes out four species. Some of the *Gaultherias* attain to the size of respectable shrubs. A very common form round Dunedin grows into an erect bush 2 ft. high, and bears a heavy crop of claret coloured berries. In returning down the steep side of Maungatua in the thickest part of the forest I came upon a single bush of *Gaultheria* such as I have not seen anywhere else. It was about 4 ft. high and perhaps 3 ft. measured across, and was literally loaded with berries as white as snow, each berry being about the size of a marrow Pea. I have seen no berried plant which for pure loveliness could compare with this *Gaultheria*. Even the *Solanum* or the *Arbutus* could not approach it. On the higher unwooded ground the *Gaultheria* assumes a low, procumbent form, creeping along over stones and amongst the herbage. Sometimes the leaf is circular, sometimes oval, sometimes attenuated to a mere line. The chief beauty of the *Gaultheria* lies in its berries, which are plentifully borne, and which are generally in the alpine form, either of a pure white, or white very prettily flushed with pink. In all its forms the *Gaultheria* is a desirable acquisition, and the trailing variety would be charming for rockwork. The berries are edible, but insipid. The *Leucopogon* Frazeri is very plentiful on moist hilly ground throughout the islands. It is from 2 in. to 4 in. high, with close-set imbricated leaves, and would be very inconspicuous but for its little orange berry, which is sweetish and pleasant to the taste. On getting near the rocks which lie on the top of Maungatua

Other plants made their appearance, such as *Pentachondra pumila*, a very dwarf plant with a single small Epacris-like flower, followed by a scarlet berry; *Cyathodes empetrifolia*, also bearing a little red drupe; and a variety of *Dracophyllum* resembling a twig of a stunted Deodar. *Pimelea prostrata* and *Drapetes Dieffenbachii* were also abundant, the latter somewhat resembling a small Stonecrop. Several varieties of *Gnaphalium* (near of kin to the Edelweiss) were plentiful along the whole hill. Other plants which I

collected were *Senecio bellidioides*, an unattractive plant with a small yellow flower; *Hydrocotyle americana*, a pretty little creeping weed; *Epilobiums* of several kinds, *Celmisia longifolia*, *Hydrocotyle asiatica*, *Ranunculus plebeius*, *Veronica buxifolia* (called by colonists New Zealand Box), *Angelica Gingidium*, *Nertera setulosa*, *Colobanthus Billardieri*, *Geranium potentilloides*, and one or two kinds of Sedge.

Lycopods.—Several very handsome *Lycopodiums* grow on Maungatua. The handsomest of all the New Zealand *Lycopodiums* is *L. volubile*, which grows at low elevations, and festoons the trees with its graceful light green coils. For all kinds of indoor decorations this beautiful plant is considered indispensable. I have never tried to cultivate it, so that I am unable to say whether it easily submits to cultivation or not. Besides this species, three others grow on Maungatua. One, *L. Billardieri*, depends from the trunks of trees, or grows from the crevices of rocks. None of the specimens I found were more than 1 ft. long, but they sometimes grow to the length of 3 ft. or 4 ft. The other two species are trailers, creeping along the exposed surface of the hill. One, *L. scariosum*, looks like a dwarfed form of *volubile*; the other, *L. magellanicum*, is an exceedingly pretty and very dwarf variety.

Gentiana saxosa.—On the summit of an isolated rock which crowned the north part of the ridge I came on a little colony of this attractive little *Gentian*. Its little resettes of leaves (spathulate and glossy) are quite of the acaulis type. Each plant bore one or more clusters of flowers, each pip being about the size of a Cherry-blossom. The petals are of great substance, and the colour a clear lustrous white. All the plants I saw grew together on the steep south-west side of the rock. Although I removed the plants with perfect balls, I have not succeeded in establishing them in my garden.

Ferns.—In descending I took the straight course down the side, entering about half-way down the thick bush which clothes the hill. The best plan in such cases is to follow the course of one of the numerous creeks that seam the sides of New Zealand hills until it reaches the plain. There is no more delightful experience in connection with rambling expeditions in this country than to follow the course of one of those streams where a steep wooded slope runs up for hundreds of feet on each side, the thick-foliaged trees overreaching the water and making a sort of green twilight, a paradise for all sorts of lovely Cryptograms. So steep is the side of Maungatua, that the water reaches the plain really by a series of waterfalls, which tumble over a succession of enormous boulders. Wherever the boulders are not subjected to the action of the water a rich growth of the most exquisite Mosses and Hepaticæ and Filmy Ferns springs from the crevices and covers the surface. Here and there the trunk of a fallen tree crosses the stream and affords a foothold for delicate *Hymenophylla* and *Trichomanes*. It is remarkable how dry the material is in which these fine-rooted Ferns grow and luxuriate. It is evident that they depend for their chief supply of moisture on the atmosphere. The most abundant species of *Hymenophyllum* I found on Maungatua was *H. scabrum*, which is by no means common in Otago generally. As the object of my expedition to collect alpine plants, I did not go out of my way to collect Ferns. I may, however, finish the account of my ramble with a list of

those Ferns which came under my notice. The common Bracken is common on the open hillside. *Alsophila Colensoi* has been already mentioned. The most common tree Fern was *Hemitelia Smithi*. *Lomarias* were plentiful, and consisted of the following species: *alpina*, *Patersoni* (*elongatum*), *discolor*, *procera*, *lanceolata*, and *fluvialis*. The *Aspleniums* were—*flaccidum*, *bulbiferum*, *Richardi* (at the very summit of the hill), and *flabellifolium*; *Pteris aquilina*, *incisa*, and *scaberula*. This last species of *Pteris* generally grows in pure and somewhat hard clay. It seems to dislike much moisture at the root, being generally found on dry banks where a clearing has been made in the bush. *Polypodium Billardieri*, *serpens*, *rugulosum*, *grammitidis*, and *australe*. The *P. serpens*, sometimes called *Nipholobus rupestris*, is a curious little plant, and not very Fern-like in appearance. The frond is like a thick, leathery tongue, and it grows on bare rocks fully exposed to wind and sun. *Aspidium aculeatum* and *Richardi*; *Hymenophyllum scabrum*, *bivalve*, and *dilatatum*. In addition to these I found *Davallia Nova-Zelandiæ*, *Hypolepis Millefolium*, *Pellaea rotundifolia*, *Trichomanes venosum*, and *Leptopteris hymenophylloides*. Z.

NOTES OF THE WEEK.

APPOINTMENTS.

- Sept. 6.—Oxford Autumn Show.
- Bath Floral Fête.
- 7.—Kilmarnock Annual Show.
- 8.—Manchester Show at Botanic Gardens.
- Bury St. Edmunds Autumn Show.
- 8 and 9.—Crystal Palace National Dahlia Show.

EDITOR'S TABLE.—This will be discontinued for some weeks, and all plants sent in flower will be introduced under the head of "Plants in Flower."

WILD FLOWERS IN DEVON.—A gathering of wild flowers consisting of thirty-four kinds has been sent us by Miss Tyrrell, who collected them between Shaldon and Torquay on a space of 12 square feet. This is an instance of the richness of the Devonshire flora.

A PROLIFIC APPLE SHOOT.—One of my men to-day showed me an Apple shoot 2 ft. long, with twenty-six fine Apples on it. I gave the man the tree a few years ago, and told him not to prune it, advice which he has followed, the shoot in question being a young one that has never been cut. Could "restriction" do as much?—J. S. W.

CRYSTAL PALACE.—The post of manager to the Crystal Palace Company, vacant by the retirement of Major Flood Page, has been filled by Mr. G. Reay-Mackey, late Assistant Paymaster Royal Navy; and Mr. G. G. Cleather, late manager of the Scarborough Aquarium, has been appointed assistant-manager.

GERMAN FORESTRY.—It is stated that Prussia has the most complete system of state forestry in the world. In this branch of State service she has several thousand officials, and, notwithstanding the cost for maintenance of this large staff, the revenue accruing from the sale of timber not only meets all expenses, but returns annually a large revenue to the State.

TEA PLANT IN NEW ZEALAND.—It appears, says the *Irish Farmers' Gazette*, that some time since the Acclimatisation Society of New Zealand invited Mr. Reid, a gentleman connected with the cultivation of Tea in India, to make experiments with the Tea plants grown in the gardens of the society at Auckland. Mr. Reid did so, and has lately made his report, which is eminently satisfactory, and shows that the plant can be most successfully cultivated in that district.

HECKFIELD PLACE.—We learn that Viscount Eversley's beautiful garden at Heckfield will be freely open to the public during the ensuing

week (from the 4th to the 9th, inclusive). Tickets of admission may be had on application to Mr. Wildsmith at the gardens. The nearest railway stations are Reading, Wokingham, and Winchfield, the latter being the best for London visitors. The gardens are looking very fresh and beautiful, trees and shrubs especially so. Parterre bedding is always done well at Heckfield, and is probably second to none in the kingdom, but the place has abundant charms irrespective of that peculiar feature and is well worthy a visit.

STRAWBERRIES IN THE AUTUMN.—Of late years gardeners have been gathering good Strawberries from their outdoor plants planted out after being forced. Mr. Gilbert sends us large and well-bloomed examples of La Grosse Sucrée and Vicomtesse Héricart de Thury.

TODEA PELLUCIDA IN THE OPEN AIR.—One of the greatest pleasures we have had for some time has been seeing this plant in the open air at Mr. Backhouse's garden. It is planted in a shrubbery in moist soil, and in a shady and sheltered place. It is a fine specimen, and being so exquisitely graceful as well as distinct from everything else, the effect is excellent. It will withstand any but very hard frosts.

JOHN RUSKIN.*—We have to call attention to this little book, which is written by a gentleman connected with the horticultural world, and well written. Nothing but good can come of one who understands and has access to Mr. Ruskin's works, making known their charms and the truths they contain. We think Mr. Baillie has done his work well, though we do not see a section devoted to flora or the vegetable kingdom—themes in which Mr. Ruskin's works are a rich store of eloquence and truth. It is interesting to note that Mr. Ruskin's first writings were in London's magazines.

THE GIANT SCREW PINE AT KEW.—The gigantic specimen of *Pandanus odoratissimus* which has been so long a feature of the Palm House at Kew, but which endangered the glass roof for some time past, has been successfully lowered, so that its huge spreading head has now room to grow. As the weight of the plant was at least four tons, and as it had to be moved several yards so that it could be lowered without interfering with the hot-water pipes, it was no slight task without injuring it, especially as the tub in which it was growing had burst on all sides by the strong, pole-like roots which had pushed their way through the tub and descended into the earth below. The Kew officials are to be commended for lowering such a fine specimen rather than destroy it, as has unfortunately happened to some of the Palms which have grown too big for the house.

CARDIFF FLOWER SHOW.—This was advertised to be held in a field adjoining the Sophia Gardens, Cardiff, on Wednesday last. Tents were erected on the previous evening, but during the night a severe storm of wind completely wrecked them. On the show morning the committee and exhibitors found nothing but a mass of broken poles and ragged canvas. Arrangements were, however, quickly made to hold the show in the spacious market-place, and here a highly creditable and most successful display was got up. All being under a waterproof roof, the choice plants and other tender things appeared to be much more at home than they would have done under canvas. Everything, indeed, passed off so well that the committee should, I think, secure this place annually, and no more trust to the weather. This society is thoroughly well managed, and gives about £300 away annually in prizes.—CAMBRIAN.

THE NATIONAL DAHLIA SHOW, to be held 8th and 9th inst. (Friday and Saturday next), at the Crystal Palace, promises to be a very interesting gathering both of Dahlias and Dahlia growers. All the classes of Dahlias are, we hear, likely to be well represented if the weather is at all propitious. Intending exhibitors should bear in mind that entries should be sent in on or before Mon-

day next, the 4th inst.; and in consequence of the ill health of Mr. G. Smith, of Edmonton, who originally undertook the duties of secretary, they are now to be remitted to Mr. T. Moore, Botanic Gardens, Chelsea, who for the present undertakes the supervision of that department.

ROSE WHITE BARONESS.—In consequence of my annotations in the last number of THE GARDEN, my friend, Mr. George Paul, has sent me, without comment, three blooms of this Rose, silent, but convincing witnesses that it is capable of a development which I did not anticipate from the specimens which I had previously seen, and that, in our present dearth of white Roses, it is to be thankfully welcomed as an acquisition. I qualified my expression of disappointment by saying that it is difficult to form a true estimate of Roses in the first year of their exhibition, and that this Rose had been unsatisfactory only so far as I had seen it, but I ought to have remembered that new Roses are not sent out from Cheshunt until the raiser is satisfied that they have some special merit, and to have postponed my criticism for a longer experience.—S. REYNOLDS HOLE.

INDOOR GARDEN.

A pretty flower basket.—A basket filled with Hydrangeas, pink, blue, and lilac, with abundance of glossy foliage, green, and variegated. Round these are pots filled with *Disandra prostrata*, which lets fall a light curtain all round with its pretty reniform leaves and small yellow flowers. The whole has a chaste and pleasing effect.—A. G.

Philesia buxifolia.—In order to flower this strong plant should be obtained, and then potted in good fibrous peat with a third of rotten leaf-mould, with a good proportion of silver sand, and potted into pots well drained and placed in a pit unheated. After the growth is made, the plants must be placed out-of-doors in autumn to get the wood well ripened.—D.

Calvary Clover (*Medicago Echinus*).—This, although a hardy annual, also makes a very pretty basket plant for a cool greenhouse or window. The curled up seed-pods are so densely covered with spines as to suggest some resemblance to a hedgehog, hence the specific name *Echinus*. When it is in a young state the ruby coloured spots on its Clover-like leaves are very pretty, especially when grown in the open air. It especially deserves a place in gardens where plants of botanical interest are appreciated.—F. W. B.

Shrubs for forcing.—Those who intend to procure shrubs for forcing from nurseries will do well to secure them early in September and pot them without delay, so that they will have the chance to make fresh roots before frost sets in. In the case of *Azalea mollis*, for instance, I think this is an essential point. This *Azalea* may be flowered in pots each alternate year in a similar way to *A. sinensis*. Plants that flowered early in 1881 are now again with us set well for bloom in most instances. These established plants can be introduced somewhat early into heat now they are well rooted, and with a greater amount of certainty than freshly potted plants.—J. H.

SHORT NOTES.—INDOOR.

Nepenthes Mastersiana.—I quite agree with "J. O'B.'s" estimate (p. 161) of this new Pitcher plant. I lately saw the plants to which he refers in Messrs. Veitch's nursery, and amongst all the grand Pitcher plants to be seen there I thought this the most meritorious.—CAMBRIAN.

Double Fuchsia Alphonse Daudet.—This was sent out by Lemoine a short time since, and so far as I can form an opinion has deservedly supplanted older favourites of the same description, such as *Avalanche*, *Blue Beauty*, *Tower of London*, and may fitly compare with *Champion of the World*, said to be the largest of the dark doubles. If I want to keep it late I sink the pots in an outside border with full exposure.—T

JOTTINGS FROM THE SANDY SHOW.

Two new Roses.—I suppose I should be wrong in calling the saffron-coloured Noisette Rose William Allen Richardson a new Rose, as I saw it and purchased it last year, but it certainly is not common. A box of it in the bud state exhibited by Mr. House, of Peterborough, was very much admired by the ladies at the Sandy Horticultural Show on Friday last; indeed, this box of saffron-coloured Rose buds and the beautiful box of White Baroness, exhibited by Messrs. Paul & Son, of Cheshunt, were the most attractive features of the show in the eyes of those connoisseurs who were looking out for novelties, they were so fresh and nice. The White Baroness appears to be a Hybrid Perpetual. The show of vegetables at Sandy is usually one of the best in the country, as it is in the midst of a market-gardening district, and Peas, Beans, Vegetable Marrows, &c., including roots, were very fine. The Onions were good, but I have seen larger grown in the Fens this year. The first prize bulbs in the two classes of Spanish and Globe were grown in the county of Hunts by Mr. Tillbrook, of Houghton Hall, and were sown, so Mr. Tillbrook said, in February, and transplanted, when large enough, on to fresh ground. Onions to get size into the bulbs must have a long season of growth and be well fed. The fruit was plentiful and good; indeed, one would hardly suppose the fruit season had been so unfavourable if the Sandy show alone was considered as furnishing a criterion. But as regards Plums and Apples and Pears, now that the fruits are swelling to a good size, I am rather surprised at the quantity the trees seem to be carrying, even where it was reported there was none, and I have no doubt this has often been remarked by others. A seemingly thin crop when full grown appears a respectable one. This has been our own case here and some other places I have seen. E. H.

Unfairness at exhibitions (J. E. W.).—We fear we cannot help you in avenging the wrongs you say you have been subjected to. The matter rests entirely between yourself and the committee of the society. Exhibitors are always expected to submit to the rules of the committee as regards staging exhibits, which, moreover, must comply strictly with the terms of the schedule, or they may be justly disqualified. As to your Melon being stolen is quite another matter, and with which we cannot deal. We shall be happy to publish anything you choose to say on the subject if you confine your remarks to improvements which might be carried out in exhibitions.

Ink for labels (R. W.).—See note in Vol. XV., p. 151. **Books (J. Nairn).**—"Bulbs and their Culture," Bazaar Office, 170, Strand.

"Garden" plates (Amateur).—Your suggestions are reasonable, and shall have attention.

Fig leaves.—Can anyone tell me where I can purchase a large quantity of these?—T. C. L.

Eucalypti.—In Messrs. Vilmorin's catalogue more than eighty species of Eucalypti are enumerated, which shows how rapidly recent discoveries on the Australian continent have added to the numbers composing this genus. In the list in question each species is briefly described, so as to give an idea of its principal characters.—J. C. B.

Names of plants.—J. Denny.—The *Cologne* appears to be *C. Cumingi*.—R. B.—1, apparently *Lobelia Milleri*; 2, similar to that called *purpurea* in some gardens. The plum coloured variety is probably a hybrid between *L. fulgens* and *L. syphilitica*.—S. Breuster.—*Plumbago capensis*, *Sedum Sieboldi variegata*.—Mrs. Lane.—1, *Chrysanthemum coronarium*; 2, *Gaillardia picta*; 3, *Enothera biennis*.—F. G. R.—Apparently *Zinnia Haageana*.—M. Cuthertson.—1, *Sedum album*; 2, *S. Acre*; 3, *S. glaucum*; 4, *S. Lydium*.—J. H. W. T.—*Rudbeckia laciniata*.—A. B.—Apparently *Ipomœa setosa*.—N. H. P.—1, *Sisymbrium millefolium*; 2, *Gnaphalium margaritaceum*; 3, species of *Calamintha*; 4, *Borago laxiflora*.—J. Wood.—1, *Poterium Sanguisorba*; 2, *Chelone Lyoni*.—A. J. H.—1, *Orobolus lathyroides*; 2, *Geranium sanguineum lancastriense*; 3, cannot name without flowers; 4, common Myrtle; 5, *Myrtus mucronatus*.

* "John Ruskin: aspects of his thought and teaching." By Edmund J. Baillie. London: John Pearce, "Dr. Johnson's House," Gough Square, Fleet Street.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare*.

NEW AND OLD GRAPES.

IF we take a retrospective view over the last quarter of a century, and call to mind the large number of new varieties of Grapes which have been introduced, it is rather astonishing how little we have gained. In fact, I think it would be proper to say we have gained nothing, as not one of the new introductions have equalled the old established kinds. This may, perhaps, appear strange, seeing how highly they were praised at first, but that their subsequent performance failed to establish the character they received is amply borne out by the fact that few of the new kinds are to be met with: I do not even know one that occupies anything like a prominent position. We need not seek far to find a reason for their unpopularity, for the fact is they lack distinctness of character, and there is not one that possesses sufficient merit to take the place of those that were in existence before them.

Among black Grapes, Madresfield Court Muscat possesses some merit as a mid-season variety, and when well grown it is a noble Grape, but its propensity to crack just as it is ripening is a serious defect, and one that but few cultivators can thoroughly master. My experience of this Grape is that, being a vigorous grower, it should be grown on the extension principle, and plenty of latitude allowed the laterals to extend from the stoning period until the fruit is ripe. This would be the means of the branches using up the superabundance of sap, the existence of which is supposed to cause the berries to crack. Venn's Seedling and Snow's Muscat are so much alike that most cultivators agree that they are but one variety, an opinion which I share. But it matters not whether the two are distinct or not: they are not wanted, because there are the old and well-tried kinds that if not superior to the new ones, the latter are not of sufficient merit to displace them. Mrs. Pince's Black Muscat is the most popular amongst the new varieties, though I do not think it equals Lady Downe's Seedling or Alicante, but the fact that it has a Muscat flavour combined with its excellent keeping qualities renders it acceptable to many. It is certainly a Grape that cannot be recommended where it is not likely to be skilfully treated, for it does not always set and colour well, and for that reason it should not be planted where high finished Grapes are required; I must, however, qualify this statement a little, as I have seen it in splendid condition in more than one amateur's vineyard. What I wish to do is to give the variety its true character under a variety of circumstances, and then leave those to decide who wish to plant it, as it is just one of those kinds that under different treatment it is difficult to understand.

About new white Grapes there is not much to be said. They have signally failed to make an impression, the cause of which is not far to seek, because cultivators are not slow to make use of anything new if it proves to be worthy of notice. No one can say that the new Grapes have not been fairly tried. If they failed to come up to the standard of the cultivator, it must be the variety and not the cultivator that is at fault. The Golden Champion has, perhaps, been the most disappointing of any; although a grand Grape when it was first shown in London, it has failed in almost every instance to maintain its character. But here, again, there is no loss to the cultivator, as he has only to fall back upon the older kinds to secure all he requires. The Duke of Buccleuch was still more an unfortunate introduction, for it had but a short-lived existence, as it proved to be a bad grower, an indifferent bearer, and had no particular merit in flavour to recommend it. In writing about the

old Grapes I think I shall soon be able to show that they still hold their ground, and likely to do so for some time to come. I base their claims on the fact that we find these old ones cultivated more or less largely, according to space, while the newer ones are only represented, if at all, by a single plant or two.

The best black Grape.—Suitable alike for the amateur, the market grower, or the gentleman's gardener, for early forcing or for mid-season consumption is the Black Hamburgh, and the best variety of this Hamburgh is that known as the Frankenthal. The true Frankenthal variety may be easily detected by the hammered appearance of the berries when they are ripe. This variety also produces longer tapering bunches than the others, with only moderate shoulders. Mill Hill is the next most distinct Hamburgh. It produces short bunches with heavy shoulders, and the berries are usually very large, but as a rule it does not colour so well as the Frankenthal. Black Prince is a distinct Grape that is rather miffy in its behaviour, but if variety is wanted it may be planted with the Black Hamburgh, but it is quite distinct from it, and may be at once detected by its long, tapering bunches, which usually colour well, as its name indicates.

Foster's Seedling and Buckland Sweetwater are the most suitable among white Grapes for early forcing or for mid-season use. The first-named is the one most generally planted, as it succeeds admirably under the same treatment as the Black Hamburgh, and ripens a little before it. It has usually rather long, well shouldered bunches. It is a favourite early white Grape with exhibitors. Buckland Sweetwater is, in my opinion, a much handsomer Grape in the berry, which when full grown is very large and superior in flavour to Foster's Seedling. It does not as a rule produce very handsome bunches, which accounts for its not being in very high favour with exhibitors, but its superior flavour is, in my opinion, more than enough to make up for any trifling deficiency in other respects. It succeeds well with the Black Hamburgh, and ripens quite ten days before it in the same atmosphere. Among late-keeping white Grapes there is not one that is equal to the Muscat of Alexandria, a variety so well known that it is not necessary to enlarge on its merits. J. C. C.

PEACHES V. GRAPES.

GRAPES are now so cheap in the market that market growers no longer regard them as more lucrative crops than other fruits. The question might therefore be asked, What are the prospects of Peach culture? Good Peaches are the least common home-grown fruit in the market, and they do not appear till late in the season, are soon over, and as a rule the samples are inferior. I think the main cause of their scarcity originates in the doubts regarding the cost of culture and returns in the shape of crops. The Grape is a comparatively certain bearer, but a very general opinion prevails, and not without reason, that the Peach and Nectarine are too ticklish to rely upon for a good crop. With the selection of suitable sorts, however, and improved culture, it is probable that Peaches might become as successful as Grapes, and probably more profitable. Gardeners have never given the Peach the same attention as the Vine, which is cared for in a way that no other fruit is, except perhaps Pines. The position of every branch, and almost every leaf, and the regulation of the bunches and thinning of the berries are all matters most carefully weighed by cultivators in the case of the Vine; and it would be a wonder indeed if we did not succeed in producing good crops. But in Peach culture it is different, as a rule; and what the Peach is capable of, as regards crops, size of fruit, and its quality, has yet to be discovered. Provided a Peach is of a good sort, its quality is not, as in some other things, deteriorated by size. Some of the most remarkable Peaches I ever saw were exhibited at a provincial show by a gardener, who told the writer that his success was owing chiefly to their

training and judicious feeding by annual dressings of cow manure and loam. There were good Peaches in the show, but the best of them were completely dwarfed when these specimens were placed on the table. I do not know what their weight was, but the word "enormous" would only describe their size. They were by far and away the largest Peaches I ever saw, and I have seen the best. The trees that bore them had, the grower said, not only large fruit upon them, but very thick shoots and large leaves, as one would naturally expect. Size is much a matter of thinning and feeding, and some may not care for very large fruit; but, according to my experience, the largest Peach is, as a rule, the best; otherwise I have seen crops remarkable as to quantity, but poor as regards size and flavour. Peach stones usually grow to their full size, and if they are not well and deeply clothed with flesh, the fruit is not worth much. A lean Peach is a poor morsel.

Training.—The great fault in Peach culture is too thick training—crowding during the growing season, which weakens the shoots and hinders their early and complete maturity. The other day I measured a shoot of a remarkably vigorous and fertile Victoria Nectarine here, and found the width, from the points of the leaves on each side, to be close upon 16 in. As it is the common practice to tie in the shoots from 3 in. to 4 in. or 5 in. asunder, it will be seen how much the foliage must be crowded. He would be considered an incapable who trained vines so thickly. We have yet to learn what the effects of training Peach shoots sufficiently far apart to expose every leaf fully to the light would be. That it would result in the production of annual shoots of a far more robust description than we are accustomed to see, and fruit of proportionate size and quality, no one can have any doubt, and if we are to improve in our culture, this is the direction in which we must go. Training trees on walls and trellises will always be necessary under certain circumstances, but it greatly impedes proper training—the standard tree admits of by far the most advantages in that respect. The next great point is to secure trees of fertile and robust habit. Some sorts are naturally shy bearers and *vice versa*, and there is a great difference in the size of the fruit produced under the same conditions. For example, the Downton Nectarine with us—trees of the same age and in every other way equally placed—bears as freely as the Victoria Nectarine; but the Downton is not so vigorous, and the fruit is not more than half the size of that of the Victoria. So, too, the Balgovan Nectarine is a fine one individually, but it is one of the shyest of bearers. The Grosse Mignonne is a fine Peach, but it is no better than the Royal George or the Bellegarde, which surpass it far and away in fertility. For these reasons we grow more of the Victoria Nectarine than of all the other kinds put together; and were we to start growing Nectarines for the market, we should probably plant no other kind—under glass, of course. The tree is unusually vigorous, a most extraordinary bearer, and the fruit is of the largest size and of the best quality. Our young trees planted in 1878—small trees little more than maidens—have borne four heavy crops since. Some of the trees this year have had nearly twenty dozen on them; Downton the same, but the fruit smaller. One Victoria, planted in 1866, has borne a crop every year but one since, and mostly heavy crops. After transplanting three years ago come winter, it bore a fine crop; and last year and this it has borne together close upon sixty dozen, and all the fruits were large and fine. Its neighbour, a Royal George, has done nearly as well. What the tree would bear in a single year I do not know; but, judging from its present vigour, I have not the least doubt, had we chosen to leave the fruit on, it would have borne, both last year and this, sixty or seventy dozen fruit. Enormous quantities of fruit were thinned off both before and after stoning.

Those who grow Peaches for profit must divest themselves of the notion that mere training is the chief end and aim of culture. In the nervous fear

that trees will become bare of branches at their base, some cultivators are prevailed upon to shorten the tops unnecessarily when the tree has the best chance of bearing and growing, and many a Peach wall has been half destroyed from this cause. So long as one can get fertile wood in plenty all over the tree (and under the most unlimited extension this is quite easy, as we can testify by trees nearly twenty years of age now), it does not matter in the least how or where the wood is originated; but that well furnished trees can be secured by this mode of training, and preserved in excellent health and fertility, we are prepared to prove by the trees themselves, in spite of all the prognostications of critics.

We do not think, however, that outdoor Peach culture will pay; and with regard to the Victoria Nectarine, which surpasses any variety we know in the matter of fertility and a vigorous constitution, it should be stated that it is a second early kind, coming on in June or July under easy forcing, and in August and September in cool houses, but it does not do first-rate anywhere outdoors, being apt to ripen green. Under glass it is perfection. —*Field.*

PEEN-TO, OR PEACH OF CHINA.

BY P. J. BERCKMANS.

IN 1869 my friend Mr. Jno. G. Cribb, of Brisbane, Queensland, sent me a number of Peach stones of the type known there as Chinese Peaches. To these were added notes stating that some varieties were very flat, and comprised both cling and freestones, while others were quite oblong, and trees of the latter produced very large and double flowers. All were semi-evergreen, and the fruit began to mature about the time the varieties of the Persian strain were fully in bloom.

From these stones I obtained a number of trees, some being, as stated by Mr. Cribb, with double flowers, but in this respect inferior to the double white and crimson flowering varieties introduced by Fortune about 1845. A few of the seedlings assumed a very dwarf habit of growth, even dwarfer than the variety known as Chinese or Italian (misnomer, no doubt) dwarf. Finding that the double-flowered seedlings and those of dwarf growth did not set fruit after several years, of trial, they were destroyed, and only one tree producing single flowers, was retained, as this had set fruit the second year from seed, but failed to retain it to maturity. From this seedling several trees were propagated by budding, and sent to various sections in Florida, anticipating that they would be better adapted to the Orange-growing zone than here, as their habit of blooming in January caused the loss of the fruit. One of these trees when three years from the bud produced the enormous yield of 1200 perfect Peaches, and was considered worthy of being photographed. Its first maturity in Pensacola was at the end of May, 1877. Subsequently the maturity was as early as April 27, and this year the first shipments were made from near Archer, Florida, to Philadelphia, on April 15, and sold at least the greater part at 75 cents each.

My anticipations that this fruit would be of some value for the coast belt and Florida seem to have been fully realised, as the horticultural press of Florida has of late given us much notice of its qualities and commercial value as compared with the Orange. The trees are vigorous growers, often attaining 10 ft. in height here the first year from the bud, and in Florida beginning to bear the second year. The foliage is dense, the leaves being quite narrow, and retained, as a rule, until December.

Fruit of irregular shape; very flat, from $1\frac{1}{2}$ in. to $1\frac{3}{4}$ in. through on one side and a little more on the other, with a depression or hollow in the middle, the average size ranging from $7\frac{1}{2}$ in. to 9 in. in circumference. Skin yellow, washed, and delicately pencilled carmine; peels readily at maturity. Flesh very finely grained, juicy, and dissolving, sweet, and with a delicate almond aroma; quality best; clingstone; stone very flat, $\frac{1}{8}$ in. through; flowers large; glands reniform.

This is only the pioneer of a race of Peaches which at no distant day will comprise many excellent varieties, and should form the basis of experiments with Florida fruit growers. Doubtless larger and more shapely fruits will be produced from its seedlings, as was the case with the old Chinese Cling Peach, which has given us a class of Peaches of unsurpassed quality and beauty, both clingstones and freestones, yellow and white-fleshed, and maturing here from the end of June to September.

I would caution all fruit growers outside the coast belt of Georgia, South Carolina, Louisiana, and the Orange zone of Florida from planting the Peen-To with any assured expectation of gathering its fruits, as it is not adapted to any locality outside those named. As a variety for growing in tubs and orchard houses it deserves attention. —*Rural New Yorker.*

LATERALS ON OLD VINES.

I SHOULD feel much obliged if Mr. Coleman would state the best way in which to manage laterals on old Vines 3 ft. apart from the time they first appear till pruning time. —A. W. [Had "A. W." requested me to advise him with regard to his Vines as well as his laterals, I should have said cut half of them down, and allow the others to extend, but this he has not done, and I must confine myself to his question, which is by no means difficult to answer, as the fact of his old Vines being only 3 ft. apart leaves very little choice in the matter. Either he must follow the persistent pinching system from the beginning to the end, or he must allow the laterals to overgrow each other to the permanent injury of the main leaves, and as one is quite as baneful as the other, we will choose the first, and assume that the Vines have been properly disbudded, tied out, and stopped at the second or third joint beyond the bunch, and that leaders have been selected for training down the back wall, under the shade of the Vines it is true, but a shaded extension growth is better than none, as it keeps the roots at work, and will be cut away at pruning time. In due course the first set of laterals, with the exception of terminals, will require pinching at the first leaf, and the length to which these, the terminal laterals, are allowed to run must be regulated by the judgment of the operator, whose aim will be the filling of every part of the trellis with clean, healthy foliage. Should the sub-laterals get up to the glass and become troublesome before the Grapes are thinned, a free and easy growth may be maintained without producing a check by the constant removal of the strongest, but at no time, and most particularly through the stoning period, should any of the weak growths be pinched before they reach the glass. When the Grapes begin to colour the management of the laterals will entirely depend upon the varieties grown. White Grapes of all kinds enjoy sun and light, and Muscats lay on amber much quicker when exposed to the sun than they do in the shade. Black Grapes, on the other hand, always colour best and keep best under a heavy canopy of good foliage. Peculiar Grapes like Madresfield Court Muscat, Chasselas Musqué, and black Morocco are, by many growers, allowed to grow wild to prevent the berries from cracking; but these, like all others, may have the laterals shortened back when the fruit is quite ripe. With these remarks before him the amateur will see that white Grapes may be more freely exposed than black ones, particularly where the latter have to be kept for any length of time after they are ripe, and that the management of the laterals during this period will depend upon circumstances; but as soon as the Grapes are cut a regular system of management should be pursued. First of all, assuming that the old leaves have not been injured, a few of the laterals may be taken off each spur shoot quite close to the pruning bud to plump it up and let in sun and light; then will follow the removal of the terminal growths or laterals which were laid in to fill all vacant spaces with foliage.

Last of all, leaders may be shortened back, the ripening of the leaves will indicate the time for taking out the remainder of the laterals, and their fall will bring us round to the autumn pruning. —W. C.]

In making a fruit garden where there is nothing but poor sand and poor clay, the site being on the sand, what is the best means of making it more tenacious? It seems hardly worth while to add poor clay, and no amount of farmyard manure will bind the soil sufficiently for fruit trees. Woollen waste has been suggested to me, but its cost is prohibitive in this district owing to carriage. —R. W.

A noble Peach.—What is the weight on an average that good fruits of Peaches weigh? The one I have sent appeared to me to be unusually large. I have, therefore, sent it for your inspection. We have Barrington, many fruits of which would turn the scale at 8 oz., but the one sent is nearer 12 oz. I have no name for it. —CHAS. WARDEN, *Clarendon Park, Salisbury.* [A very fine, solid, and well-flavoured fruit, good in shape, and good in colour. When the Peach is so grown, it is indeed the choicest of fruit. —E.D.]

Smyrna raisins and the Phylloxera.—The old proverb that "what is one man's meat is another man's poison" is well exemplified in the statistics of the dried fruit trade of Smyrna, which has enormously increased of late years in consequence of the prevalence of the Phylloxera in France. Two kinds of raisins are exported from Smyrna—the one under the names of Rosaki and Sultana for table purposes, the other of a much more ordinary kind used for distilling and making wine. Of these some 20,000 tons are annually produced, of which half is consumed in the country.

Select Gooseberries.—Five years ago we planted various sorts of Gooseberries that bore fruit of large size, and that were said to be good in flavour. At the same time we planted a number of smaller old-fashioned kinds beside them. I find many of the large sorts to be useless for dessert; they have no flavour. It is doubtful indeed if the old Rough Red or Champagne, or an old green smooth sort or the old Rough Early Yellow can be beaten in this respect. But after trying numerous sorts, if asked to name four good kinds, I should say, Ironmonger, Crown Bob, Whitesmith, and Red Warrington. These are the best, all points considered. They are good croppers, average as regards size, and finely flavoured. The Warrington ought to be grown by everyone. It comes in after many sorts are over, and it is a wonderfully heavy cropper. We have here some trees of it which we planted four years ago; we netted them early, and the berries, being on young trees, were good in size. We have been gathering them every day for dessert up to Monday last, and they were as good as those picked earlier. I may add that the tree is not an upright grower, and that therefore it does not get injured by spring frost like the upright growers. —J. C. F.

SHORT NOTES.—FRUIT.

Oulin's Golden Gage Plum.—This is a good looking early Plum, and one which yields a good crop and ripens in the beginning of August. It makes good jam and tarts, but with us it is flavourless. Is this generally the case? —J. C. F.

Golden Eagle Peach.—This is a very good late Peach ripening here in the north of Norfolk, on a south wall with no protection, about the middle of October. It is a very high flavoured, golden fleshed fruit and a first-rate bearer. This Peach was raised by Mr. Rivers. —E. A. L.

Three good Apples.—I can endorse all that "Peregrine" says in favour of Lord Suffield; some of the fruit this season with us weighed from 9 oz. to 12 oz. each. Nor are Cellini and Stirling Castle much inferior; if anything Cellini is even more prolific. This is the more to be remarked as this year the Apple crop generally is a bad one in Hampshire? —SYLVESTRIS.

Strawberries in autumn.—It is easy to have Strawberries at this season. We have them yearly, and always have plenty until frost comes. Vicomtesse Héricart de Thury and La Grosse Sucrée are the kinds we have. The former is now prolific and best in flavour. Some of the plants just now (August 22) have ripe and green fruit and flowers. Of Sir Charles Napier we have a large number of plants just showing flowers. Our first fruit in the spring we gather from the 1st to the 6th of March. When done bearing we harden off in a cold frame for at least ten days. This is an important condition not to be overlooked, for to put the plants out of a temperature of 70° into many degrees lower would severely injure, if not kill them.—R. G.

Alexander and Amsden Peaches—I think I was one of the first to fruit the Alexander and the Amsden June Peaches in this country. The two ripen at the same time, but I found the Alexander superior in flavour and colour, and also a freestone, the Amsden June having a tendency to adhere to the stone. The two Peaches being so nearly alike, with a superiority in favour of the Alexander, I have not thought it necessary to cultivate both varieties. In a letter from Messrs. Capps, Illinois, of July 20, 1878, they say: "Alexander Peaches were large and beautiful with us this year; they were highly coloured and commenced getting ripe the middle of June. Amsden June is almost precisely like the Alexander, and no earlier."—T. F. RIVERS.

Cucumbers and Melons failing.—When I came here, about eighteen months ago, I found some very weak Cucumber and Melon plants planted, but I soon found that they made no progress in their growth, the bottom leaves continually decaying as if they were scorched. I obtained some good strong plants and put them in another house, but the leaves decayed in just the same manner as the others, and eventually died. I pulled those up, and I afterwards put in fresh plants and discontinued fire heat; these grew apace, and we cut a fine lot of fruit from them until we recommenced firing, when all the plants went off in the same manner. Last spring we experienced a similar trouble until we discontinued fire heat, and we have now got a good supply. I think the fault must be the pipes, for it seems they are painted every other year with a brick-red paint, and probably this is the cause of the mischief. I should be glad to know the opinion of any reader on the subject, as well as the best way to cleanse the pipes. Melons and Cucumbers are not the only plants affected, for others, especially Maiden-hair Ferns, go off in the same way.—J. HEATH.

Cause of shanking in Grapes.—In my opinion this is most frequently caused by watering the borders with cold water, thereby causing a chill in the soil and consequently giving a check to the otherwise active roots of the vine. My practice for some time past has been to apply water at about 80° temperature when necessary to the borders. The water for this purpose is warmed by hot-water pipes passing through a tank, from which we draw the supply. The borders are thoroughly soaked, but particular care is taken to secure a good drainage, so that water could be applied in any quantity without fear of injury. We are not at all troubled with any shanking here. Heavy cropping and the consequent weakening of the vine, causing inability to bring its fruit to perfection within a reasonable period of time, will also cause shanking. So also will it be brought about if the roots penetrate any cold soil of a retentive character. I think that late vineries are often overlooked for the necessary stopping, though this ought not to be carried out too severely, but I consider occasional stopping beneficial. If the points, for instance, are carefully gone over and removed about the present time, there will not be much danger of young growth being made again this year to any extent. It is far from being a good plan to remove much foliage at a time. Later on, when our keeping Grapes are ripe, I shall remove all lateral growths gradually. Another

point, and an essential one also, is to maintain fire heat, the hottest weather only excepted, until the vines are thoroughly ripened. I am certain this is highly necessary in the case of all late Grapes, the growths of which do not receive the beneficial influence to ripen their wood that earlier ones obtain.—J. H.

Cordon Peach wall at Chiswick.—The fruit of two or three of the early sorts has been gathered, but there is enough yet remaining to interest anyone fond of fruit culture. It has been a good season for wall fruit here, and the various varieties have been set off to the best advantage. Early Grosse Mignonne is very fine, and we have heard it strongly recommended for an early crop in a Peach house. English Galande is a very fine-looking Peach, and bears well. Duc de Tellier is also a fine-looking Peach, good in colour, and a great cropper. Crawford's Early looks remarkably fine on the wall, large in size, and excellently coloured. Of Nectarines the large Elruge is a very fine-looking and richly coloured fruit, and succeeds Lord Napier. The Stanwick is also very fine-looking, and bears a good crop. There are several others equally worthy of notice, and the varieties being named, visitors can select for themselves. Cordon-trained Peaches and Nectarines do not appear to find much favour with gardeners, but we think there are many gardens in which a wall of these could be cultivated with advantage.—R.

Pine growing on leaf beds—From the following it will be seen what can be done with a bed of leaves for bottom heat. The great number of years during which I have had Pines under my charge, not one shilling has been laid out on tan or any other materials for bottom heat. I have used nothing but leaves, and in many seasons I had not the aid of fire heat for top temperature from the 1st of June to the second week in October, yet I always have had most satisfactory results. I have, I think, shown sufficiently now that Pines can be profitably grown where leaves are to be had; and of one thing I am convinced, the labour required is not so much as that for growing early Grapes.

SMOOTH-LEAVED CAYENNES.

1882.	Pines.	lb.	1882.	Pines.	lb.
July 3	1	6½	July 26	1	6½
14	1	5½	26	1	6½
17	1	7	28	1	9
17	1	5	28	1	9½
20	1	9½	29	1	9
20	1	9	29	1	6
21	1	9	31	1	6½
21	1	6½	31	1	10½
22	1	4½	31	1	9½
22	1	6	31	1	7½
24	1	9½	Aug. 5	1	8½
24	1	6½	5	1	8½
24	1	7½	5	1	7
26	1	9	10	1	8½

This will show how valuable the Smooth-leaved Cayenne Pine is both early and late in the season.—D.

Apricots in the Highlands.—It has often seemed to me very singular that in many of the coldest districts of the country Apricots are grown successfully and ripen their fruit fairly well, the trees remaining exempt from the disease which often makes such sad havoc in more genial climates. While passing through some of the northern districts of Scotland during the first week of August I visited parts of Nairn, Moray, and Inverness-shire where Apricots seemed to be peculiarly at home, and I tasted some luscious fruit from an ordinary garden wall. The trees were certainly very old and gnarled in trunk and branches, and showed signs of decay (not the disease of branches so much dreaded in gardens), but from sheer old age. Probably the roots were a long way from the surface and had got into inert soil, and thus could not find the food necessary to their wants; but such trees may yield supplies for years to come and not be much the worse. This was

near the Moray Firth, and its influence on climate is well known, but many miles away from the sea I saw trees of the same character not so old and more vigorous; the fruits on them were evidently not so early by several weeks, but were changed in colour, and even if they had no further help from the trees, which were growing against stone walls, useful fruits could be supplied by placing them at that stage in dry, warm quarters. This I have often done further south with the best results. I examined the soil in which these northern trees were growing, and it appeared by no means rich, but rather the reverse, gritty, firm, and poor, and by no means inert. We often have noticed that Apricots which have done good service for years have suddenly shown signs of disease and death when they have extended far into rich soil or run down into cold clay.—M. TEMPLE.

AUTUMN NOTES ON HARDY PLANTS.

We are now approaching the end of the floral season; everything looks crowded, overgrown, and untidy, and one has to strike upon new lines, build new rockeries and remodel old ones, and provide in all directions for the overgrowth. Amongst other important matters all our bulbs require some attention and especially the Daffodils and Narcissi should be overhauled. This should be done at least every third year, as the increase of many sorts is considerable, and if the new bulbs be not detached, the clumps become too solid, and many a valuable bulb is crowded out of existence. It is interesting to note the rapid increase of many Lily bulbs. N. Horsfieldi planted in clumps of three, as many years ago, have increased to from fifteen to twenty-one good bulbs. This appears to be the most prolific sort we have, and it cannot become too common. I am glad to see it called the King of Daffodils in several catalogues this year; I only wish the Emperor was equally abundant. I do not find it advisable to cover up the soil above Lily bulbs with mossy Saxifrages, as recommended by some of your correspondents. In no case have I found the bulbs so strong and healthy when thus covered by a thick rank growth. They do best when planted in a light, well drained soil, where the bulb can ripen and rest during summer; a thick covering of moss keeps the bulbs always damp, and they do not appear to like this treatment.

Our chief glory just now is a long border with alternate clumps of *Anemone japonica* (Honorable Jobert) and *Gladiolus branchleyensis*, which have flowered well together. With these are pink Phloxes, *Lilium auratum*, and many other hardy plants, making a good display. *Veronica longifolia subsessilis* forms good masses of blue, and *Enotheras*, *Rudbeckias*, and *Coreopsis lanceolata* furnish yellow. All these have done well, but Dahlias, upon which we depended elsewhere, have done badly owing to the wet weather. *Hydrangea paniculata grandiflora* is splendid this season from the same cause. The *Lobelias* are also very good. Some of your correspondents undervalue *L. syphilitica*, but I can assure them that these are most beautiful border plants when properly grown. We have them in deep claret-purples as well as blue, and of a lovely rose colour. *L. cardinalis* is also a grand plant, the most vivid scarlet I know of. The *Tritomas* are also good this season. We have one large clump over 7 ft. in height. Of smaller plants on the rockeries, there are still some very interesting items to be noted. The *Cyclamens*, pink and white, are crowded with bloom, and the pink and yellow *Sedums* are at their best. The *Androsaces lanuginosa* and *lactea* are in flower,

and the last of the Campanulas are blooming. *C. Sibthorpi* is one of the most curious. It grows about 2 ft. high and has star-like blue flowers with very narrow petals on long spikes. *C. Barrelieri* is a very pretty dwarf sort after the manner of *C. garganica*. *C. cæspitosa* has very narrow bells covered with small hairs, but not so much so as *C. barbata*, which is also in bloom. The hybrid variety *C. Haylodgensis* is another good rockery plant, being closely covered with pale blue flowers. Amongst the last also are the tallest of all, *C. pyramidalis*, blue and white—equally valuable for garden and greenhouse, and perhaps the loveliest of all the Campanulas. The *Hypericums* are now at their best. In Scotland lately I saw a large bank completely covered with *H. calycinum* in full bloom, and very beautiful it looked. The country people there called it Bird of Paradise flower, from the resemblance of the clusters of stamens to the tail of that bird. *H. uralense* is like a smaller edition of that flower, but it grows taller, and the leaf is rather too much for the flower, so that although pretty it is not effective. *H. nepalense* has straight stems with long branches and numerous beautiful leaves and bright yellow flowers of great beauty—a very good rockery plant. The *Statice*s are also in flower, and form a valuable and interesting class. *Chelone barbata*, *Liatris spicata*, and several *Epilobiums* are good rockery plants. *Lythrum Salicaria* is an excellent border plant for effect, as also for rock-work. It is largely used in Scotch gardens.

Didsbury.

BROCKHURST.

PLANTS IN FLOWER.

COREOPSIS LANCEOLATA.—A really good herbaceous plant, lasting long in bloom, a splendid yellow, fine in form, and excellent as a cut flower. This is the sort of plant we want for our gardens.

WHITE EVERLASTING PEAS AND EVERGREENS.—These are charming for a room, last a long time, and look very well in contrast with the leaves of any evergreens that happen to be near, particularly those of the Portugal Laurel, cut long, and all thrown together in a free, bold way.

HYPERICUM OBLONGIFOLIUM.—This is one of the finest of the St. John's Worts, and, in fact, one of the best plants now in bloom. Everyone ought to grow it. When planted by the side of *Clethra alnifolia* and *Hibiscus syriacus* the effect is very good. It is blooming finely here at the present time.—J. P. F.

SALVIA BETHELLI.—The extreme beauty of this *Salvia* may be seen in perfection in the greenhouse (No. 4) at Kew, where some fine plants of it are bearing large heads of its deep, rose-pink blossoms, surmounted by a knob-like crest of pink bracts. It would be difficult to mention a more valuable plant for the greenhouse in autumn, winter, or spring than this is.

DOUBLE SOAPWORT.—The double-flowered variety of *Saponaria officinalis* is really a showy hardy perennial, and were it not for its straggly habit of growth, it would be an indispensable autumn plant. The flowers are borne in large clusters, and vary in colour from a pale rose-pink to deep rose. Mr. Stevens brings us two or three forms, one showing admirably the variation in colour. It is hardy and of the simplest culture.

DELPHINIUMS IN AUTUMN.—Indispensable as the perennial Larkspurs are in summer, they are even more valuable in autumn, for then their glowing spires of blue are more conspicuous, having few associates to attract attention. From Grasmere, Byfleet, where the *Delphinium* is grown in perfection, Mr. Stevens brings us some examples of his autumn crop of bloom, marvellous specimens for the season, and but little inferior to the

best summer spikes. One named *Argus*, a light blue, somewhat like *Cantab*, is exceptionally fine, the flowers being large and densely arranged on the spike. This seems to have an inherent tendency to bloom finely in autumn, and therefore is worth making a note of. We believe Mr. Stevens cuts his plants over as soon as the first crop of bloom is past; they soon develop successional spikes, some much stronger and better than others.

OLEANDER FLOWERS, from Mr. Groom, Seafeld Nurseries, Gosport, show what a valuable greenhouse shrub the *Oleander* is at this season. The variety sent is a double one, the full rosettes being of a deep pink. Mr. Groom says, "Plants of it flower profusely plunged in a bed in the greenhouse, thereby avoiding drought." There are many varieties now of *Nerium Oleander*, chiefly of Continental production, but this double pink is one of the best we have seen.

FINE VARIETY OF VALLOTA PURPUREA.—A correspondent sends us two blooms of the *Scarboro' Lily*; one—much superior to the other—measures 4 in. across, the other but 2½ in. Our correspondent says that he has several plants of each all subjected to the same treatment, and he is naturally puzzled to know which is the species, and which the variety. The largest flowers has a white centre. Are any of our readers acquainted with this fine variety?

BEAUFORTIA SPLENDENS, a beautiful Australian shrub, is, like others of its class, much neglected now-a-days. In habit it resembles an *Epacris*, being of a stiff, bushy growth and very twiggy. The flowers, consisting chiefly of tufts of long thread-like stamens of a bright red colour, are arranged in a bottle-brush kind of fashion on the main branches. When in blossom it is a most attractive shrub, and continues a long time in perfection. In flower in Messrs. Veitch's nursery, Chelsea.

CONVOLVULUS MAURITANICUS.—A large plant of this against a south wall at Kew is one of the prettiest objects imaginable, every drooping shoot being thickly furnished with purple-blue bell-like flowers. It apparently revels in a position like this where it has a good soil and the full benefit of the sun. In no situation, not even under glass, does it attain such growth as here, and this year planted in the open about London it is almost a failure. Few plants are more worthy of adorning a warm wall than this.

CEDRONELLA CANA.—This spicy, old-fashioned plant is welcome in autumn, for though not one of the showiest, it produces its sweet-scented, purplish red flowers for many weeks together, and, blooming as it does very profusely, it makes an attractive bush. It is one of the best town plants with which we are acquainted, some plants of it having been in flower since June. There seems to be some forms, better than others; one of the darkest comes from Mr. Stevens' garden at Byfleet.

CALCEOLARIA CRENATIFLORA is a plant that ought to be brought into greater prominence than it is, as it is one of if not the best of all the shrubby kinds of *Calceolaria*. Its bright yellow flowers are borne in large clusters, and are therefore very showy. The blooms individually are about the size of those of *C. alexicaulis*, but the pouch is longer, its margin is crimped or crenate, hence the specific name. Like other shrubby *Calceolarias*, it is not hardy, but thrives in perfection in open borders in summer. At Kew it is now finely in bloom in the herbaceous ground.

TILLANDSIA LINDENI.—The variety of this species called *vera* is justly considered one of the most beautiful of all Bromeliaceous plants, and one whose value as an ornamental stove plant can scarcely be over-rated. It is dwarf and elegant in growth, having a tuft of long, recurved, narrow foliage of a bronzy kind of green. The flower-stem rises about 9 in. high from the centre of the tuft. Its upper half is covered with membranous bracts arranged in an overlapping way, and much compressed. The outline of the spike is oval, and

the colour of the bracts a clear rose-pink, which contrasts strikingly with the deep purple blossoms, triangular in shape, and about 1½ in. across, which peep out, two or three at a time, from the axils of the bracts. The spikes and bracts continue many weeks in perfection, and during that time many flowers are produced. It is essentially a heat and moisture lover, and to grow it successfully it must have a warm stove. It is now beautifully in flower in the *Nepenthes* house in the Royal Exotic Nursery, Chelsea.

EUCOMIS PUNCTATA when grown well is really a handsome plant for the greenhouse at this time of year. Mr. Groom sends us a spike of it about a foot long, thickly beset throughout its length with small waxy flowers of a whitish green. They have, as Mr. Groom points out, a very delicate scent, which we had not hitherto observed. In a greenhouse in Mr. Peacock's garden at Hammersmith it is grown rather numerous, and when associated with other plants it has a distinct and peculiar effect.

LINDENIA RIVALIS.—Last year this shrub was seen at South Kensington after having been lost sight of for some time. It is now finely in flower in the Royal Exotic Nursery, Chelsea. It is an evergreen of dwarf compact growth, not unlike a *Gardenia*. It bears numerous blossoms, tubular and some 4 in. in length, while the spreading corolla is about 1½ in. across. The tube is faintly tinged with pink; the corolla a pure white. When well grown and flowered it is handsome. It is grown at Chelsea with *Ixoras* and similar subjects.

WHITE IVY-LEAVED CYCLAMEN.—The white-flowered variety of *C. hederæfolium* is one of the daintiest of hardy flowers. It will compare favourably with the purest white forms of the Persian *Cyclamen*, though the blossoms are but half the size of those of the last-named kind. Such a charming little plant when seen with dense tufts of snowy blooms rising some 3 in. or 4 in. above the soil is one of the prettiest sights in the garden in autumn, and no plant would be a more fitting occupant of the snugest nook at the base of a rockery in partial shade than this *Cyclamen*. Some beautiful blooms of it come from Mr. Stevens, Byfleet.

PRIMULA OBCONICA is the name given to a new Japanese or Chinese Primrose discovered and sent home by Mr. Maries when travelling for Messrs. Veitch. It is now in flower in the Royal Exotic Nursery, Chelsea, and grown as it is there it is really a pretty plant, quite distinct from any other cultivated species. It is nearest to *P. cortusoides*, but different in foliage, which is evergreen. The flowers, which are about the size of a shilling, are delicate mauve in colour, and are produced in terminal heads on stems about 6 in. high. It is said to be quite hardy, and will doubtless prove a valuable rock garden plant. It will, we imagine, be a capital species to interbreed with other types.

UROSKEINERA SPECTABILIS.—Why a beautiful plant as this is should not have found its way out of a botanic garden it is difficult to conceive, seeing that it far surpasses in beauty many plants largely cultivated. It is a dwarf shrubby plant of twiggy growth, each branch being terminated by a dense cluster of tubular flowers about 1 in. long, and of a delicate mauve-purple colour. Its flowering season spreads over several weeks in autumn; hence its value as a decorative plant. Well-grown young plants of it would be a fine addition to the few stove plants that flower at this season. It belongs to the *Acanthus* family, and is a native of Brazil. The genus was dedicated to Mr. Ure Skinner, to whom our gardens owe so many beautiful plants.

FUNKIA GRANDIFLORA.—Among plants out of the ordinary run that deserve to be more widely known than they are this Plantain Lily is pre-eminent. Some blooms of it from Mr. Groom, Seafeld Nurseries, Gosport, gathered from a "cold house" are among the loveliest and sweetest we have had this season. Nothing could well excel the purity and delicate fragrance of these blos-

soms, and the fact that the plant is hardly makes it all the more valuable. We say hardly, for indeed it is so about London and south of it, but it is one of those plants that are grateful for a little shelter in order to flower well, though in warm localities it blooms freely. This Plantain Lily should be grown by everyone as a pot plant, for its foliage is large and handsome. Its tall flower-spikes carry many blooms, which measure fully 6 in. in length. Mr. Groom would do good service if he could supply such a valuable plant as this is by the hundred.

ACONITUM PALLASI.—One of the handsomest of Aconites, and very valuable as an autumn flowerer. It resembles the common A. Napellus, but the colour is deeper and the stems much more branched. From Glasnevin.

PLUMIERIA LAMBERTIANA.—Flowers of this lovely Mexican shrub come from Glasnevin. They are 3 in. across, of firm texture, and pure white, with a delicate yellow centre. It is the most beautiful Plumieria we have seen.

RUDEBECKIA NEWMANI.—Messrs. Carter & Co. send us this old border flower. It is very showy, but very well known, and there are other and better things now-a-days. We hear somebody inquiring, "What is the true R. hirta?"

COSTUS SPECIOSUS is one of the most attractive of the genus with which we are acquainted. The flowers, crowded on the top of tall stems, are large and white and very delicate in texture. The buds, tinged with purplish red, are in harmony with the dull red bracts. From Glasnevin. It is also in flower at Kew.

ERICA CERINTHOIDES is certainly one of the most beautiful of September greenhouse plants. It has dense clusters of bright scarlet flowers drooping from slender branches. Some fine specimens of it come from Mr. Moore, Glasnevin, who also sends *E. ramulosa*, a pretty small flowered species, and *E. vestita coccinea*, likewise a very showy Heath.

A PRETTY WHITE DAHLIA.—Mr. John Green, of Thorpe, near Norwich, sends us a bunch of the pretty white Dahlia Guiding Star. It is a small neat double white, a charming garden plant. The improvement in the form of Dahlias is very great indeed since the varied single kinds came in, and it is best seen where a variety of the double classes are grown. The above seems of the bouquet class.

GENISTA ELATA.—Mr. Moore sends us some fine sprays of this showy hardy shrub, which is named at Kew as a variety of *G. tinctoria*. It grows from 5 ft. to 10 ft. high, and is very much branched, each slender twig being furnished with a raceme of bright yellow flowers. It is the finest of its class in flower at this season. It was in perfection at Kew some weeks ago, but has long been past.

DAHLIA GLABRATA AND OTHERS.—The charming *D. glabrata* comes to us from Mr. J. Green, of the Floral Nurseries, Thorpe, Norwich, who also sends a variety of other species of single Dahlias, and the large and handsome white Rose varieties, also the little black Dahlia Zimapani. We congratulate him on his excellent culture of a variety of Dahlias.

A BRILLIANT CANNA.—We send herewith blooms of a new Canna (*C. Noutoni*), a kind in the way of *C. Ehemanni*, but different and certainly finer in colour. The flowers also are more erect. We send a small piece of *C. Ehemanni* to show the difference. The growth of *C. Noutoni* is very fine.—HOOPER & CO., *Covent Garden*. [Splendid in colour, a crimson-scarlet, distinct from *C. Ehemanni*. We have no means of judging if it will be so free and fine in habit.—ED.]

EUPHORBIA PUNICEA, as sent to us by Mr. Moore from Glasnevin, is really a beautiful plant, and among the showiest of the genus in cultivation. It has leaves like those of the common Mezereon, very glaucous beneath, and crowded at the tips of the rigid branches. Terminating the branch is a cluster of floral bracts resembling those of *Poinsettia pulcherrima*, about 3 in. long,

and of a brilliant vermilion-scarlet—altogether a shrub worth attention.

PALESTINE CYCLAMENS IN BERWICKSHIRE.—I send a box containing two small bouquets of *Cyclamen hederifolium* blooms, the one consisting of pure white, and the other of pink flowers, surrounded by a few of the beautiful variegated leaves. They are the produce of a packet of seeds given to me by my friend, the late Rev. R. O. Broomfield, of Sprouston, near Kelso, in the early spring of 1880. He told me the parent plant, which produced the seeds, had been collected by him on Mount Gerizim, in Palestine, and had flowered in the ordinary borders of his garden for several years with great profusion. I sowed the seeds on 8th April, 1880, and the flowers I now send are the first the plants have produced. I may add that I have lately had *Eritrichium nanum*, *Anemone Halleri*, and *Gentiana bavarica* flowering in my garden here. I have the *Gentiana* planted close by the side of a tiny streamlet in a little peat bog, and it is thriving well. It was planted where it is in July, 1881.—GEORGE MUIRHEAD.

DOUBLE AND SINGLE PETUNIAS.—A very fine gathering of these come from Messrs. Carter & Co., selected from a collection of some thousands of plants grown for seed at their nursery, at Forest Hill. Every conceivable variation of colours is represented among these flowers, some of which are very beautiful, and others very quaint and curious in their markings. Among the doubles are flowers 3 in. across, perfect rosettes of petals, variegated, striped, mottled, and pencilled in every way imaginable. Others, again, are self-coloured, and have exquisitely fringed petals. The self-coloured varieties, too, among the singles, are particularly fine; in short, the series is as fine as can well be, and worthily deserves to be called the "Empress strain," a name by which it is distinguished.

DOUBLE BEGONIAS.—The finest blooms we have ever seen of double-flowered tuberous Begonias are brought us by Mr. W. Bealby, The Laurels, Roehampton Park, who makes the Begonia quite a specialty, particularly the double kinds, as their flowers last so much longer in perfection than do the single ones. The collection sent contains eight varieties, some of which are not in commerce yet. All are without exception very fine, but one or two better than others. They are—*M. Langlois*, flowers $3\frac{1}{2}$ in. across the petals, forming a compact rosette, colour a vivid orange-scarlet; *Rosa Mundi*, 3 in. across, of a beautiful clear rose-pink; *Blanche Jeanpierre*, blush white, large and full; *Mad. Comesse*, very large, somewhat coarse, salmon-pink in colour; *Mad. Dumast*, large pale pink; *Eugène Leguin*, very fine, a full rosette of brilliant vermilion petals; *Mad. Leon Simon*, very compact rosette of flesh-pink petals; *Agnes Sorel*, delicate pink. Compared with the ordinary kinds of double Begonias, these huge flowers are more like *Pæonies*, as may be inferred from the names. They are all of Continental origin—French, we believe.

INDOOR GARDEN.

EPIPHYLLUM TRUNCATUM AND ITS VARIETIES.

WHEN well grown *E. truncatum* is one of the most useful winter flowering stove plants we have, as by means of it and its varieties a fine show of flowers can be maintained from November till late in the spring. Ever since its first introduction to this country from Brazil, in 1818, has it received the attention of cultivators, and since that time other varieties have been added. In 1839 the lovely *E. Russellianum* was also brought from Brazil. This, though considered by some to be a variety of *E. truncatum*, is, in my opinion, a distinct species. The varieties of *truncatum* flower in November and December, and the natural flowering time of *E. Russellianum* is April and May. There are, moreover, other differences to

which we need not here allude. Plants of these *Epiphyllums* may either be grown upon their own roots, or grafted upon the *Pereskia* stock. If grown upon their own roots to form dwarf plants, which will be found useful for placing in the front row of a stage devoted to dwarf plants, cuttings may be rooted in small pots, inserting two or three in each pot. Use light sandy soil, cut the shoots 3 in. in length, and close to a joint. Plant them round the edges of the pots, and place the latter in a propagating pit or warm house where they will soon root, and be ready for a shift into larger pots. The compost must always be of an open character, for these *Epiphyllums* have a great aversion to wet or sour soil. Let it consist of good turfy loam, leaf mould, and peat in equal portions, using plenty of sharp silver sand and charcoal broken into small pieces. Great care must be taken to have the pots properly drained; use broken crocks and charcoal broken into pieces that will suit the different sized pots. Place some pieces of rough peat over the drainage to keep the soil from mixing with it—an important point in potting plants, for if the drainage gets out of order they soon get into a bad state of health.

Grafting upon the *Pereskia* stock is perhaps the best way of growing these *Epiphyllums*. Select stocks the height required, cut off their tops to the desired height, which may be from 9 in. to 24 in., and even higher if required; get the scions ready; make an incision in the stock, and insert the scion in such a way as to make the two rinds fit properly together; then tie firmly with grafting cotton or matting. After the grafts have been inserted place the plants in a propagating case, or they may be set on the shady side of a warm house, where they will require no shading but an occasional sprinkle with the syringe to keep them moist. They will unite in about six or eight weeks. Care must be taken to put a neat stake to each plant as high as the scion, for if not supported when first united to the stock the scion is liable to get broken off. When properly united place the plants in a lighter position so that they may make some growth before the dull winter months set in, when they may be placed in a cooler house until early in the spring. These *Epiphyllums* are sometimes grafted upon *Cereus speciosissimus*, which makes a good stock; being a strong grower, several scions can be worked on each stock at different heights, finishing with one upon the top. Plants thus treated after several years' growth make neat pyramids. This *Cereus*, being hardier than the *Pereskia*, will grow in a lower temperature, a fact with which amateurs having only one cool greenhouse in which to grow their plants should be made acquainted. The plants may be grafted at any time of the year with success, but I have found September to be the best month in which to get up a stock of young grafted plants. As already mentioned, they will make a little growth before dull weather sets in, and being wintered in a house having a temperature of from 50° to 55°, the roots will be kept growing.

Repot some time in March or April such plants as have finished flowering, using the same compost as that already mentioned. After potting place the plants in a warm house—one having a temperature from 60° to 65°, using some artificial manure once a week when the young plants are making their growth. As soon as they have done that place them in a cool house for a time, when they

may be set out of doors to ripen their wood. Before the approach of cold nights, however, place them under cover in a cool house, keeping them rather dry at the roots, until they are required to furnish a supply of bloom. Some of the varieties will commence to flower in November by placing them in an intermediate house, and, by having a number of plants consisting of several varieties, a succession of bloom may be maintained for a long period of time by introducing a few plants into warmth as required. After flowering the plants must be put into a cool house until early in spring, when they will require more warmth in order to induce them to make strong flowering growths. As soon as they have finished their growth, repot if pot bound, and set them in a cool house to ripen their young growths, when they may be placed out of doors and treated the same as in the previous season. They will soon form fine heads, which will produce a number of flowers, and which may be used in a cut state either for filling small vases in rooms or for dinner table decoration, along with small Fern fronds to lighten their appearance.

Varieties.—The following list contains some of the best of the *E. truncatum* varieties, viz., *truncatum majus*, a kind with fine large flowers of deep rose colour; *magnificum*, large, bright rose, a good grower; *roseum*, bright rose; *tricolor*, deep reddish purple and white; *violaceum*, white, with purple margins; *Ruckerianum*, purplish red, splashed with violet; *splendens*, fine deep rose; *purpureum*, fine deep purple, self-coloured; *bicolor*, white and rose, extra fine; *amabile*, bright purple and white; *aurantiacum*, orange and red; *rubro-tinctum*, white and purple. In the *Russellianum* section the best are *Russellianum rubrum*, fine red; *R. superbum*, purple with a reddish tinge; and *R. cupreum*, purple with a copper tinge.

W. CHRISTISON.

The Rookery, Bromley Common.

SELECT ANTHURIUMS.

WITHIN the last ten years the cultivated species of this large genus have been considerably increased by the introduction of many new kinds, some of which deserve to rank among the finest of foliage and flowering plants, while others, although perhaps as interesting to the specialist and botanist as the ornamental kinds, do not possess very strong claims on lovers of plants for their beauty alone. For the assistance of those who have not access to the various works and periodicals in which these plants are described or figured, it may be well to offer here a few descriptive remarks on those species which are most deserving of cultivation for their ornamental characters. Of the large order Aroideæ, the Anthuriums form a considerable proportion. I am not able to give the exact number of species known to botanists, but there must be several hundreds, as in the Kew collection alone there are over 100 species represented. Anthuriums are all natives of South America and the West Indies, where, clinging to the trees, nestling between the branches, or covering the ground in the moist forests, they add considerably to the beauty and grandeur of the wild scenery.

To commence with those species which have ornamental flowers, *A. Scherzerianum*, the Flamingo plant, is that which in my opinion still stands first as the most beautiful Anthurium known to us, and indeed of the whole order. Much has been written of the newer *A. Andreanum* as a plant which eclipses the former, but neither in flower, habit of growth, nor floriferousness is it equal to *Scherzerianum*, and no doubt when the newness of the one has worn off a little no one will think of comparing it with the older species

as a decorative plant. A well-grown specimen of *A. Scherzerianum*, with from 150 to 200 of its gorgeous inflorescences on it at one time, is a picture which is not easily surpassed by the very best stove plant known. This species is now so well known, that little need here be said in the way of description. The wonderful improvement in the size of the spathes made by skilful cultivation was well shown a year or two ago by Mr. Fitch, who published a series of sketches of the flowers of this and other plants, showing the remarkable increase in size that had been wrought by cultivation. The first flower of *A. Scherzerianum* drawn by him was not more than 1½ in. long, whereas now we have flowers measuring as much as 9 in. in length and 4 in. in width. It is, of course, not improbable that better and larger forms than those first introduced have found their way to this country since, but it is a fact of which one has everyday evidence that the skill of the horticulturist has worked wonders in this direction. Besides the typical *A. Scherzerianum* we have also several distinct and very large varieties, as well as some smaller curious ones. Of the former, perhaps the finest is the still very expensive

A. WARDIANUM, which for size and brilliancy of colour is a most remarkable form. The spathe measures from 6 in. to 9 in. in length and about 4 in. in width, whilst the foliage is much broader than that of the type.

A. HENDERSONI is characterised by the length and narrowness of the spathe and the brightness of its colour.

A. MAXIMUM is not distinct from the finer form of *Wardianum*. Of the smaller varieties the most distinct are the following:—

A. ROTHSCHILDIANUM.—This is supposed to be a cross between a scarlet and a white variety, the colour of the spathe being scarlet, spotted with white. Sometimes some very curious freaks of colouration are performed by this plant, the spathe being half white and half red, or the ground colour white spotted with red. This latter form is sometimes known as *A. M^{de}me. E. Bertrand*.

A. PYGMÆUM is a narrow-leaved dwarf form, with a spathe of rather thin texture, and the spadix raised on a stalk about 1 inch long. It is a pretty little plant, and is well named.

A. WILLIAMSII has a white spathe and yellow spadix, and is of dwarf habit. It was hoped that good cultivation would develop this variety to the size of the scarlet form, but such expectations have not yet been realised.

A. ANDREANUM is the leading star among plants of recent introduction, and is rapidly becoming very popular. The structure of the spathe of this species is very singular, which, along with its brilliant colour, against which the white and yellow of the spadix form such a fine contrast, has won for the plant much admiration. It was well figured in *THE GARDEN* recently, and as descriptive and cultural notes were given with the figure, I need not repeat them here. Although so very remarkable in its structure, the inflorescence is considered by many to be ugly. As with the last mentioned species there are several varieties of *A. Andreanum* in the country, some of them much inferior to others, the flowers being small, the habit straggling, and the colour not brilliant. I imagine that a batch of seedlings which were distributed soon after the plant was introduced in quantity were of this poor form, which is easily distinguished by its habit of producing offsets freely at the base. The good varieties do not produce them nearly so readily.

A. BAKERI.—Though not an ornamental flowered species, this is deserving of general cultivation from the handsome colour of its Pea-sized berries, which are thickly borne on the large spadices after they have flowered. The colour of these berries is rich crimson, and as they remain a long time on the plant, it may be recommended as a useful stove plant. *A. Lindeni* is a new introduction, which is well reported on, and from a published figure I should judge it to be a promising plant,

The other so-called flowering Anthuriums, namely, *A. candidum*, *A. Patini*, *A. Dechardi*, and *A. floribundum*, belong to the genus *Spathiphyllum*, and therefore must not be included under the above head.

This concludes the list of species with handsome inflorescences, few if any of the other known Anthuriums possessing any claims under this head. Of those species with ornamental foliage there are several noble and magnificent plants amongst others of less horticultural importance, though many are worthy of a place in a collection where room can be spared. The grandest of all is

A. CRYSTALLINUM, the foliage of which is beautifully marked. The size of a leaf of a well-grown plant of this species is about 3 ft. by 1½ ft., while the colour is a very dark bronzy green, over which is spread a reticulation of broad silvery lines, the whole surface sparkling like crystals. Treated liberally, this plant grows to a large size, and few plants are more attractive than a healthy specimen of this species.

A. WAROCQUEANUM is supposed to be a variety of the preceding species, differing in having leaves 3 ft. long by 6 in. broad, but marked and coloured precisely the same. Some very fine specimens of this have recently been seen at the London exhibitions.

A. VEITCHII.—A large-leaved dark green species not long introduced. It is a noble growing Aroid, and where room can be spared for it to develop itself it cannot fail to give satisfaction.

A. BROWNII is another very large-leaved kind, dark green, and of good free habit. The leaves are heart shaped. A new introduction.

A. LEUCONEURON, *A. Walujewi*, and *A. magnificum* are other variegated-leaved kinds, all deserving of a place in gardens, though perhaps the second, from its rather "miffy" nature, is not likely to become a favourite.

A. ACAULE.—This large growing plant will be found useful for planting out in large stoves, where it will soon grow into a very striking specimen. Other large green-leaved kinds are *A. cordifolium*, *A. ornatum*, *A. Hookeri*, and *A. crassinervium*.

The cultivation of Anthuriums is by no means difficult, most of the strong growing kinds thriving well in a mixture of loam and peat, which should be as rough as possible. For *A. Scherzerianum* the best mixture is such as one prepares for most Orchids, that is, peat fibre, with a little moss and a few lumps of charcoal, one large piece of charcoal with a handful of moss being all that is required for drainage. Press the soil rather lightly about the roots, all the old soil having been carefully washed from them. July or August is the best time to perform the potting, keeping the plants in a close moist atmosphere, and syringing freely while they are making their growth. As soon as the flowers begin to push up, a little weak liquid manure may be given. *A. Andreanum* is fond of Sphagnum Moss, and, therefore, quite half of this along with peat and charcoal should be used for it. The whole of the genus are fond of shade and moisture, and as they are all natives of the most tropical regions of the New World, a stove temperature is essential to them at all times of the year.

B.

SHORT NOTES.—INDOOR.

Heliamphora nutans.—Your correspondent "W. W." is in error in supposing (p. 132) that the specimen of this plant at Kew is "the only one that exists, even in herbaria." There is a very good specimen collected by Schomburgk in the National Herbarium at South Kensington.—JAMES BRITTEN.

Hydrangea "ramis picta".—A good variety of *H. Hortensia*, and one of the many which are neglected. The curious Japanese forms of the *Hydrangea* deserve much more attention than they get, the bright, cheery, and varied colours of the blossoms making them fine border ornaments.

Plumbago capensis.—Well known as this plant is it is not so extensively grown as it ought to be. We saw a lovely specimen of it the other day in the Cambridge Botanic Garden, a mass of flower against a wall; but allowed to grow away from it in a fine bold manner.

TREES AND SHRUBS.

THE WHITE OR HUNTINGDON WILLOW.

(SALIX ALBA.)

THIS very ornamental tree at all times has a fine effect by the lake or water-side; it also ranks high as a decorative tree in park scenery; and indeed it is a most useful tree for giving picturesque and

divides into three stems, which girth respectively at 5 ft. up 8 ft., 8 ft. 2 in., and 9 ft. 6 in. This handsome tree, as may be seen, is situated in a good position near the margin of a lake, where it is always more at home than elsewhere, and is, moreover, seen to the best advantage. Whether planted singly or associated with other species of trees, so long as it is allowed plenty of room to

it flourishes well when brought under the influence of sea breezes, and grows almost as fast as the Poplars, but when planted in many parts of Britain inland it often succumbs from the effects of late spring frosts just as it is developing and unfolding its tender young leaves. This is a great and unfortunate detriment to the tree, and doubtless is the chief reason why so few good and mature specimens can be seen throughout the country. Several fine trees of large size in this locality have died within the past four or five years, owing entirely to severe frosts late in spring accompanied with withering north-east winds. The Willow is also, unfortunately, liable to the attacks of numerous kinds of insects and their larvæ, suffering from these pests both in foliage and stem.

The wood of the white Willow is worth about 1s. 6d. per foot in the wood, and is always in request for various uses, but is mostly in demand for cricket bats, for which purpose there is a continuous and ready sale for clean and good quality butts upwards of 9 in. diameter; and sound, choice, clean, first quality butts of the true white Willow will fetch in the London market from 2s. 6d. to 3s. 6d. per ft. When planted in moist deep soil this Willow grows so rapidly and makes wood so fast, that a profitable return may be had in fifteen to twenty years. It is one of the easiest trees to propagate, as it will grow from the smallest cutting, or take root freely from a stump driven into the ground as large as a fencing stake; but when planted it rarely receives the attention it deserves in the way of pruning and protection from the browsing of cattle. It may often be seen planted in grass lands by the water's edge, but usually left to take care of itself, and the consequence is that too often the poor Willow is left to struggle on and fight against numbers of enemies. It is quite a common occurrence to see trees after they have been planted in fields maimed, barked, and even beheaded by cattle, and the consequence is they are either killed outright or linger on as rough pollards instead of growing in comparatively few years into remunerative timber trees all through a little outlay and attention being denied them for the first two or three years after planting. Excepting the Larch, I know of no tree that is likely to pay better and give a quicker return for an outlay of capital than the Huntingdon Willow in localities where it has been found to flourish and succeed well; but care should be taken when planting to avoid the crack Willow and other rough-barked, coarse, worthless sorts, which are hardly worth cutting for the sake of their timber; and, moreover, it has the advantage of the Larch when planted in heavy soils, for in damp, low-lying situations it is quite at home and thrives the best; whereas the Larch is altogether unsuited for heavy soil in low level tracts of land. The Willow, however, is a tree that when grown for profit should be cut as soon as it is large enough for the market, and then allowed to grow up again from the stool. It is only a short-lived tree, and after thirty years' growth its life is very uncertain unless it be pollarded; then it may live to a good old age.

G. B.

Longleaf.

THE DOUGLAS FIR.

ALTHOUGH named in honour of Douglas, the celebrated Scotch botanist and collector, this tree was first found by Menzies, who accompanied Vancouver as naturalist and surgeon in his cele-



The White or Huntingdon Willow. From a sketch by Alfred Parsons in Highclere Park, Newbury, summer, 1881. (Height about 80 feet.)

telling effect to any landscape. Its narrow, elegant leaves, of silvery whiteness on their under surface, are particularly noticeable when stirred by the wind, giving a light, airy, pencilled look to its somewhat round and wide-spreading top of drooping spray. The annexed woodcut is taken from a drawing, by Mr. A. Parsons, of a well grown and characteristic specimen in Highclere Park. This fine tree is about 80 ft. high, and has a spread of branches fully 100 ft. in diameter. The girth of its trunk near the base is about 20 ft., where it

spread out its branches, it presents the same ornamental character, and a well-developed specimen from an artist's point of view is invariably fine; but perhaps when contrasted with spiry or heavy-headed trees, or those with dull and dark foliage, the peculiarly pleasing effect of its light-coloured, pointed, narrow leaves hanging in tufts and forming flying cloud-like masses is still more pleasingly apparent and effective in the landscape. This Willow is very useful for planting near the sea-coast either for shelter or ornament, for

brated voyage round the world (1790-1795). No seeds were, however, brought until about 1827, when it was re-discovered and introduced by Douglas while collecting for the Royal Horticultural Society of London, and who introduced such numbers of valuable trees and shrubs.

The timber is hard, durable, of a colour almost as deep as Yew, and susceptible of a fine polish. From specimens of the wood, included in a collection of the different kinds grown on this estate, it would appear more liable to the attack of insects than most other kinds. It is freely interspersed throughout most of the plantations here, especially those visible from or in close environ to the castle. The dark evergreen Yew-like appearance of this tree, combined with its rapid rate of growth and massive proportions, renders it admirably adapted for planting along the outskirts of plantations that can be seen from drives or walks, where it forms a striking contrast to other trees of a more light and airy appearance. Although attaining a large size, the leader on overtopping the surrounding trees is liable to get broken over, which gives to many of our trees a flat and table-headed appearance. This is mostly the case, however, where planted as a general forest tree, and seldom occurs when in any way isolated. Growing close to the carriage drive leading from the castle to the model village of Llandegai are some unusually fine specimens of this tree, averaging from 70 ft. to 80 ft. in height, and girthing at 3 ft. and 5 ft. respectively 11½ ft. and 9½ ft., with a diameter of spread of branches of over 50 ft. Several spars grown here have been used for boat-building on the Menai Straits, but otherwise the timber has not been generally employed, few trees of a suitable size for planking having been cut. Experiments have lately been made in Perthshire with this wood for railway sleepers, but with what result has not yet been reported.

The following experiments with different Pine woods were made by Mr. Wilson Saunders, of Lloyd's, by which the great superiority of Abies Douglasi over the others experimented upon will be seen. Lengths of each of the woods enumerated in the following table, carefully squared to 1½ in., were submitted to pressure of weights pendent from the centre, the lengths being supported between standards exactly 6 ft. apart. The weight at which each broke, and the amount of deflection from the horizontal line at the time of breaking, is given in the following table:—

	lb.	in.	
Douglas Fir	280	4	Fracture rough and long
Pitch Pine	280	4	Fracture short and even
Canada Spruce	196	4.7	Fracture short and rough
Red Pine	168	6	Fracture rough
British Larch	168	5.2	Fracture short and even
Deodar from the Himalayas	154	3.8	Fracture short

The specimens experimented on were carefully selected from the best description of woods and free from all defects. The deflection is in inches and tenths of an inch. Each wood had two trials and the figures give a mean result.

It will be seen from the above figures that none of the Firs approached in strength either the Douglas Fir or the Pitch Pine, and while these two were equal in strength there was this great difference, that while the latter snapped short under a strain of 280 lb. the Douglas yielded unwillingly, with a rough and long bend, slowly, toughly, and almost imperceptibly. It is readily propagated from seed, which is borne in amazing quantity even by young trees. Many consider that plants raised from British seed are inferior to those grown from seed produced in its native country, and about which much discussion has taken place. In the "Transactions of the Botanic Society," Edinburgh, Mr. M'Nab published some facts which seem to warrant the conclusion that British raised seeds produced degenerate and inferior plants.

A. D. WEBSTER.

Penrhyn Castle, North Wales.

PLANTING EVERGREENS.

THE natural season for evergreens to shed their leaves is in spring, and in my opinion, based on a good deal of practical experience, that is the proper time to transplant, as then they are just starting into growth, and young shoots are formed simultaneously. There is no time of the year like April for the transplanting of Hollies and Berberis, which are about the worst and most ticklish of all shrubs to transplant; but Box, Aucubas, Rhododendrons, and such like may be lifted with safety before or after that month, if their wood or leaves is not soft. At one period we heard much of summer planting, but never yet saw any large specimens moved then that did much good afterwards, simply because the bark became shrivelled and contracted, under which circumstances sap could not flow, as the vessels were partly closed, and the plants, as a natural consequence, dwindled and died, unless they were such as could break and start afresh from below. Autumn planting answers very well if the plants to be removed have been previously prepared by being dug and cut round at a proper distance, which should always be done in the case of large and valuable plants; and a good time to carry out this preparatory process is now, but better still in the spring. By leaving the plants to grow a year after, fresh fibres are formed in great numbers. It is an easy matter to lift them with good balls of earth, as the fresh-formed fibres help to hold the soil well together. With compact balls transplanting is a safe operation, and with a little care evergreens may be moved from place to place without sustaining any great check. The great point towards securing success is to move them during a dull showery time, and even then they should not be kept out of ground any longer than can be avoided, but got quickly into their new positions, and when the holes are partly filled up, have plenty of water thrown over them. By doing this the earth will be thoroughly washed into all the cavities under the ball, and it is a long time before it becomes dry again. To prevent the soil cracking and letting in air after the final filling up of the holes in which the plants are placed, they should be mulched with loose litter, which will not only stop the cracking, but prevent evaporation, and thus keep the roots moist.

S. D.

THE RED HORSE CHESTNUT.

(ÆSCULUS RUBICUNDA.)

THIS is one of the most handsome flowering trees that enliven our parks and gardens in spring. When in full bloom the effect of so many brightly coloured spikes of flowers is really grand, and forms a fine contrast to the lighter blossoms of the common kind. It is too well known to need any description, being commonly spoken of as the red-flowered Horse Chestnut to distinguish it from the common kind (Æ. Hippocastanum), from which it differs, beside the colour of the flowers, in being a much smaller tree and of a greater depth of green, while it is also somewhat later in opening its blossoms. As a lawn tree of a medium size it is unsurpassed, being admirably adapted for single specimens from the circumstance that so treated it forms a dense tree of a beautiful regular outline, the ample foliage of which is very handsome even when not in flower.

Last season the Æsculus seemed to be unusually floriferous in places where it escaped the terrible storm about that time, and some few specimens scattered over the lawns at Kew were so laden with blossoms as to attract the attention of all. As the red-flowered Horse Chestnut is generally propagated by grafting on the common kind, it comes into flower much sooner than it otherwise would if raised from seed. Individual plants vary a good deal in colour, no doubt owing to the trees having been propagated from seedlings, but it is the deep rich coloured form that makes the finest display. There appears to be some doubt as to the origin of this tree. It is also known under the name of Æ. carnea.

Of the common Horse Chestnut (Æ. Hippocastanum) there are several varieties, but the

variegated forms, however beautiful they may look when in the propagator's hands or in the form of small plants under glass, are seldom satisfactory when planted out of doors, the sun and wind generally turning the variegated portions to a brownish hue. Besides the variegated there is also a cut-leaved form, while the double flowered came with a high recommendation from America, which up to the present hardly seems to have been borne out in England, but probably as the plants become stronger and better established finer flowers will be produced.

ALPHA.

RAMBLES OF A PLANT COLLECTOR.

(Continued from p. 367, vol. xxi.)

IN my previous letters I have made use of several words that may be strange to most people in England, and would have been more in place had I explained them at first. Many, perhaps, have not heard of shoguns, mikados, daimios, samurai, coolies, and such like people. I will therefore endeavour to show what these personages really are.

The Mikado in olden time was the Emperor proper of Japan, and was called the "Spiritual Emperor" of Japan; he was seldom seen outside his palace in Kieoto or Miako, and no person was allowed to have audience with him except the Shogun and a few of the high ministers. He was almost at the mercy of the Shogun. I once saw a native picture of a council meeting of the Mikado and his ministers. I asked which was the Mikado, and I saw a beautiful screen painted in the picture with a few folds of a dress at one end. I was told that was the Mikado; he was never seen. The title of Mikado ceased on the formation of the present Government, and he became emperor.

The Shogun was the great commander-in-chief; he had power to do as he liked almost, and really ruled the country. His seat was at Yedo, and all the princes or feudal lords of the country supplied him with men. I believe the Shogunato was founded by Jyexasu about 300 years ago. His palace in Yedo was strongly fortified, and he always had an army round him. Wherever he went he was treated as a king, and every prince in the country was obliged to have a certain number of soldiers stationed in Yedo to be at the call of the Shogun. He made laws and governed the country, only consulting the Mikado on special occasions.

Daimios were the feudal lords or princes of provinces. They had the command of life and death over all the people living on their lands, very often of very large extent. They had standing armies of their own, drilled, armed some with two swords, some with guns, spears, and bows, and various other weapons. They lived in strong castles in their own country, but were obliged to supply the Shogun with a company of men in time of war, and were also obliged to present themselves at court at Yedo on certain occasions. They were entirely under the control of the Shogun. If they disgraced themselves in the sight of the Shogun, they were degraded, and with the prince all his retainers.

The Samurai were the soldier retainers of the princes or daimios. They were also the artists of the country. They were gentlemen, in fact having a liberal supply of rice from the daimios, and in times of peace nothing to do. They amused themselves with making all kinds of beautiful things; some made a trade of it, others did it for pleasure, but generally made a good profit with their productions. All the fine old lacquer, painting, porcelain, ivory carving were made by these old soldiers. Most of the best old things are now only to be seen in museums and collections of the rich; genuine old things are rarely met with for sale in Japan now. The samurai were encouraged by the daimios and Shogun in making these beautiful ornaments, and now great carvers and painters are much thought of in Japan, and many of their names are by-words amongst the Japanese.

Since the formation of the present Government these old samurai have lost their income, and have been disbanded. The daimios were pensioned off, and their land taken by the Government. The samurai were also pensioned, but poorly; some have turned police soldiers, others work at trades, others again have to run as coolies in jinrushas. Most of them are now in a miserable position compared with their former occupation.

Etas were the degraded race in Japan; they were the only people who skinned and dressed animals, made leather, and used to supply the meat for the Shogun's falcons.

The different grades of society, according to Jycasu, were as follows: 1, the farmer—he sup-

plied the people with rice; 2, soldiers; 3, mechanics; 4, merchants; 5, coolies or labourers; 6, etas.

Now, as in most countries, the money makes the man, so it is in Japan; all difference in society is lost, or nearly so. The change of Government made under false pretences, and now kept up by force, has made a wonderful difference in the ways of the Japanese. The want of the old politeness is very much noticed, particularly near the open ports. Away in the interior one sees much as it used to be, and politeness is the great thing amongst them still there. It struck me that the further European ideas were carried into the country the more degraded the people appeared. It is a pity that such good qualities should be put aside to make room for what I consider inferior ones. We might copy the Japanese to advantage in some ways.



Sprays of Aesculus rubicunda.

plied the people with rice; 2, soldiers; 3, mechanics; 4, merchants; 5, coolies or labourers; 6, etas.

Seed collecting has now begun (September 18). Almost every day I am on the mountains gathering cones of the various Firs and Pines grown here. I have to do it all myself, with the help of my boy. It is impossible to hire a man now; everybody is at the fisheries. The gathering of Fir cones is rather a difficult undertaking; many of the trees we climb are 150 ft. high. We generally saw off the top of the Abies, as it is dangerous to trust one's weight on the slender top where all the cones grow. On September 28 I had finished my seed gathering; so packed up my collections and prepared to send them to Hakodati. I, however, could only pack up my bottles of insects, collections of Coleoptera, and geological specimens with a few bags of green cones of Pines. I packed one large box in sawdust, a valuable collection. The ship set sail with this box and a basket containing 100 small bags

cones. We procured about 50 lbs. of seed and returned. On the 30th of September I left Horidzumi. All the principal Japanese accompanied me on horseback as far as Shamani, about twenty miles, where we had a parting feast. They were very profuse in their compliments, and we were sorry to part. I must say I was, for the whole time I remained amongst them, treated like a prince. I rode on that night to Nekap, where I stayed the night, sending on our baggage by special horses towards Yubets in charge of two Ainos, my intention being to ride on to Sapporo the next day, about seventy-eight miles. We were off by four o'clock the next morning, and soon Nekap cliffs were left behind. We passed our baggage near Yubets, and by one o'clock we were at Chitose, and at half-past four in the afternoon I was eating my dinner at Mr. Dunn's house at Sapporo—the first beer, bread, and European food I had tasted since July 12. I collected all I required at Sapporo, and was informed that the professors, to whom I formerly alluded, did not find anything new on their Ishicari trip, and did not bring back a single specimen.

I arrived at Yubets, and found my boy had opened all my bags of seeds and dried them nicely in my absence at Sapporo. I brought him another horse load of baggage to look after, and when we had everything packed up we pushed on our journey to Mororau, on Volcano Bay. I was very nearly losing my best seeds again near here. My boy was riding with two baskets of seeds in front, and he could not manage his horse very well, and was besides very drowsy. We were crossing a large river just at the mouth near the sea; the stream was swift and there was a quicksand near the fording place. My boy crossed a little too low and just touched on the quicksand; in a moment

the horse fell over and endeavoured to reach us, but could not. My boy jumped off and got as fast as he could to the shore, and left the poor horse in the sand and my seeds in the water. I jumped off my horse and went down to the other horse up to my neck in water. Fortunately, I could take hold of his bridle, and still had a moderately firm footing. I managed to pull the horse towards me and get him out. This was a great delay to us. I had to unpack and dry everything. Had I not been with the baggage, I should have lost all. We arrived at Mororau the following evening and had to wait here three days for a steamer. In the meantime I dried my seeds and collected others from the hills near. My wardrobe was very much reduced when I arrived here. I had not worn a pair of boots for two months till I went to Dunn's at Sapporo. He gave me a pair of old American jack-boots, and after a three days' ride my feet were covered with blisters.

Here I met, to my great surprise, one day two English man-of-war's officers. I had been rambling over the hills early one morning, and during my absence H.M.S. "Modeste" came into the little harbour with Sir Harry Parkes on board; he was going on an official visit to Sapporo, and this was the nearest port. The officers had been told by Sir Harry that I was expected down about this time, and of course they were prepared to see a foreigner; but they little expected to see me in such a dress as I then wore and in such a place. I soon made friends, and was delighted to see an Englishman once more. I found them good fellows, and I was taken on board the ship. I remained on board to dine, and left them for the shore at 11 o'clock. I was invited to go down south with them on their return from Sapporo. I accepted the invitation, as there were no steamers sailing to Yokohama from Hakodati. I left Mororau for Mori by the same cranky little steamer I came over in before—the same boiler, lashed as before, and the captain had dressed up in European clothes, I suppose because the "Modeste" was in harbour; he was heaving up the rusty anchor chain with white kid gloves on. The "Modeste" dipped her flag as we passed on our way across Volcano Bay. We arrived in Mori at night, and proceeded to Hakodati next morning, a ride of twenty miles. I unfortunately got a jibbing horse here; he stopped when about three miles out, and I was obliged to take off my saddle and bridle, tie it on the baggage, and walk. I sent the horse into the forest to find his way home again. I was met a few miles from Hakodati by Captain Blakiston, and we had plenty to tell each other—I of my adventures, and he of the war and other news. I was the guest of Captain Blakiston two days, and I then went on board the "Modeste," which had arrived from Mororau to go to Niiigata, the open port on the west coast of Nippon.

C. MARIES.

MAKING A TENNIS LAWN.

THE following ways of making lawn-tennis grounds naturally suggest themselves: 1. The adaptation of an existing field or lawn for the purposes of the game. 2. The laying down of turf to form a lawn. 3. The making of a lawn by sowing Grass seeds.

1. Having determined upon the particular portion of the field, the first work to be done will be to roll it as soon after rain as may be, with a heavy smooth agricultural roller. This will generally level the lawn sufficiently, at least as a first process. This done two or three times will then show if there are any serious uprisings or lumps, or, on the other hand, hollows or depressions. If the latter, I should advise that the turf be lifted from such sunken parts, which should be filled up with some good garden soil. This should be rolled down to a smaller extent by a somewhat heavy garden roller, and when pretty firm the farm implement may be applied, as it will perhaps smooth down the hillocks to a level with the mended-up depressions; if not, it may be that the turf should be lifted beneath these slight hillocks, some of the earth removed, and the turf pressed into place. In operations of this kind,

wherever the turf has been cut, it is well to sift some fine mould over the parts before the rolling is performed—at least for the first time the roller is used. The rolling will soon show if there be any hard-rooted tussack kind of Grass or other plants interfering; if so, they should be removed, and the same finely sifted earth restored, and a very small quantity of fine Grass seeds sown on the bare spots before the roller be used. I started a lawn in this way in our home meadow, and it is now in perfect order, all fine Grass, and very smooth; albeit there is a slight slope across the lawn, but I rather put up with it than try to make a perfect level, as the time and expense to effect this is often pretty considerable.

2. If I have to make a lawn where there is no Grass, I should prefer laying down turves to effect the work. In doing this care has to be taken to make the base as level and solid as possible; this is done by filling up and paring down, which should be done with care while the turves are being got ready. In this matter great care should be exercised; choice should be made from some nice even and fine Grass, which should be cut of uniform size and thickness, laid and stamped down with the utmost care, and when the turves are laid, fine rich mould should be sifted over the whole, especially over the joints. This, if dry weather supervenes, should be watered. At first light rollers should be used, to be succeeded by heavier ones. I have aided in a cricket ground and a lawn-tennis ground upon this plan, and have had occasion for congratulation on the success of the work. If well done, it is certainly the quickest and most efficacious way of planting a lawn, whether for lawn-tennis, croquet, or cricket.

3. Of course, lawns may be well made by preparing the soil, then levelling and sowing down with Grass seeds, which should be well rolled down. If only a temporary lawn is required, the best Grass to sow will be *Poa annua* (Annual Meadow Grass). This should be sown somewhat thickly; it comes up quickly, bears clipping well, and, if not allowed to flower, it will become almost a permanent Grass. I wonder this Grass is not used more than it is to mend up abraded walks, or for any like purpose where Grass is temporarily required.

If the lawn, as is mostly the case, is to be permanent, less of the *Poa* should be used; but its quantity should be made up with the following proportions: *Poa annua* (Annual Meadow), 1 lb.; *Poa pratensis* (Smooth Meadow), 1 lb.; *Festuca duriuscula* (hard Fescue), 2 lb.; *Lolium perenne devoniense* (Devon Ever), 4 lb. With this mixture the *Poa annua* will soon be lost, unless the Grasses be seeded, which would not be good for the lawn; but the other three species, which grow well together, will soon form a good lawn.

Lawns to be kept even and smooth want to be frequently mown and rolled; but if the soil be poor, the constant mowing and removal of the Grass will damage the turf. Injury of this kind may be prevented by a dressing of superphosphate in autumn, and of soot soon after the breaking up of frost.

As these are plans which have been practically carried out, I hope the description of them may be useful to your readers.—*Field*.

SOILS AND ROOT FORMATION.

SOME diversity of opinion appears to exist as to the relative influence of rich and poor soil on the formation of fibrous roots. I do not think that any hard and fast line can be laid down in this matter, as it will be found that the conditions under which fibrous roots are most freely produced are of a somewhat varied nature. Whether roots multiply most in poor or rich soils I cannot say, but I do know that whereas in some poor soils fibre is freely made, in others the very reverse is the case. If we pot a Strawberry, or indeed any free rooting subject in silver sand, or in pure sand of any kind, we shall find that in a very short space of time the roots push down to the bottom of the pot, and should the same happen to stand on any free kind of fibrous compost the roots will quickly find their

way into it. Pot the same plant in some fibrous material, however poor, and this tendency to downward progress will not be so marked; on the contrary, the compost, even to the surface, will be filled with fibrous roots; the inference to be drawn from which is that the mechanical composition of the compost has much to do with root production. At the same time mix intimately with this poor sandy material some manurial ingredient, and the same result will be obtained; the roots, finding what they need at home, will be in no hurry to seek fresh feeding ground. This being the case, it is obvious that whatever is added to the soil with a view of enriching it should be in the form of small particles evenly distributed throughout the whole body of earth. In the case of composts made up for potting this is very important, and the observance or neglect of it will exercise considerable influence upon the progress and well-being of the plants themselves; for it may be laid down as a rule that unless the whole body of soil becomes well filled with feeders, a vigorous, healthy existence is, to say the least, improbable. That something more than richness in the soil is needed for the free multiplication of fibrous roots is evidenced by the fact that fat loams, when of a stiff, tenacious nature, require the addition to them of some light porous material. Mix with them some leaf-mould, Cocoa fibre, poor fibrous peat, or any porous material, however poor, and there will be a perceptible increase in the amount of fibrous roots made in them. Everyone knows how freely roots are made in Moss, in old tow or sawdust, and we use leaf-mould for seed-sowing and for seedlings in their earlier stages of growth simply because we know that, being very porous, that is to say, the particles composing it not coming closely together, tender rootlets can ramble freely amongst it. It is probable that poverty more than any other thing influences root production, but if thereto we add richness we get the soil best calculated to induce the formation of a larger amount of healthy fibres.

It may be in the remembrance of your readers that Mr. Peter Henderson, of New York, found sifted Moss of great value in the raising of seeds, and as the results obtained by him bear directly upon the question of root production, it may be as well to recapitulate the circumstances attending them. The seed bed was formed as follows: On a thin layer of loam was placed about 1 in. of sifted Sphagnum Moss, and on the top of this came another thin layer of loam, on which the seed was sown, covering it with sifted Moss. It was found that the roots of the young plants quickly pierced the loam, not making much fibres in it; but when they came to the Moss, they stayed there, quickly forming a mass of fibrous roots, thus rendering the transplanting a more sure and easy process than if soil alone had been employed. Not only was this the case, but the seed germinated in a much more satisfactory manner when covered with Moss, a very much larger percentage of young plants coming up than where the covering consisted of fine soil. From this it would appear that Sphagnum Moss exercises a more stimulating effect upon root action than good, rich, fibrous loam; indeed, we know such to be the case, for do we not envelop the stems of Tree Ferns, *Dracenas*, *Aralias*, and such like plants in order to draw roots quickly from them? and we also use it for many tender or succulent-rooted subjects. It is probable that we should find Moss valuable for many purposes for which it is not commonly used, and that in the case of delicate-rooted Ferns, Palms, &c., it would, if mixed with the soil, be the means of increasing root production. Much has been written of late about a kind of fertilising Moss, but this appears to be a failure; at the same time I see no reason why a prepared Moss should not take the place of soil in the case of many plants which are naturally not strong rooted. Mr. Henderson top-dressed some root-bound plants with Moss with a sprinkling of bone dust in it and the effect was almost as marked as if they had been shifted, a result probably as much due to the stimulating effect of

the Moss as to the nourishment contained in it. It is a not uncommon practice to soak turves in liquid manure for layering Strawberry runners in, and why should we not treat Moss in the same way? The substitution of a light material would be advantageous in more ways than one, as, owing to diminished weight, the cost of transport would be less an important item to market growers, who necessarily have a considerable journey to make in bringing their plants to market, as well as to purchasers who have railway carriage to pay. Probably one reason why roots multiply more in Moss, leaf mould, old tan, &c., than in close grained soils is that they cannot push uninterruptedly through them, but are constantly encountering obstacles which cause a halt in their progress, and we know that no sooner does the main feeder experience a check than lateral roots are at once pushed from it. It is a knowledge of this fact which induces many to mix brick rubble and other organic material with the soil of their borders, as the roots, instead of travelling swiftly through the border, are now and then arrested in their course, and are in a measure obliged to ramify. J. CORNHILL.

GARDEN FLORA.

PLATE CCCLIII.

THE PEACH MYRTLE.

(HYPOCALYMNA ROBUSTUM.)

THIS is one of the many beautiful Australian plants which were once general favourites in gardens, but now almost entirely neglected for plants of a different character. It belongs to the Myrtle family, so largely represented in Australia, and of which the *Callistemon*, *Beaufortia*, *Metrosideros*, *Eucalyptus*, *Genethyllis*, *Myrtus*, &c., are some of the genera best known in gardens. As the English name and the accompanying plate will suggest, the flowers might easily be mistaken for Almond or Peach blossoms, so much do they resemble these rather than Myrtaceous flowers, among which we seldom find bright rosy blossoms such as are borne by this plant.

It is a graceful twiggy shrub, from 2 ft. to 3 ft. high, with linear leaves, which when bruised emit a strong lemon-like odour. The peach-coloured blossoms are borne in the manner shown, and as they last some time in water they are very useful for cut-flower purposes. For the cool greenhouse or conservatory this plant is a worthy subject, and as it is by no means difficult to grow, we hope to soon see it become more popular than it has hitherto been. A rich loam and peat mixture and a good sprinkling of sand are what this plant delights in, which, with a position in the cool house in winter and out of doors during the summer months, is all that is needed to grow it to perfection.

There are about a dozen other species of *Hypocalymna*, only one of which, however, appears to be worthy of cultivation, viz., *H. Phillipsi*, a large white-flowered species which was raised in the Dublin Botanic Gardens some years ago, but which does not appear to have become generally known, and it is questionable whether it now exists in garden collections at all.

The drawing was made from a plant in Messrs. Cutbush's nursery, Barnet, where all kinds of Australian hard-wooded plants are grown numerously and well. B.

Heliotrope White Lady.—This kind is giving us every satisfaction as a bedding variety, being of excellent habit, good constitution, and the most floriferous of any sort with which I am acquainted. Our beds of it have been one mass



HYPOCALYMNA ROBUSTUM

of flower for some time past, and bid fair to continue till the frosts come to mar their beauty. The colour is not, as the name implies, white when grown in the open air, but is about the palest coloured kind I have seen. When grown under glass it may fairly be called white. We have plants now well established in 6-in. pots that are pushing up an abundant crop of bloom, every shoot, in fact, being set with flower. The well-known fragrance of the *Heliotrope*, the floriferous character, fine truss and colour of this kind ought to cause it to be a universal favourite as a pot plant for the house.—J. H.

ROSE GARDEN.

WHEN TO PLANT ROSES.

It may seem absurd to write of this in the midst of autumnal harvests and late Rose shows. Who wants to hear anything about planting in August? My first lesson in Rose planting was widely different. The order was given in November to plant a line of standards 9 ft. apart, and 4 ft. from the side. Stakes were put at these distances apart on the lawn, holes dug out 18 in. in diameter and 1 ft. deep, the Roses planted, the soil trod in, and the turf laid up to within 3 in. of the stems of the standard Roses. The soil of the lawn varied greatly; in some portions it was rich and fat, in others hard gravel and chalk—the bottom of a disused walk. In yet others it was sheer gravel or shingle. Some one ventured to speak of the hardness and poverty of the soil in these parts and to suggest manure. Simpletons! was the answer. I plant these Roses to flower, not grow; and, don't you know, the less wood the more bloom. This sage remark was a silencer, and was accepted by most present as a new axiom in horticultural science and practice. It was not, however, illustrated very favourably by the doing of what proves a very ragged line 300 yards long of standard Roses. Such a mode of planting is emphatically an example to be avoided. Never was the axiom "the more haste the less speed" more powerfully or disastrously illustrated than in the planting of Roses without due preparation. So vitally important is the latter to the well-doing of Roses, that in this case I should be prepared to set aside my determined opposition to a bare fallow. Yes, the extreme sweetness and beauty of a full perfect crop of Roses year after year would be cheaply purchased by this most wasteful and extravagant aid to culture. The bare fallow would not only enrich many of the best Rose soils, but has the merit of keeping the earth clean and ready for the crop at any time it may be best to plant Roses, for the winter, spring, and early summer are the most favourable seasons for all following operations. It is then that the forces of Nature are most powerful and do their work to the most effective purposes. So that those who understand how to fallow land into cleanness, richness, sweetness—oh, you wise rosarians, don't you always smell, sometimes even taste, the earth before you commit your darlings to its fostering embraces?—will mostly have finished their labours by the end of August. Only think of it: the Rose beds, borders, brakes all fit for the Roses by that early period. This brings us to the point,

When to plant Roses.—The answer is in October, provided the soil and the plants are ready. It may astonish not a few rosarians to be told that the delay, if any, is more likely to occur in regard to the soil than the plants. Not a few hardly ever think of preparing the former till the fall of the leaf; more still plant without any preparation, unless it be a spadeful of manure or compost thrown in with the roots. The early planter not only gets the pick of the market—the first pull at the Roses—but he invites and receives aid from the heat of the ground and the motions of the sap in the Rose plants. He thus obtains the finest plants at a time when they can expend their force in re-rooting to the greatest advantage; the cumulative benefit of these favouring circumstances to the re-establishment of the

Roses it is almost impossible to over-estimate. As a matter of practical fact it is found that Roses transplanted in October will be found to have far more numerous, stronger, and more active roots in December than those that have not been moved at all. Root disturbance quickens root activity, especially when and where the new root runs are superior to the old ones. The question, however, of the time to plant Roses is considerably affected by the character of the Roses planted. For all summer and Hybrid Perpetual or other hardy Roses, early autumn planting is best. The more delicate Noisettes, Bourbons, Chinas, Teas, are safer planted in the spring, especially on stiff soils and cold localities. But where these can be protected in severe winters, they may also be planted in October. This is very different, indeed, from what is generally termed winter planting, extending as the latter does from November to February. To plant semi-tender Roses in cold earth and a freezing atmosphere that keeps the plants in a semi-dormant state for several months is to invite failure. The common practice, however, is to plant Tea and other tender Roses in March and April. As many of these are grown in pots, it is, however, the best practice to plant them out of these in a growing state towards the middle or end of May. The plants will then grow away freely, and seldom look behind them. Treated thus, Tea Roses will make more progress in one year than they do in many cases in three. The answer to the question of how to plant Roses includes in what soil, to what depth, at what distance insertion of the plants, and other items. Volumes have been written on the best soil for Roses, and the practical outcome of the whole matter is that first-rate Roses can be grown on almost any soil, provided care is constant and skill always at hand. Not, however, that soil is of little moment; the very opposite is true. Soil is very vital indeed, but it is not everything. More, the best Roses are by no means uniformly found on the best Rose soils. This puzzled me for years; it does so no longer. The explanation is as simple as the problem of twice two are four. Thus many who have the most suitable soils are content with this great coign of vantage, and leave their Roses to their fate in it; hence that fate not seldom ends in failure. On the contrary, those who perforce have to plant Roses in poor soil never tire of assisting them by every means in their power, and are richly rewarded by scoring the most brilliant successes.

The best soil for Roses is a holding loam, a clay; no, not a clay, but a hybrid between this and a friable or sandy loam—not an agreeable soil to walk over immediately after drenching rains unless the drainage is peculiarly perfect. And thus through all the wide diversity of stocks and varieties. Yes, through them all, and for all, I should stick to the holding loam. No doubt my preference will be criticised more or less severely by rosarians; but the loam is preferable for its simplicity and its powers or capability of transformation with almost any conceivable variety of Rose soil, peat not excepted. It is not needful to discuss peat, though with night soil or good farmyard manure *ad libitum* I would not fear growing show Roses in peat; any soil, in fact, with additions and corrections may be made to grow Roses. All loams will grow them with less additions than any other. The Dog Rose as such seems to delight in sending its long, whip-like cords—they can hardly be called roots—into the hardest clays. Though it may be admitted that Roses on the Brier take more kindly to stiff feeding grounds than the same Roses on the Manetti or other stocks, yet it does seem that this Rose modifies or changes the taste of the Brier roots in favour of something lighter, as well as richer and sweeter than anything they can find in sheer clay plastic or otherwise. I started Rose growing in earnest with claying a good loam. After a year or two's struggle, as much of the clay as possible was picked out, and the remainder neutralised by a heavy dressing of cinder ashes and road sand. The Roses, all on the Brier—mark

that, please—did better and looked happier, in the words of the novelist, ever afterwards. Since then I have not dabbled in clay for Roses, not but that it might prove useful on sand; but not having sand we have no need of its natural consolidators, clay or marl. However, night soil or cow manure is preferable to either for Roses on very light soils. But we are running into nauseous as well as adhesive compounds, as rosarians are wont when discussing the matter of soils for their favourites. Suffice it, therefore, to say that road sand, leaf mould, Cocoa fibre refuse, coal ashes, very light stable manure, and burnt earth are among the best dressings for over-heavy soils for Roses. Light sandy or peaty soils may be consolidated as well as enriched by heavy dressings of marl, clay, strong farmyard or other manures, night soil, &c. Any soils soured into dead inertness by stagnant water or stiff sterile clays had better be removed bodily, and other and more suitable put in their place. Where good Roses are desiderated, this radical measure of the entire substitute of good soil for bad often proves the best as well as the cheapest in the end. Some capital results have been obtained by a simple admixture of soils that is easily managed in most places. Too often soils in kitchen gardens and orchards are fruit or vegetable sick. The same crops have been grown so long in the same places, that they seem incapable of growing them any longer. Such soils are, however, often fat and strong, and were a part of them removed to Rose beds or borders in flower gardens, or on lawns, the soil from these replacing that not only the Roses, but the fruits and vegetables would often be greatly benefited. The strength, freshness, and vigour of soils to give perfect Roses and other products comes very much from their admixture. This fact is too much lost sight of in Rose culture. A change of soil is often as useful, and probably as invigorating, as a coat of manure. Neither can Rose soil, as a rule, be over-manured. Roses are such gross feeders, and convert manures so rapidly into fragrance and beauty, that, provided the soil is well drained, it can seldom be made too rich for the well-doing of Roses.

Depth of soil.—This should range from 2 ft. to 3 ft., not but that Roses will thrive fairly well on thinner soils, but deep soils become virtually stores for water in dry weather. This is of great importance to Rose trees and bushes. The large spread of foliage and heads of bloom speedily drain the plants dry of fluid when fully exposed to the sun. Deep root-runs are also the most favourable for protecting the roots from the severity of the frosts of winter. Frequently when the surface roots of Roses have been frozen, those lower down have escaped. Deep soils encourage the roots to dig deep, and these are often of considerable service to Roses, especially during seasons of extreme drought and cold. The proper depth to plant Roses is also of great importance. The shallow planting even of fruit trees has often been carried to a great and disastrous extent. Roses have also suffered from the prevailing mania (I had almost written) in regard to surface planting. While the collars of Briers should not be buried, the main roots should be covered to a depth of from 4 in. to 6 in. in good, well-prepared soils. They will also soon penetrate deeper, for the Rose in all its sections, including the Brier or Dog Rose, is naturally a deep-rooting plant. Neither does this tendency in the Rose sensibly affect its flowering. If it did it might still be beneficial, for I hold that the life and health of the Rose is of more consequence than any extremes of floriferousness that may be gained at the expense of either of these. Wide observation and experience have also forced me to believe that thousands upon thousands of Roses are annually sacrificed to the fashion of shallow planting. We shall have to plant deeper to find the gold—not only of first prizes, the first or second year, but of robust health and longevity of plants. Next in importance to depth is solidity of soil in planting. A stale furrow is as essential for Roses as for a heavy crop of Barley. And this is one

reason why I would advocate following as the best preparation for Rose planting. This process, properly carried through, not merely cleans and enriches, but consolidates the earth. Ground dug or deeply trenched, and immediately planted with Roses, is as likely to prove a grave as a feeding ground for their roots. Had it no other fault, it is so powdery as to repel rather than invite the grip of the Rose roots, and so loose that they cannot get hold of it. True, the heel or the spade may supply some rough and ready pressure to the roots on newly-trenched land, but this is different, and as inferior as can be from the natural mellowing and general consolidation that comes through the mere lapse of time to cultivated earth. As to distance to plant very much depends on sites, soils, and objects of the cultivator. Single pyramids or climbing Roses may be placed at distances of 20 or 30 yards asunder. Tangled masses or fences of similar varieties at 4 ft. to 6 ft. For standards in beds or borders from 3 ft. to 5 ft. are suitable distances. In avenues by the sides of main or other walks from 6 ft. to 9 ft. Dwarf Roses may range from 1 ft. to 4 ft. apart, according to varieties, soils, &c. For Tea and China Roses in beds to run into masses from 3 ft. to 5 ft. are suitable. The isolated planting of Roses has, however, been carried to great extremes, and is largely responsible for the stilted look of so many roseries, and the wholesale condemnation that has been heaped upon standards. Groups rather thickly planted are far more effective than this dotting or isolated system of growing Roses. And where standards are grown to any great extent, the most artistic mode is to mix them with dwarfs, which at once clothe the bare earth and the bald stems of the Roses. It must be added, however, that this plan is impossible where hares or rabbits have access to the Roses, as these vermin have a sweet tooth for Rose wood and leaves, as the belle of the season has for sweet *Devoniensis* or spotless *Niphetos* buds in her dress or hair.

Insertion of the plants.—The quicker this is done the better. My indignation has waxed hot at times to see how Roses are dawdled with at planting. Leisurely unpacked in a cutting nor-easter, dangled about in the air, or laid down on the freezing earth while stakes are found, labels written, holes dug, &c.—why, the roots are full half or wholly dead before they get into the ground, and it is little wonder that they die outright so soon, as they are buried out of sight of the planter. Everything should be ready before the roots are exposed—sites chosen, holes dug, stakes for standards driven in, ties ready, compost or manure, if any, all on the spot. As soon as the roots are seen, quickly examine, and any bruised portions of any cut off with a sharp knife; then the Roses are planted, the earth consolidated around the roots, and the stems, if needful, made fast to strong stakes. This immobility of top and bottom is one of the first conditions to the successful rooting of newly planted Roses or other plants. It is physically impossible for the roots to make good their new grasp of the earth if they are left to the cruel caprice of every changing wind that blows. No sooner do they run into the soil on the south than the wind blows from that quarter and snaps them clean off or tears them out. And the same system of denudation awaits them on the northern, western, or eastern boundaries. Perfect stability of top and bottom prevents all this cruelty to the roots of the Roses, and enables them to make good their new grasp on the fresh soil in the least possible time.

Surface mulching.—This should be done before the severe frosts of winter set in. Not but what most Rose roots are fairly hardy, but the early transplanted roots of Roses and other plants are abnormally active for several months after planting. This unreasonable activity begets an unnatural tenderness in the roots. Nor is this all. Root disturbance seems to produce a temporary derangement of the normal direction of root growth. For a time they seem unable to distinguish between up or down, north or south, east

or west; hence one of the most common phenomena observed soon after planting is a rush of new roots to the surface. Not a few of these seem to discover their mistake later on, and change their course downwards. But meanwhile, unless promptly protected with a frost-proof mulch soon after planting, the first winter severities soon make short work of the life and vigour of those that may have lost their way, and make tracks for the withering air instead of the feeding and protecting earth. Whatever accidents may ultimately overtake or cripple those surface roots, there can be no question of the practical wisdom and importance of preserving the whole of them during the first winter and summer after the planting of Roses. Almost any sort of mulching or surface covering will suffice for this purpose. In flower garden beds and borders, where neatness must be combined with efficiency, there is no better mulch than one of 3 in. or 4 in. of Cocoa fibre refuse; the rougher the better. In other places, where efficiency only has to be considered, there is no better mulch than stable-yard manure. Either of these substances are as effectual in keeping out the frost of winter as in counteracting, by a compound process, the drought of summer. The mulching prevents the sun's rays from penetrating the soil, and also checks the evaporation of water from the surface, thus keeping the roots cool and moist in the hottest, driest weather. In cases where neither mulch is within reach, a loose surface of the soil itself is the best substitute, and a powerful antidote against the destructive power of winter frosts and summer droughts.

D. T. FISH.

KITCHEN GARDEN.

PARSLEY FOR WINTER.

ONE way of securing a stock for use in bad weather is to lift some strong roots now; cut off all the large leaves and plant the roots in a warm aspect where they can be sheltered with a frame when bad weather sets in, or the roots may be planted in pots, tubs, or in any way where shelter can be afforded. Parsley must have light and air in order to obtain it good in colour and curly, and where these conditions can be had it matters nothing where the roots are planted. I once planted a quantity in wire baskets, lined with Moss, and hung them up near the glass in a cool vinery, and very pretty useful baskets they made all that winter, and it often happens that just as the days are expanding rapidly in spring there is less growth and less movement among vegetation than during the short days in winter. Parsley somehow, late though it is, will make some useful growth, which, if sheltered and left unpicked till spring, will be found valuable. There is a good deal of scope for judgment and care in making the most of the Parsley. One man will rush at it, tear it off in handfuls without any regard for the next comer, or as regards to wants of the future; but the careful man constantly picks the large, full grown leaves, and so keeps a good face on the bed. There is a great deal in the hands of the man who serves the kitchen, and a careful, thoughtful man will, by making the most of things, keep up a better supply than another with the same or even less means. The kitchen man or boy should be made to feel his responsibility, as at times a good deal of waste arises because the man fails to identify himself with his position.

E. H.

Laxton's Earliest of All Pea.—I have grown this fine early Pea side by side with Day's Early Sunrise. Both were sown at the same time, and were in every other respect treated alike. Earliest of All was fit for gathering a fortnight before Sunrise, a fact which speaks for itself, seeing that Sunrise is justly recognised as one of the best of early Peas. Earliest of All possesses a robust constitution; the haulms, which are covered with pods about 3 in. long, and containing eight Peas each, are 4 ft. high. In short, it is a Pea that should be

grown by everyone interested in the production of early Peas.—H. W. WARD, *Longford Castle, Wilts.*

Truffles (Carrig).—The name of the edible Truffle of Britain is *Tuber aestivum*, so called because it is ready for gathering in the summer. It is common in open places in woods, chiefly Beech woods on calcareous soils, and it may be gathered from July to October. The Truffle of the Continent—such as one meets with in Strasburg pies and stuffed turkeys—is a totally different and very superior species.

Mummy Pea.—This Pea has been mentioned more than once in THE GARDEN, and spoken of as one of the best for table use. Will Mr. Ellacombe or some other of your readers be so good as to state what is the colour of the flower, and also of the Peas? I have grown a Mummy Pea for some years with good pedigree; it has a cluster of pink and white blossoms, and the Peas are dark, with tough skins, and scarcely suitable for eating, certainly not first class. They grow about 5 ft. high.—T. H. ARCHER-HIND, *South Devon.*

Scarlet Runners.—These lose their blooms in heat and drought freely, and the best preventive is found in liberal waterings and syringings. The complaint as to the falling of blooms was common a few weeks since when some heat prevailed. Since then, and with a cooler temperature, blooms have set freely. Runners are deep rooters and gross feeders, and are often sown where the soil is shallow and the position arid. Deep cultivation and ample dressings of manure can alone remedy such a state of things.—A. D.

Cauliflowers.—"T. C.'s" Cauliflower plants are doubtless lacking moisture; if not too late, he will do well to give them a good soaking of water, soapsuds, sewage, or any other liquid matter that will assist the plants and cause them to develop heads of a more permanent character. It is true that indifferent strains, of which there are not a few, render the securing of good heads impossible; but if "T. C.'s" Cauliflowers are good and firm up to 4 in. to 5 in. across, he can hardly have a bad strain. Cauliflowers like liberal culture, especially in hot, dry weather. Earlier in the year, or in the autumn, they can pretty well do for themselves.—A. D.

Lettuces and Onions.—"W. C." (p. 171) is evidently mistaken in stating that Kingsholm Cos Lettuces needed tying. He cannot have grown the true kind, for I have found it when grown here in years past to be one of the very finest and most solid of all the white Cos section, and, further, one so long in bolting off to seed that I found eventually it would not pay to grow for that purpose. Few good Cos Lettuces need tying; in fact, it is waste of soil and labour to grow kinds that need tying. The black-seeded brown Cos if of an average strain is the best winter Lettuce and hearts in well without aid, whilst Kingsholm superb white Sugar-loaf or any true strain of the Paris white Cos will always turn in capitally without tying. The finest and one of the very best hearting of Cabbage Lettuces is the Messrs. Sutton's Marvel, but its colour is bronzy or reddish, and may not please all tastes. Of white Cabbage kinds that will do well both winter and summer if sowings are made several times in the year, Tennis Ball, All the Year Round, and Stanstead Park are the best, and they want little special culture beyond being planted out in ordinary good soil. The very tall Cos Lettuce of the Northern King or Nonsuch type are of great size when well grown, and are very crisp, but they are far less profitable or productive of average weight than is a good selection of white Cos. With respect to what "W. W." has to say about Onion culture, I may point to the fact that I have raised some of the finest Trebons Onions I have ever seen on stiff clay soil that has not before in my knowledge grown Onions, or indeed has had any preparation beyond a dressing of London manure. I have plenty of bulbs that average 1 lb. weight each. I think the Trebons to be one of the finest autumn Onions we have. It takes the form and colour of the

white Spanish or Reading Onion on the surface, but is deeper in the soil, hence its size and weight. I incline to the belief that Onions like soil that is fairly rich and moderately hard, for a soft soil engenders big necks and excessive tops.—A. D.

THE CAPER PLANT.

(CAPPARIS SPINOSA.)

THIS, well known as the type of the order Capparidæ, is a stiff, prickly branched shrub of the habit of the common Bramble, some 3 ft. or 4 ft. high. It bears showy white flowers with numerous long stamens, succeeded by a berry-like fruit borne on a long and slender stalk. The Caper is a native of desert or dry places in the south of Europe and the Mediterranean region. It is said to have been introduced to this country as an exotic in 1596. It is recorded by Neill that a Caper tree stood in the open air for nearly a century in the garden at Campden House, Ken-



The Caper plant.

sington. It was sheltered from the north, but remained uncovered during the winter. It was generally much injured by frost, but in consequence of the strength and vigour of the roots it sent out strong shoots, and produced flower-buds every year.

The Caper plant is cultivated extensively in Sicily as well as in France. It is, however, from the first named country we get our chief supplies. The plants are raised from suckers or cuttings, and are planted about 10 ft. from each other. They like exposure to the sun, and scarcely ever suffer from drought or heat, but they need protection from strong winds. In some plantations during winter the shoots are laid down and covered with earth to protect them from the frost. The plants receive one dressing in spring, and they are usually cut down to within a few inches of the ground in autumn, the earth being drawn up over them so as to cover them. When the earth is removed in the following spring, so that the crown of the stump is exposed, they soon produce fresh shoots. The plant remains in flower from May to August.

The Capers of commerce are the flower-buds gathered while in a young state, their value being decreased as they enlarge. So abundantly are the buds formed, that in some districts the gathering gives daily employment to many persons during the whole of the summer months. The buds are thrown immediately they are gathered into casks containing salt and vinegar. At the close of the gathering season the buds are sorted; the smallest and greenest are considered the best quality, and are put into small casks and covered with vinegar. In Italy the young fruits are pickled and used in

the same way as we use the flower-buds. They are, however, of a stronger or more acrid taste.

J. R. JACKSON.

DRESSING AN EPERGNE.

"AMATEUR" asks how an epergne with seven trumpets on a glass dish at the bottom should be dressed for exhibition. To begin with, it has at least three, some might think six, trumpets too many. Epergnes with tops and bottoms only are considered in the best taste, and they are at least more easily dressed. Such with careful selection for top and bottom and some graceful climber twisted round their stems are mostly more effective than others with a profusion of trumpets and other devices that tend to confuse decorators and too often bewilder judges. But taking "Amateur's" epergne as it is, the top may be furnished with Grasses, such as the Feather, Quaking Grass, and others mixed with such graceful things as *Humea* elegans. These either with or without the addition of Ferns would form a centre at once simply chaste and elegant. Or the centre may be furnished mainly with Orchids, such as *Odontoglossums* or others. These attract by their beauty, and mostly commend themselves to the judges. It is well, however, to use these sparingly, as judges of good taste will not be led away by a mere cram of valuable Orchids. Orchids also may be liberally relieved and toned down with the verdure of Ferns, *Caladiums*, or other foliage. Again, the centre may be filled with half-opened buds of such choice. Roses as *Devoniensis*, *Niphetos*, *Marie Van Houtte* either alone or mixed with similar buds of Duke of Edinburgh, Star of Waltham, *Marie Baumann*, or other brilliant-coloured Roses. Centres of the quieter colours or of one chiefly, however, are generally the more satisfactory. Another Rose admirably adapted for epergne work is *Boule de Neige*, now flowering more profusely than almost any other Rose. Sulphur or yellow Roses are seldom so satisfactory, but when used, buds of *Triomphe de Rennes* and *Céline Forestier* are preferable to *Maréchal Niel*, which, as a rule, is too heavy and massive for such purposes, unless the epergne is very large indeed. Even then the *Maréchal*, which is, however, just now quite out of season, is better intermixed with scarlet as a base than for the centre of an epergne. In all cases where Roses are used only Rose foliage should be employed with them. Supposing the centre trumpet filled with elegant Grasses, white Roses, or with any light-coloured Orchids, the first three trumpets would look well filled with pink or scarlet *Bouvardias*, *Begonias*, or other flowers. Unless the trumpets were large, however, *Bouvardias* would look best. They have a natural elegance and lightness that can hardly be imparted by any other flower. As their foliage is so scant, the *Bouvardias* may be mixed with the farleyense or other Maiden-hair Ferns. These trumpets to be all dressed alike. In the next three flowers of *Pancratiums* might be placed, supported by the foliage of *Caladium argyrites*. Fill the base with a mass of *Myosotis dissitiflora* or the common Forget-me-not (*M. palustris*), and place a few white Water Lilies (or *Nymphaeas*) on the blue carpet. A verge of small Ferns might sweep over as a fringe on to the cloth. If no Water Lilies (or *Nymphaeas*) are available, a few flowers of the white *Lapageria* or light-coloured *Dipladenia boliviensis* inserted in the Forget-me-nots will prove almost as telling, though not so poetical. Of course, numerous other flowers and arrangements might be named for what might or might not be done with an epergne with seven trumpets and a glass base, but a multiplication of ideas might bewilder rather than assist an "Amateur," and as the latter is my object, these suggestions must suffice for the present.

D. T. F.

The golden Jasmine.—Although averse to variegations in most forms, we must admit the beauty of this, as it comes to us from Grasmere. It is really golden, and does not seem to be a bit stunted in growth. It is a suffusion rather than a variegation, and therefore the plant grows well sometimes. It is a form of the common Jasmine.

FLOWER GARDEN.

CARNATIONS AND PICOTEEES.

As the season approaches for potting or planting out these it may be useful to offer a few remarks on their culture, and to point out the best sorts for exhibition, or, what is very much more important, the best for border culture. It may not be generally known that some of the choicest varieties of Carnations and Picotees are weakly in constitution, and do not readily lend themselves to border culture where they are exposed to the vicissitudes of an English winter, or the more trying influences of our changeable springs.

One of the best cultivators in the south told me that it was next to impossible to keep the plants in health for a successive number of seasons unless they were grown in pots and the young plants protected in frames during the winter; and yet one sees in the gardens of the poorer class of amateurs in county Durham remarkably healthy plants grown and planted out of doors year after year. In many cases the want of success arises from improper treatment. I know of an instance in Scotland where a collection of Carnations and Picotees was annually purchased, but the plants never succeeded. The plan was to keep the plants in frames during the winter, and to plant them out in the spring, when all danger of frost was thought to be past. The fault was in planting too late, and allowing the plants to become too dry at the roots after they were planted. The Carnation does not mind frost if the plants are not too wet, but after they are planted out and established they will suffer from drought when the dry weather sets in; indeed, we never let the plants become very dry at any time, as even in winter over-dryness at the roots will give the plants a serious check. In as few words as possible I will give the cultural details necessary to enable anyone acquainted with ordinary gardening to grow the Carnation and Picotee well for exhibition.

Pot culture.—About the end of September, or early in October, the plants that were layered in August will be ready to be detached from the parent plants and to be potted for the winter. The potting material should consist of good loam from decayed turf, if it can be obtained, to which has been added a little rotten stable manure, leaf mould, and sand. It is best to pot one plant in a small 3-in. pot, and when they are potted plunge them in Cocoa-nut fibre refuse in a cold frame. Some cultivators prefer to place their plants on stages in the frames, and to leave their lights open whenever the weather is favourable during the winter. The plants do not seem to suffer from the effects of frost, even intense frost, if they are moderately dry. It requires some care during the winter months to see that the plants are neither too wet nor too dry, and that plenty of air is admitted to them. Mr. Dodwell, the veteran Carnation and Picotee cultivator, now at Oxford, places his plants on stages and raises the frames so that the air may circulate freely underneath. The lights are also raised on laths, and thus even in wet weather the ventilation is ample. The plants require to be frequently picked over during the winter to remove decayed foliage and cleanse the leaves from green-fly. In March they may be repotted into their flowering pots, and the sizes of pots we use are 7 in., 8 in. and 9 in. diameter. One plant is potted in the smallest size, two of the weakly or moderate growers in the 8-in., and a pair of the strongest growers in the 9-in. ones. If room can be afforded for them in frames after they are repotted so much the better, as the roots of the plants would be injured if they were exposed to heavy rains, or, what is worse, hail or snowstorms, before they are established. After the roots have taken well hold of the new material they are not so easily injured. When the flower-stems have grown a little the sticks should be placed to them, and during the whole period of their growth a watchful eye must be kept for green-fly. As soon as the flowers show colour they must be protected from the

weather. As many varieties have a tendency to produce split pods, the pods of such should be tied round with matting to prevent it.

Border culture.—The Carnation and Picotee are well adapted for growing in beds or borders, but for this purpose only the strong-growing varieties should be planted, or if a quantity of bloom is wanted beds of seedlings are the best. Choice Carnations are grown better planted out in the open air in the neighbourhood of Newcastle-on-Tyne than anywhere so far as I know. The growers there plant out in October, or even so late as November. For manure they like to get the sweepings of a cattle market. The ground is trenched and some of this manure incorporated with it, the plants being put out when it is in good condition. Violent storms are prevalent in that district, and the plants have to be secured to sticks to prevent their rocking about; and as a further protection the ground between the rows of plants is mulched with rotten stable manure. Any choice or weakly plants may be effectually protected by placing a bell-glass over each, just sufficiently raised from the ground to permit the air to circulate freely underneath.

Seedling raising is the most interesting and satisfactory method of growing Carnations. Sow the seeds in April in a gentle bottom heat; they will soon be up and ready to prick out into boxes or pans to be transferred to the open ground when they are well established. To have a strong growth and satisfactory bloom the ground ought to be well manured, and if the nature of the soil permits of it, it ought also to be deeply trenched. For the Carnation I fancy stable manure is best, and especially so if the soil is of a clayey nature. The plants may be put out in the permanent beds about 18 in. apart. When the flowering time comes, all the really good sorts should be selected for layering, and this should be done early in order to have strong plants to flower the following season. J. DOUGLAS.

CULTIVATED SPECIES OF INULA.

INULA GLANDULOSA.—The handsome hardy perennial, of which a woodcut is here given, is a native of Georgia (in Asia), and flowers in June. It was given to me by Mr. Alfred Walker, in whose garden at Chester it flowers well and increases fast. It requires no special soil or treatment. The colour is bright orange-yellow. The flower is very ornamental, the long rays hanging round the prominent disk in a way which always reminds me of the firework called a "tourbillon." Though the plant is correctly described and figured in Loudon's "Encyclopædia," where we are told that it was introduced in 1804, there appears to have been some confusion between this and *I. Oculus-Christi* in the naming, for both at Kew and at Chiswick I saw that species, which has small shabby flowers, labelled *I. glandulosa*. Other species of *Inula* cultivated in the garden at Edge Hall are

I. HELENIUM (Elecampane), a native, with handsome, stiff, dark green leaves, glaucous beneath, sometimes measuring 3 ft. in length and 1 ft. across. It makes stiff, branching flower-stalks, 6 ft. to 8 ft. high, with rather ragged yellow flowers, 3 in. across. The plant is handsome for rough shrubby borders or for naturalising near ponds and in moist places, though water rats are apt to eat it down. It grows finer, however, where the soil is open and tilled.

I. MACROCEPHALA bears its flowers singly, one on a stalk about 3 ft. high. Flowers orange-yellow, with handsome downy-toothed bracts; the rays are so short as to give the flower the appearance of being imperfectly developed, and makes it rather disappointing.

I. ENSIFOLIA.—A dwarf neat kind, with narrow smooth leaves and stalk 1 ft. high, each bearing a single yellow flower of good shape.

I. HIRTA grows about the same height as the last, but has broad rough leaves and rather larger, but less elegant flowers.

I. VAILLANTI.—Flowers and leaves resembling those of *I. ensifolia*, but taller, and having a branching stem.

All these plants may be divided late in autumn, each stalk being separately rooted, and having young shoots at the base. They grow in any garden soil. C. WOLLEY DOD.

Edge Hall, Malpas.

VARIETIES OF INDIAN PINK.

WHEN at Reading a few days ago I saw, in Messrs. Sutton's nurseries, beds of the various varieties of

very attractive. Then there is a very dwarf and compact growing type named *nanus*. The plants take on quite a close tufted growth, like to that of the compact *Silene pendula*, and they bear double flowers. One called *nanus atrosanguineus* is very good, having well formed double blood-crimson flowers, borne just above the dense tufty foliage; another has deep or crimson-rose flowers; another white; and some are more close and compact in their growth than others. Evidently this strain needs a little more careful selecting to definitely fix it, but the strain should be grown, and those who take an interest in having the best types can



Flower-head of *Inula glandulosa*; colour, bright yellow (natural size).

Dianthus chinensis, and very interesting they proved. There was the old single flowered type of the Indian Pink, greatly improved during the past ten years, and with it the fine double forms now so numerous, varied in colour and fully double. Too much cannot be said in praise of these useful annual Pinks. They are generally close in growth, very free flowering, and continuous also, and they are valuable, because the gardener can cut and come again. Both the single and double forms are well worthy a place in the garden, but a gardener would, no doubt, give the preference to the latter, because, being double, the blossoms are more lasting when cut. A variety called *diadematus*, both single and double, is so named because the flowers are prettily margined with white on different coloured grounds, and in all cases they are

select them for themselves. There is a pretty rose-flowered type that is also most desirable. Of the tall-flowered or ordinary type of the double Indian Pink, such colours as crimson, rose, and white, among others are particularly good. A form of *Dianthus*, allied to *chinensis* and named *pumilus striatus*, has pale pink flowers, striped with crimson, and when it is true to character it is very pretty indeed, but it has a tendency to sport to the self crimson colour. *D. imperialis* is also closely allied to *D. chinensis*, and has double flowers of varying shades, and is of about the same habit of growth as the last named, but the flowers are borne singly generally on the flower-stalks, while those of *D. chinensis* are borne in clusters, and the type is therefore more prolific of bloom.

D. Heddegi and D. Heddegi laciniatus are well known and very fine types of annual Pinks. The former has smooth and the latter fringed petals. Both were originally sent out in their single forms, but they are now double, and as varied in their double as in their single forms. A variety of D. Heddegi named *atro-purpureus*, deep maroon in colour, is very good indeed, and a fine thing for cutting from. There are other colours equally attractive, and some have been named and sent out, but all are more or less sportive in character, and so are at times a little disappointing when planted to furnish distinct hues of colour. D. Heddegi also has a form termed *diadematus*, in which the flowers are charmingly edged with white on various grounds. But let them sport as much as they will, they are always attractive, and gladden the eyes of all who grow them. In looking over these trials of *Dianthus* at Reading, one could not help being struck with the difference of quality in the types. This was accounted for from the fact that they had been sent by different Continental houses. There is one great advantage about this practice, that it enables Messrs. Sutton to select only the very best strains.

All these *Dianthus* do best when sown in the ground where they are to flower. The soil should be fairly light and good, and the situation open. The plants do so much better when sown where they are to bloom than when raised in a frame and transplanted. The act of transplanting checks the growth of the plants, and it is sometimes difficult to induce them to make a good start, especially if the weather be unfavourable.

R. DEAN.

HARDY PLANTING.

ON reading the greater portion of the articles written on this subject, one perceives the prevalence of one idea, and that is of the shrubbery, and the narrow or wide margin in front of it. It is the same in both old and new works on the subject; it has, therefore, become common to look on these two as indispensable, and yet it would be better, as far as garden effects are concerned, if both were dismissed from all gardens. Perhaps, however, the villa cannot, or will not, do without the shrubby belt, which shuts out its prying neighbour. The shrubbery is a great mistake when it happens to consist of good materials. The stronger growers crowd the weaker and perhaps more interesting ones to their ultimate destruction. In most cases the margin is seized on as a place in which to plant herbaceous plants. It is generally narrow, too narrow for any effective planting, impoverished by shrub and tree roots; and even should these bad effects be averted in the earlier years of its existence, the border of herbaceous alpine or other plants hides the shrubs in their young state from observation. That planting must be done for shelter, and give width or space as well as intricacy to gardens, is generally understood, but it should be formed with a well chosen selection of the commoner evergreens, such as Holly, Portugal Laurel, *Thuja sibirica*, *T. Warreana*, *Juniperus virginiana*, Yew, Box, or with such deciduous material as the best Lilacs, *Viburnum*, *Lonicera tatarica*, *Symphoricarpos*, *Berberis*, Purple Hazel, Cornus, and *Kerria*. These common things, with a few exceptions, are quick growers, and form good strong masses to break the wind or to mask a view. Choicer shrubs could then be grouped in threes, sixes, or even greater quantities in conspicuous points, and usually some distance away from the shrubbery proper.

With the falling away of the shrubbery, the margin so difficult to deal with artistically disappears also, and the herbaceous plants, hardy or tender, must have places better suited for them designed on the lawns and glades or other vantage. These beds should be so planted that bare earth be visible, but that not in a marked degree, and only during the depth of winter. Something evergreen, either as carpeting the ground or forming a conspicuous ornament, should be always present. It may sometimes be desirable to introduce variety of colour into particular spots about

the pleasure grounds, and therefore to have only flowering plants. Even for this purpose it will not, however, be necessary to use what are called *par excellence* bedding plants, but herbaceous, annual, or bulbous plants. The practice of many proprietors to absent themselves from their country houses in spring and early summer forbids the use in such places of the early flowering bulbs; on the contrary, the garden has to be designed for late summer, autumn, and winter display. The whole of the materials for spring, such as *Myosotis*, *Pansies*, *Saxifrages*, *Silenes*, *Aubrietias*, *Alyssum saxatile*, and the like, can all be used to give colour to herbaceous beds early in the season.

I will note down now a few combinations, chiefly for summer and autumn effects, that I have seen or have made use of. Large-flowered, white-sealed *Fuchsias* planted with permanent *Ligustrum ovalifolium*; foreground smaller plants of *F. Sunray*. This bed admits of a different arrangement for spring flowers. *Chamærops humilis* with *Begonia tuberosa* and *Violas* or *Pansies* in varieties. A bed of *Clematis* of the *Jackmani* or *lanuginosa* classes mixed with white *Phloxes* or *Gladioli*. The Golden *Retinoparas* and *Hollies* on a groundwork of Golden *Thyme*, promiscuously set out with blue *Aster* or *Pansy*, or *Zinnias* of the *Haageana* section, or dotted with various bulbs for the spring. A bed of *Kalmia*, or *Gaultheria*, or Ghent *Azaleas*, with *Lobelia Queen Victoria*, *Lilium auratum*, or indeed with any other *Lily* or *Delphinium*, or some good *Phloxes*. *Rhododendron* beds generally, with plants that give successional bloom through the season, such as the early flowering *Lilies*, *Zinnias*, *Phloxes*, *Tropeolum canariense*. These few examples will indicate the method that might be pursued in any infinite variety of ways in uniting permanent shrub planting with evanescent flowering plants.

Shrubs might be employed along with perennial herbaceous plants, but they should be used but sparingly. I think the flowering plants can be arranged in groups or beds containing one, or, what would be better, several kinds well contrasted, especially as regards foliage. This latter is of more moment than the contrast of colour, for as they would be arranged to bloom at different periods, the flowering period of the one would not be much prolonged into that of another. When the finer sorts of shrubs are planted group fashion or solitarily, the spaces around and amongst them can be used advantageously for massing in an irregular and natural way a variety of bulbs, *Violets*, *Anemones*, things either that are low in habit, or whose foliage lies down, or can be mown off without disadvantage to the plants. Drooping, round-headed, spreading forms tell well in small groups or singly. The spiky conifers should not predominate; here and there as relief forms they are quite proper, or grouped by themselves. No intricate pattern in flower beds will be wanted for the herbaceous plants; nothing but quite simple forms. On the Continent such plants, if they are of striking port, are planted in small circles on the turf. Sometimes the Grass grows quite up to the plant, so that nothing is observed of it on dying down; but as our lawns are not covered with 3 ft. of snow for five months, that sort of planting is not likely to find much favour in our over-neat parterres.

SYLVESTRIS.

Pentstemon Frankini.—Among good things this variety cannot be too highly recommended. It has been the admiration of all. It is a very continuous flowerer, throwing up spikes 3 ft. high, with upwards of forty blooms on each spike. The flowers are brilliant vermilion, with a white throat veined with crimson, and measuring 1½ in. across.—E. A. L.

Freak of a scarlet Pelargonium.—I have at the present time in bloom a Zonal *Pelargonium* with four distinct varieties on one plant, three of which are sports. The plant was a cutting from a variety called *Wonderful*, which it still retains. No. 2 is another double, of which I send you a fair sample of the striped blooms distinct and bright. No. 3 is the same as *Vesuvius*, of which *Wonder-*

ful was a sport. No. 4 is one very much like the variety called *New Life*, a single strip.—GEO. DAVISON, *The Hall, Beverley*.

Paris Daisies and Gazanias.—These many-flowered bush-like plants are at home here, and large and strong, partly no doubt from having stood over the winter in the open air. Thus treated, young plants acquire a strength which they would not in Yorkshire treated in the usual way. The *Gazanias*, too, not so common as they used to be in our London gardens, have stood the winter here, and are now bright with flower. They are excellent plants which our gardens can ill spare. Of course, it will be understood that it is the proximity of the sea which served them in wintering out-of-doors, and it is interesting to see how vigorously *Choisya ternata* thrives as a bush several feet through, having withstood the late severe winters triumphantly in company with *Pittosporum Tobira*, another seaside evergreen flowering shrub.—J. G., *Gosport*.

Gazania splendens.—I am glad to see this fine showy plant being used with good effect this season in many gardens. The season has suited it, and well-established plants have been objects of great beauty in the flower garden; its large and brilliantly coloured orange blossoms expand each morning as the sun gains strength, and assume fine star-shaped, almost circular forms; and what lends additional attractiveness to the flowers is that near the bottom each petal is dotted with a dark brown velvety spot, on which stands, in bold relief, a white one, the whole forming a handsome circle in the centre, and, as a writer has remarked, "arranged with so much mathematical precision, that the flower is indeed a model of flowers." It is sometimes objected to the *Gazania* that, though very brilliant in fine sunny weather, it loses all its effectiveness in dull weather, because the flowers close up then. But there are compensations in nature; and now it will be found that the flowers expand themselves in dull weather, and make the spot on which they are growing very bright until late in autumn.—D.

Dwarf double Scabious.—It is difficult to speak too highly in praise of this fine and most useful *Scabious*. The race is of German origin, and has been wonderfully improved of late years, and amongst them are many charming hues of colour. A good strain of dwarf *Scabious* is scarcely more than 2½ ft. in height, the flowers large and very double, and many of the colours very bright and striking. A packet of mixed seed gives a good variety, and some of the colours are particularly pleasing, such as white, flesh-coloured, pink, rose, crimson, and maroon. One can cut and come again with impunity, and a few good colours of *Scabious* are charming in a bouquet. The best plan is to sow the seed now, and plant out later on; by doing this the plants become well established, and, growing apace, flower with great freedom. If there is any danger to be apprehended from wet or frost, it is advisable to winter in a cold frame, and plant out in spring. These dwarf *Scabious* show to the best advantage in beds; but as many cannot afford space for a bed of mixed colours, the plants can be put out singly, or in clumps of two or three in ordinary flower borders. But those who intend to grow these *Scabious* should be careful to ask for seed of the new dwarf double German types, or they will perhaps get the old tall strain, which is not nearly so satisfactory.—R. D.

Eulalia japonica albo-lineata.—This graceful and effective plant looks well either in the border as a waterside plant, in pots for house decoration, or in bedding arrangements. Contrary to general opinion, when these beautiful Grasses were introduced from America a few years ago, I have found both this and the variety *zebrina* to come true from seed. *Zebrina*, however, planted out perished outright during the hard winter of 1880-81, while the white striped variety planted in various positions survived. I protect them in winter with a good mulching of leaves, and the

tufts or crowns annually increase in number, strength, and beauty. The white, or rather creamy longitudinal stripe down the middle of each leaf becomes clearer, I think, as the plants acquire age. A few plants in large pots make a pleasing variety in a large conservatory, and we find the long stems with their elegant drooping leaves very useful cut for "greenery" arrangements in tall vases.—A. MOONE, *Cranmore*.

Plant forms.—It is interesting to note the great difference between the juvenile and the adult forms of many cultivated fine foliaged plants. I was much surprised recently at Kew on seeing a large plant about 20 ft. high of *Aralia reticulata*. This species as generally seen is a small delicate looking plant, with leaves as narrow as one's pen. But how different it gets with age. This plant at Kew has leaves as thick and leathery as those of Siebold's *Aralia*, and their width must be about 6 in. In the same house a plant of the elegant little *Campsidium filicifolium* has developed into a great coarse thing, not worthy the room it occupies. *Aralia Veitchi* is not nearly so graceful when old as it is as we generally see it. In fact, these *Aralias* are likely to deceive or rather undeceive us when they grow up to maturity, as I am told that a great botanist has stated that many of these very distinct infants are but juvenile forms of one species. *Dracena gracilis*, which at Kew is called *D. elliptica* var. *gracilis*, is coarse and stiff when it grows large. Several other instances of the same kind of metamorphosis were pointed out to me in the Palm house, where, indeed, we can see many plants which elsewhere are mere pigmies to the old giants that have grown up at Kew.—B.

About Violas.—Mr. A. Dean is quite right about the *Viola Vestal*, as I have tried all the white kinds, but *Vestal* is still the best for early flowering and for massing, and for late flowering too, for if nice young plants are put out in the spring they will invariably flower all the summer. But as regards the blue-flowered kinds Mr. A. Dean and I differ somewhat. I have tried *Blue Bell*, *Blue King*, and *Blue Beard*, and in their line of colour I have nothing to say against them, as they have all the merits he claims for them, but it must be remembered my note only alluded to distinctness in character. I require large numbers of these *Violas* for massing in the flower garden in early spring, and distinctness is one important feature. To obtain this I grow the *Waverley*, *Vestal*, and *Holyrood Violas*, and *Cliveden Yellow Pansy*. With these I find any of those with blue shades are not desirable in my case, although they may be in others. *Cliveden Purple* I have discarded, as it flowers freely for a fortnight, and then requires another fortnight to recruit itself before it flowers sufficiently free to make an effect. I do not know the variety *Yellow Boy* named by "A. D.," but it must be good if it surpasses *Moore's Gold Prince*. Nevertheless I hope to give *Yellow Boy* a trial.—J. C. C.

Tropeolum Empress of India.—This is a grand variety of *Tropeolum*—so bright in colour, dwarf in habit, and so very free blooming. It makes a very desirable plant for the flower garden, and everyone who wants a bright and showy plant should give it a trial. I have grown it this season, and am much pleased with it; it is even more effective than scarlet *Pelargoniums*. We have it planted in the following manner: It is placed thinly in the bed, and between every plant are put two or three plants of *Gazania splendens*, which makes a carpet for the *Tropeolum*. The *Gazanias* do not grow high enough to hide in the least the blooms of the *Tropeolum*. This bed is edged with *Lobelia Lustrous Improved*, grown from cuttings, and therefore true as regards height and colour. When the blooms of the *Gazanias* are open I need not say what a gorgeous effect the three colours combined produce. Some object to dwarf *Tropeolums* because the leaves conceal the blooms, but this is not so when treated as above, and when the largest of the leaves are occasionally picked off. This bed was one of the first to produce an effect after planting, and now it is as gay as ever it has been, and looks as if it would

continue in beauty for some time yet. It surpasses some beds of *Vesuvius Pelargonium* by its side. This is only one of the many ways in which this *Tropeolum* may be used with good effect and to suit different tastes. It is truly, as I have said, a grand variety.—J. C., *Farnboro'*.

The Scarboro' and African Lilies.—The first of these (*Vallota purpurea*) is an invaluable plant, as it grows freely and flowers abundantly at a season when variety in the way of pot plants is not great. Above all, it is easy to grow, and does not require that perpetual repotting that many soft-wooded kinds of plants do. In fact, with good drainage and good soil to start with, a pot of the brilliant Scarboro' Lily will flower and flourish for at least half a dozen years without repotting. A mixture of turfy loam, peat, and sand suits this plant well, and anyone with an ordinary greenhouse or vinery may have it in perfection. Do not attempt the drying-off system; the *Vallota* needs rest, but not under a stage; it must be placed where it can be seen and attended to at all times, but it will well repay any care that may be expended on it. An excellent companion plant is the African Lily (*Agapanthus umbellatus*), as it flourishes under exactly similar conditions, and its large towering heads of pale blue flowers make a capital contrast to the scarlet Lily. The *Agapanthus* has very elegant foliage, and is even worth growing for its foliage alone. It has large fleshy roots, and requires plenty of water in summer—in fact, it delights in being treated as an aquatic and partially plunged in water. It looks very pretty by the margin of a lake; the variegated variety makes a pretty pot plant, but is not nearly so robust in growth as the ordinary form.—J. G.

Habenaria viridis.—"W. H. G." speaks of this Orchid as extremely rare. It is so in the counties he mentions, even if found at all, but as you approach the north-west of the island it becomes commoner. It is occasionally found here, in Cheshire, but in some parts of North Wales it is abundant—especially in the island of Anglesey, where many old pastures and the less wet parts of the bogs are full of it. It varies considerably in size and colour, but is at the best not ornamental, and, being rather difficult to establish in cultivation, is seldom seen in gardens.—C. W. DOD, *Edge Hall, Malpas*.

—Although confined to certain localities and often only met with in the shape of single specimens, this Orchid is not so extremely rare as "W. H. G." (p. 206) might suppose. Here it is occasionally to be met with, but not so plentiful as in Anglesey. It is usually, but not always, found in damp meadow pastures, as I have had uncommonly fine specimens sent me this season that were gathered on the mountain above Bangor Station. The small size and grass-like colour of this Orchid causes it, no doubt, to be often overlooked, a circumstance which will to some extent account for its supposed rarity. It is difficult to cultivate, and should be transplanted with a good ball, taking great care not to injure the roots in so doing.—A. D. WEBSTER, *Llandegai, Bangor, North Wales*.

SHORT NOTES. FLOWER.

Lily of the Valley.—I send you a spike of this bearing fruit, a rarity in this part of the country.—J. OLDFIELD, *Stourton*. [The fruit is, as usual, very pretty. Its production is not uncommon in the south, though it may be rare in Yorkshire.]

Bulbs just purchased.—Many people at this time of the year would be glad to know what to do with Lily and other bulbs which they receive before they have the ground ready to plant them in. Should they be kept dry, or would they be better placed in sand or Cocoa-nut fibre?—R. W.

Ivy under trees.—On lawns bare ground under trees is objectionable, and questions are frequently asked as to what is the best thing to plant in such positions. At Kew there are many wide-spreading trees under which common Ivy forms a dense carpet of beautiful green where at one time there was nothing but bare earth.—CAMBRIAN

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J., SURREY.

LARGE glasses are dressed with *Tritomas*, cut 3 ft. long and some shorter, with leaves of *Acanthus mollis*. Care should be taken in placing *Tritomas*, as they have the defect of showering down minute particles of sticky moisture; they should therefore not be placed on covered tables, but on marble slabs or some surface that may be easily cleaned. Annual *Sunflowers*, the second sized flowers from side shoots, are in a large oriental blue jar; the stalks are tied together, as the flowers are too heavy to be manageable if placed singly in the jar. White Japan *Anemones*, cut their whole length, stand tall and stately in a high glass; their collars of stem-leaves and a few of the large radical leaves come just above the rim of the glass, which is 15 in. high. Scarlet and salmon-coloured *Gladioli*, of which only the last expanded blooms at the tops of the spikes are available, are cut 8 in. or 9 in. long, and used as short flowers massed together with red-tinted *Vine* leaves. Pale blue *Pansies*, cut with whole shoots of their own foliage, are in a white china basket. *Maranta Warszewiczii* and the variegated *Pine-apple* are ornamental pot plants; the latter is prettily furnished with a growth of seedling Ferns.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Wigandias.—These are plants of noble aspect, the foliage sometimes being as much as 18 in. across and 2 ft. in length. Plants in good soil from seeds sown in heat in February attain by August a height of from 4 ft. to 5 ft. For sub-tropical gardening they are invaluable, and look well grouped together in a large bed, but are still better for planting in isolated positions in the sub-tropical garden, or on the turf, or to break the formality of straight lines by planting them on the turf in front of or at the angles of beds. There is a large bed of them at Battersea this year, the groundwork being scarlet *Gladioli*, the long spikes of which are shown off to the best advantage by the large green foliage of the *Wigandias*. This is the most striking amongst the many exquisite arrangements that are to be seen at Battersea this season.

Shrubberies.—The rearrangement, thinning out, or making of new plantations of shrubs may now be commenced as soon as circumstances permit, on light soil more especially. Autumn planting is preferable to spring because of the longer period there is for the plants to get established before there is any danger of drought affecting them; indeed, only when very heavy soils are concerned is it desirable to defer planting till early spring. From the middle of September to the end of November may be said to be the best shrub and tree planting season of the whole year. Deep trenching is the first essential, and manure in proportion to the requirements of the soil. Light sandy or gravelly soils should be given all the stable manure that can be afforded; indifferent peaty soils the same manure or else plenty of decayed leaves; but good loam and peat need no other preparation than to be broken up deeply and to be freed from all perennial weeds, such as Couch, Nettles, and Docks. The margins or borders of shrubberies where no alterations are contemplated, after being cleaned up, may be planted with spring flowers, such as *Forget-me-nots*, *Silenes*, *Primroses*, *Violas*, bulbs, &c., there usually being plenty of such plants to spare after due provision has been made for the regular flower beds and borders.

Rockery, fernery, and sub-tropical garden.—Weeding and cutting away dead flower-stems and fronds, keeping paths free from weeds, and taking cuttings of such rockwork plants as it is desired to increase are operations that now require attention. Amongst sub-tropicals, tying to supports is the most important need.

Castor-oils, Hemps, Blue Gums, and similar tall growers, now when they are so large, quickly snap off with but little wind or wet unless tied up as growth advances. Keep edgings neatly cut and the undergrowth plants stopped back before they encroach on or mar the effect of the larger plants. Single Dahlias seem to be appropriate plants for intermixing with some kinds of non-flowering sub-tropicals; they associate extremely well with the Castor-oils and white-foliaged Solanums. Note should be made of this fact and of other striking arrangements for next season's use.

General work.—This increases daily, there being now so much sweeping up of leaves, and worm-casts: where practicable use lime-water for the destruction of worms. Pick over the flower beds frequently, and if the cuttings for next season's stock are not yet taken, that should now be one of the first jobs for completion. Cuttings struck should be placed in cold frames, and the lights be drawn off daily; those that are being struck in frames should be exposed as soon as rooted to bring them up sturdily, the better to withstand the winter. Tie up Asters, Everlastings, and any plants of a herbaceous character that would be or look the better for such supports.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Stove plants.—All that have been for a time in greenhouses or conservatories should be no longer allowed to remain there; this applies to both flowering and fine-foliaged kinds, for although there is no better way of giving the short rest such plants require, it will not answer to allow them to remain until the nights get too cold, otherwise they will be apt to suffer at the roots as well as in the foliage. It is not well to place plants that have for a time been in cool quarters in strong heat, especially if there is much moisture in the atmosphere, otherwise it will excite them into active growth, which is not now advisable. Any that happen to be affected with the worst kinds of insects should be well washed with insecticide, as now when the leaves are hardened up and little tender growth present they will bear a stronger application than at any other time of the year. Those who have the small, white-flowered *Dipladenia boliviensis* will find it one of the best flowers for bouquet-making or use in shallow stands; if the flowers are cut when young they will last for a week in water. For the production of cut flowers it is a most useful plant; it is best grown close to the roof, as in such a position the blooms have more substance in them, and will last better in a cut state. Where such kinds of plants as usually find a place outdoors during the summer months are largely grown, no time should be lost in getting the houses and pits wherein they are to be wintered prepared for them. Over-crowding is the bane of good gardening, and in no department more so than with plants cultivated in pots; with the addition of new plants, and the yearly propagation of others, combined with the increase in size of all there is a continual tendency towards glass structures getting fuller than is consistent with the healthy existence of the whole. To avoid this it is much better at this season to go carefully over the whole stock, and without hesitation to discard such as are of least value and use. By this course not only will the supply of flowers during winter and spring be more plentiful, but the plants retained will be immeasurably better than where by attempting too much the object in view is defeated. The advent of frosty nights often comes on with little warning, necessitating tender plants that have been in the open air being hurried indoors, and if such work as above suggested is at once completed, much labour and confusion is avoided. Where there are several houses and pits to be thus filled, care should be taken that the best and lightest places are given to all such as naturally make more or less growth through the winter. This applies to both hard and soft-wooded things, for

although amongst such of the former as make a little shoot extension in the winter months, the growth will not be so much as to cause so great mischief as in the free-growing, soft-wooded kinds, still the injury in their case is more lasting. Camellias, Azaleas, and others of like nature, that make no leaf progress until after the turn of the days, will bear standing closer than many varieties of Heath, or such others of the hard-wooded family as keep moving more or less. Pelargoniums above all others must have enough room, and require the best light position that is at command. Kalosanthes, again, should be alike favourably dealt with, keeping them as close to the roof glass as possible; upon this depends the successful flowering of several of the less free-blooming sorts, such as the old *K. coccinea* and some of the finer new Continental varieties, which, in addition to full exposure to the sun in the open air during summer, require all the light that can be given them in winter. In houses or pits that from their position are constructed to afford insufficient light to the inmates, and where there is an absence of permanent staging, such as to sufficiently elevate the plants to the roof, improvised shelves or stages may often with advantage be used. The condition in the spring of all plants that make any growth in winter, when so accommodated, will be found very different from that of those less favourably situated.

Veronicas and Salvias.—Where these have been planted out for the summer, with a view to their being taken up and potted, it is well to have all the necessary materials in the shape of soil and pots ready, and to make a beginning to so transfer them, for in all cases they will be much benefited by being stood in pits or frames for a few days, where, by putting on the lights and keeping them shut up, they will begin to root, and will then suffer little or no loss of their leaves. With soft-wooded, vigorous-rooted things of this nature give plenty of water, so as to fully moisten the soil.

Tree Carnations and berry-bearing Solanums.—Where these have been similarly planted out for the summer, they may at any time now be lifted and potted, as with the Carnations in particular it is not well to let them stand out until their growth, which, for the last month, will have been considerable, gets at all checked. These Carnations should on no account be potted in a like way to the generality of plants, that is by compressing the soil hard in the pots. If made near so solid as found beneficial to most things, they root very indifferently; they also require lighter soil than many plants—good fibrous loam, not too heavy, with the addition of a considerable amount of leaf mould and some sand. Leaving it in a comparatively light condition about their roots usually results in their doing best if carefully taken up, placing them in no larger pots than will fairly admit their roots, lightly watered, and set in frames or anywhere where they can have a glass covering overhead in the case of heavy, continuous rains, will be best. Solanums must be well soaked immediately they are potted, and should be stood for a fortnight under a north wall or in pits or frames where they can be kept shut up somewhat close until they have got established, when there will be no loss of their lower leaves, which, if absent so much, disfigures them.

Bouvardias.—Young plants of these that were struck late in the spring and are now in cold frames or pits will this season be deficient in size through the absence of sun heat. Where this is the case they should be at once taken up and potted, and placed where they will receive enough heat to keep up free growth until sufficiently large to yield a full crop of flowers. Early-struck stock that have attained enough size should be treated in accordance with the time they are required to flower. Such as are intended to bloom later on during the winter ought to be kept cool, but when the weather gets colder, they must not remain in too low a temperature, otherwise they will flower indifferently. Old plants that were cut back in the spring, and may have been stood out in the

open air, will now be well set with flowers, and should not be allowed to stop out after the nights are chilly.

Chrysanthemums should now have sufficient stakes and ties put to them to support the shoots without giving a stiff, formal appearance. Willows with the bark on can with advantage be used for these and other plants that only want support for a limited time, as they cost less than ordinary painted deal sticks and look better. Chrysanthemums are setting their flowers generally earlier this season than they have done for the last year or two, and at this period of their growth must be liberally supplied with manure water, for as the soil in the pots will now be full of roots, any deficiency of sustenance will affect both the quantity and size of the flowers.

Herbaceous Calceolarias.—A second sowing of these may yet be made, but must not longer be deferred, or the seedlings will not become strong enough to get satisfactorily through the winter. Plants from this late sowing will give a successional crop of flowers after the earliest are over. As soon as the plants from the first sowing are large enough to be at all handled, they should be pricked off into shallow pans about $1\frac{1}{2}$ in. apart. Young hands at the cultivation of these most effective flowers should be careful in all stages of their growth not to pot them in too heavy soil; good friable loam with a fifth or a sixth of leaf mould and a good sprinkling of sand with the soil not pressed so hard in the pots as most things require is what they like. If material of this description is sifted and used for pricking them out, they can be removed from it at potting time without the loss of roots, which is unavoidable when heavy soil is employed.

PROPAGATING.

Thibaudias.—These pretty flowering shrubs are, like many other Ericaceous plants, rather difficult to strike from cuttings, or at least they often remain a long time without rooting. The method by which I succeed best is to take cuttings of the young wood as soon as ever it commences to ripen off a little, that is, directly the young shoots have lost their soft succulent nature and become slightly firm, so that if the shoot is bent, it will not snap like glass, neither will it offer much resistance before breaking. For soil I use fine peat with a liberal admixture of small broken crocks, pounded charcoal, and silver sand. The pots should be well drained, filled firmly with the above mixture, and finished off with a slight layer of sand on the top. I find that most delicate-rooting subjects strike far better in such soil than when fine peat and sand alone are used, that is to say, if the cuttings are of sufficient size to be inserted firmly in such, for of course when small, as with most of the Heaths, it is necessary to sift the soil very fine to obtain any degree of firmness, and a piece of crock or charcoal, however small, would prevent the solidity being acquired that is possible with fine peat alone. On the contrary, among larger cuttings, the roots, as soon as produced, will twine round the crocks so employed, and hold them so securely that there is no danger of falling off while there will be but few roots in the peat.

The same remarks apply to all of the greenhouse Rhododendrons, for which I use about one half peat and the rest crocks, sand, and charcoal in equal parts. For large-leaved kinds, single pots are preferable, and with a few crocks in the bottom of the pot and filled with such soil I have been very successful in striking many kinds. In making the cuttings, leave as many leaves on as possible, and for the base, instead of a cut straight across, a slanting one of $\frac{1}{2}$ in. or more in length is to be preferred, as the roots will be produced all up the wounded part, while if cut directly across, should any symptoms of decay set in at the base, the action of rooting is at once arrested, even if the cutting does not perish altogether, while in the other case should such a thing happen the part not so affected roots at once. The temperature

of an intermediate house suits the greenhouse Rhododendrons perfectly, and they must of course be kept thoroughly air-tight either in a close case or under a bell-glass.

No time must be lost in putting in cuttings of any hard-wooded plants that one desires to propagate before winter sets in. Of course they would strike better earlier in the season, but any that could not be obtained at that time if wanted must be got in at once, choosing for the purpose weak side shoots in preference to the stout and gross ones. Put them firmly in pots of sandy peat, and cover with a bell-glass, but even more care will be required as to watering and guarding as much as possible against decay than was the case earlier in the season. Choose the cuttings from plants under glass in preference to those out of doors. These remarks apply to such plants as Epacris, Correas, Acacias, &c. A good place for them is a cold frame till they are callused, then a little heat will assist rooting. T.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Peaches.—With the exception of late houses in which the fruit is now in use, the principal work in this department will be the re-arrangement of the trees for another year, and as this should always be performed as soon as the foliage is ripe and the flower-buds are well formed, advantage should be taken of dry days for mixing and moving the compost. In the formation of new borders, the quality of the soil is of more importance than the quantity, as it has been proved over and over again that a well drained border made of strong calcareous loam, in which stone fruit trees fruit freely, need not be so large as was at one time imagined, and that the best bearing wood and the finest crops of Peaches can be produced for a number of years where root space is limited and the latter are kept in a state of activity near the surface by means of good mulching and feeding during the season of growth. For early and succession houses they should always be made inside the house, as the roots can be kept warm and entirely under control; but for late use efficiently drained external borders answer equally well, and, being exposed to the elements and well mulched, they require very little attention beyond an occasional soaking with the hose in unusually dry seasons. In gardens from which a constant family supply of fruit is expected a judicious selection of sorts for succeeding each other, particularly where the houses are large, is of the greatest importance, otherwise a glut will be followed by scarcity, as ripe Peaches cannot be kept for any length of time, and the attempt to retard by means of shading generally leads to the loss of colour and flavour. On good Peach soils, some twenty years ago it was the custom to plant the everlasting old friends, Royal George, Noblesse, Grosse Mignonne, Chancellor, Late Admirable, and perhaps Barrington, and as several of these come in together, and a thoughtful man would never think of destroying such sterling kinds, the cheapest and best way to get them to succeed each other will be secured by dividing large houses into small ones, when some of the trees may be stripped and retarded up to the flowering period and again after the fruit is set.

Cherries.—The most important work here will be the maintenance of conditions favourable to complete rest of buds and roots, as far as roots can rest, until the weather becomes colder and there is no longer any danger of these excitable trees starting into premature growth. To succeed well the foliage should never be allowed to suffer from the ravages of spider or other insects. It should always have the benefit of summer rain and morning dew, and the roots should receive sufficient water prior to mulching after the fruit is gathered to prevent the leaves from ripening off prematurely. If any alterations are contemplated or fresh trees have to be introduced, no time should be lost in getting the work done, as Cherries, like all other stone fruit trees, succeed best when moved before the leaves fall. They also

enjoy a firm, resisting, calcareous loam thoroughly drained and well mulched with manure, but the manure should never be mixed with the soil, as it induces a strong, unfruitful growth of wood which is apt to grow and become unmanageable. If any of the pot trees remain to be top-dressed or potted, no time should be lost in getting them out of hand and placed thinly in a warm, sheltered corner fully exposed to the sun, where they may receive an occasional washing with the syringe and remain until the time arrives for storing them away for the winter.

Plums.—Where the choice kinds of Plums, including the Gages, Golden Drop, Ickworth Impératrice, and others, are permanently planted in borders, and trained under the roof as Peaches are trained, all the early and midseason kinds in pots should be removed to another house as they are cleared of fruit if they want repotting, or to the open air, where top dressing is all that is required. Having cleared the house of all damp-producing subjects, see that the internal borders are moist enough to prevent the trees from suffering from drought, otherwise the fruit will ripen prematurely and shrivel. Then mulch with some light non-conducting material, discontinue direct syringing, and keep the house cool, airy, and well ventilated. As birds, notably the blackbird, and wasps have a great liking for good Plums, and liberal ventilation is absolutely necessary, scrim canvas or Haythorn's netting should be drawn over all the openings before the fruit is ripe; but where wasps do not trouble the gardener, ordinary fishing nets will keep back our feathered friends. If any of the above late dessert kinds are fruiting in pots, the latter should be surrounded with dry Fern or litter to keep the roots moist and cool, and to reduce the necessity for frequent watering.

Cucumbers.—A cold, wet autumn being unfavourable to frame Cucumbers, no time should now be lost in getting hot-water pits cleared and thoroughly cleansed for the reception of August-sown plants. The most important points in winter culture are heat, light, and scrupulous cleanliness; and so essential is the latter that no pains should be spared in getting rid of every vestige of insect life by scalding and limewashing before the plants are placed in their winter quarters. In my last paper I drew attention to the advantages which attend pot culture, as the warmth given off by the fermenting Oak leaves and short horse manure, while economising fire heat, is highly congenial to the plants through every stage of their growth. In shallow pits, where the plants can be placed near the pipes without being too far removed from the light, a few sods of fresh turf will form a solid base for the pots; but in deep pits in which the fermenting material is always sinking, I have found pedestals formed with dry bricks answer well, as the open joints through which the stimulating liquid can pass freely offer strong inducements to the roots as they travel downwards surrounded by the steady warmth which can always be secured by renovation without disturbing or checking them. The best way to prepare the plants is to put single seeds or cuttings into small pots, and when well rooted to keep them near the glass, and shift on from time to time before they get 'pot-bound' until the pit is ready for them. When transplanted into the fruiting pots all the stem leaves should be carefully preserved, male and female blossoms rubbed off, and training confined to single stems until they nearly reach the top of the trellis.

KITCHEN GARDEN.

R. GILBERT, BURGHEY.

WE are now making preparation for our early Cabbage crop by heavily manuring the border this season occupied with Peas. It is my usual custom to sow Spinach after Peas, but I find this to be anything but a paying crop, and Cabbages early and good will pay. I find early Cabbage ground to be a good site for Brussels Sprouts, put in crowsbar fashion. I used to grow Brussels Sprouts as

large as small Cabbages, but was told they had no flavour, a statement which first set me thinking that fresh manure was not the thing to use; hence ground after Cabbage gets nothing in the shape of manure. Young Cauliflowers should now be up and growing. Keep weeds down by hoeing between the rows, an operation which loosens the soil, and thus does the plants great service. Planting Lettuce, Endive, and earthing up Celery must have just now our best attention. Sowing Lettuce (Black-seeded Brown Cos) for a spring supply must be done at once. The moist weather invites our friends, the slugs, out from their hiding places, to which I take care never to allow them to return by adopting the good old plan of laying handfuls of Pea baulm round the border or quarter to be planted; every second morning we visit these wisps and scatter fresh lime on the slugs, which kills all at once. The Celery quarter is treated in the same way. We shall be lifting Magnum Bonum Potatoes this week, all prizes and no blanks; add Champions to them, and your collection of late Potatoes for the present time is complete. Cut all herbs for drying, distilling, &c., and do not forget to have a general brush up every Saturday.

BOOKS.

THE LARCH.*

HAD the author of this book in presenting it to the public omitted the preface, or at least the egotistical part of it, less expectations of originality would have been entertained, and, consequently, less disappointment felt. "In writing a book, of however humble pretensions," he says, "it is expected that the author should be able, at least, to say why he does so, since the world is already full of books, and the time for their perusal so limited. To repeat what has already been stated is to trifle with time; to state what is true and not new is to trifle with one's self; and to set forth statements that are new, but not true, is to attempt to impose upon others, which no one has a right to do." Thus assured, one expects to find the book full of new, valuable, and original information, but, alas, the truth is that book-making is evident on nearly every page. From beginning to end it is interpolated with quotations from writers and talkers, old and new, living and dead, and in many cases repetitions quite superfluous, too, may be detected. On the subject of the introduction of the Larch into Britain the author is somewhat hazy, and his ideas and theories regarding some other matters savour of book knowledge and hearsay. Of soils suitable for Larch that adapted for growing Barley is said to be the best, a statement that surely requires some qualification, for the best Barley is grown on chalk soils, which are quite unsuited to the growth of Larch. The author, even with his "thirty years' practice," is evidently out of his depth as regards pit planting; his objections to this system are quite baseless, for the plan is adopted on nearly all estates in England, and with the best results. A good deal is said on behalf of an implement called a planter's foot-pick, a tool which may possibly answer the purpose it is intended for when very small plants are used, but for large plants nothing can equal the spade and pick as planter's tools.

As to climate, the author says, "The north of Scotland is better adapted to grow Larch than the south; the reverse is the case with regard to England, the south being better than the north, owing to the soil being drier and less moisture in the atmosphere." It is, however, a well-known fact that in the south-west of England the average rainfall is higher and the moisture in the atmosphere greater than in most other parts of England, yet some of the finest plantations of Larch, old and young, may be met with on almost every estate. The writer of the "Practical Treatise" under notice descants (p. 74) on the height and girth a young

* "The Larch: a practical treatise on its culture and general management." By C. F. Michie, Forester, Cullen House. Blackwood and Sons, Edinburgh and London.

tree ought to be at certain stages of its growth, and even tells us how to maintain these proportions by a systematic course of thinning. We have also elaborate tables which profess to show the total value of twenty-four plantations, and even to a penny they tell the value of annual growth per acre, also the transferable value and the prospective value per acre at certain fixed dates; other detailed tables regarding the different branches of woodland work follow, which if of no other value serve for reference. The author repeats (p. 110) some fanciful theories of his own as to the thickness which annual zones or layers of wood should be at a certain age, and affords some further information about the proportionate girth and height which trees ought to have at certain ages, results obtainable by judicious management and thinning according to our author's system. Larch is strongly advised to be barked, as it is said to pay from 15 to 25 per cent., but this is very questionable advice; the practice is indeed hardly known in the greater part of England, there being no demand for Larch bark. Remarkable specimens of the Larch occupy many pages, and as their measurements are doubtless reliable, at least where taken by the author, we may hereafter extract what relates to some of the finest amongst them.

Diseases of the Larch are referred to once or twice, but although some fourteen pages are devoted to this subject, little can be gleaned from them that is new either as to cause or remedy. On the comparative merits of home and foreign seed and seedling plants the opinions of a number of nurserymen are given and are well worth perusal. The author's conclusion is perhaps the best part of the small amount of original matter to be found in this book. Of course issuing, as the book does, from publishers of such eminence it is well got up, and if another edition should be called for, let us hope that the author will sift the chaff from the grain and produce a book worthy of a preface written in such a self-assuring style. B.

THE COUNTY GEOLOGY OF ENGLAND AND WALES.*

THIS book has a good aim; some accurate knowledge of the geology of each county would be valuable to the horticulturist and agriculturist. Better still would it be for these classes if such a book were to deal more fully with the vegetation characteristic of each formation cultivated as well as wild. We are aware this is not geology, but it would very greatly enhance the value of the book. The main object at which the author aims is to enable any person, albeit little skilled in the science of geology, to readily ascertain the nature of the rocks of any part of the country in which he may dwell, or respecting which he may need information. He has accordingly made this book a geographical geology, writing a separate account of the geology of each county. Taking the principal rock masses, or geological formations, in turn, he has traced the strata more or less minutely through each county, indicating the position and direction of the beds by naming the towns and villages situated upon the respective divisions of the rocks. An account of the nature, thickness, and characteristic fossils of each stratum is given, together with its economic products, its influence on the scenery of the district, and its value (if any) as a water-bearing bed. By the use of the index each geological formation may be tracked throughout England, and its development and nature in one county compared with the conditions under which it occurs in any other. As a rule, each rock bed has been described most fully in the county in which it occupies the largest area and is best displayed. He has prefixed to the geological description of each county lists of (1) its scientific societies, (2) its museums, (3) the maps and books of the geological survey referring to the county, (4) the more important books and papers written respecting its rocks by private workers. The book is one we can praise,

though its value would have been greater if a small coloured map of the geology of each county had been inserted. The typography of the book is the most vexatious we have, we think, seen in a work of the size and importance of this—a very small type running across an unusually wide page.

The Rural New Yorker.—This journal is very interesting and spiritedly conducted. We have just had what is called its "fair" number, which is a very remarkable production. It is printed dry, and though the result of this dry printing is generally good, it is not so in this case. A large part of the number has a singularly blurred appearance, owing no doubt to the pressure of printing a large number. The matter is good.

ORCHIDS.

PRUNING ORCHIDS.

ALLOW me to trouble you with a few further remarks, the result of experience on this subject, but first let me recapitulate what has passed already. My first communication on the subject was on January 19, in answer to a query by a correspondent in reference to *Dendrobium* stems, and which was responded to by Mr. Spyers in a contemporary, where he said, "the idea of the three or four-year-old bulbs being useless to the plants was ridiculous." Later on Mr. Baines came to his support with a statement that he had tried the pruning experiment over a score of years ago with unfortunate results, stating that "an occasional bulb might be removed to half or a little more of its length without the ensuing season's bulbs being much, if any, smaller;" but an increase in size he appeared to regard as utterly impossible, even under such partial pruning as this, while in succeeding years it was sure to be disastrous in its effects; and finally Mr. Spyers predicted that if we cut the old bulbs off Orchids we "should presently find the better part of them on the rubbish heap." This is how the case stood then, and I now wish to show how these prognostications have been fulfilled. The first plant to be described is the *Dendrobium Wardianum*, mentioned before as having been shorn over like a *Phlox* early in spring when growth was just pushing from the base of the last year's bulbs, which were cut off, the last of them, when in flower. This plant has now completed its growth and begun to ripen its bulbs, the leaves being still fresh and green. The strongest of last year's bulbs (the best of which we have yet lying sprouting on the shelf) was 3 ft. long. There were six altogether, and the least was a little over 1 ft. or 15 in. These, as I have said, and all previous growths were cut clean away last spring. This year the plant has produced eight bulbs, all stronger, some of them double breaks, and the tallest is 3 ft. 9½ in., the next 3 ft., the next 2 ft. 10 in., and the remainder respectively 2 ft. 9 in., 2 ft. 3 in., 2 ft. 3 in., 2 ft. 4 in., and 1 ft. 3 in. They are all fine robust bulbs and promise to flower well. No. 2 plant is a *Dendrobium primulinum*, which has been over four years in the same basket, and should have had a shift last spring, but I thought best to leave it as it was subjected to experiment as the others have been. It has produced more bulbs than last year—thirteen, but they are not quite so long as last year, though quite as strong and thick, the tallest being 19 in., the others less. No. 3 is two small plants in 5-in. pots of what was sent me for *Dendrobium Bensoniæ*. One was cut down and the other was left as it was with four old bulbs to it. The pruned plant has made two bulbs, each over 15 in. long, and the unpruned one three bulbs, two 13 in. long and the third 8 in. Both are stronger than last year, and there is not much to choose between them. No. 4 is a small imported piece of *Dendrobium formosum*, which I cut down to the base on arrival and put on a block about the size of my fist. It had no visible buds at that time, but has since produced two young shoots, each about 6 in. long to the top of the leaves, and still growing freely. I bought the plant with others about the beginning

of the summer this year. Other plants of the same mass unpruned have larger growths, but they were well advanced when I got them; those which have sprung since are much the same as those on the pruned piece. I may just mention that these facts can all be vouched for, and many gardeners have seen the plants; among others Mr. Court, from Mr. Williams's and Mr. Anderson, of Milner Field, Bradford, who examined the plants minutely, and remarked upon the vigour of the *O. Wardianum* particularly. It may also be stated that Mr. Spyers, in *The Gardener*, says *Dendrobium Wardianum* produces bulbs from 2 ft. to 4 ft. long, so that it would appear our pruned plant has bulbs equal to the best he has seen or heard of within 2½ in., and I feel sure if they flower as well as they did last year they will produce more than from twelve to thirty flowers to a bulb, which he gives as the maximum number. They did that last season. Our bulbs of *D. primulinum* also exceeds Mr. Spyers' dimensions both in length and thickness, particularly the latter. J. S. W.

VANDA HOOKERI IN FLOWER.

THIS Orchid is now in flower for the first time in Europe, we believe, in the garden of Sir Nathaniel Rothschild, Tring Park. It is without exception the most beautiful *Vanda* we know even the superb *V. teres* must pale before it. It belongs to the group of species characterised by terete or cylindrical leaves as in *V. teres*, to which it bears a striking resemblance in habit of growth. The leaves, however, are more slender and more pointed. The Tring plant is about 3 ft. high, with numerous leaves and aerial roots proceeding from the erect rigid stems. The flowers, two in number, are borne on a slender stalk projecting about 6 in. from the upper part of the stem. They are about 2½ in. in diameter each way. The five sepals are all arranged above the lip. The smallest and central one is of a delicate mauve, but those on either side of it are of a deeper shade and beautifully pencilled, while the two back ones are almost white. The labellum is the most beautiful part; it is 2 in. across, broadly heart-shaped, wavy at the margins, and stands out horizontally from the recurved vertically arranged sepals. The lip is pure white, copiously spotted with blotches of a beautiful carmine-purple. Towards the centre of the flower the colour is deepened into a beautiful maroon-purple, while the two vertical wings on either side of the short column are wholly of that tint, freckled and mottled with a lighter hue. The beauty of the Orchid far surpasses our anticipations, for we were inclined to suspect it to be but little different from *V. teres*.

The flowering of this Orchid, which has been so long known in cultivation, will no doubt excite interest among Orchid lovers, more especially as it has been imported in quantity at Messrs. Low's nursery, Clapton. We lately saw huge sheaves of it just imported, but no particular value was attached to them on account of their reported shy flowering character. Now, probably as the plant has proved to be so beautiful, it will be much sought for.

The success of Mr. Hill, the gardener at Tring Park, in flowering this plant is not a mere matter of chance, but the outcome of skilful treatment directed specially to its presumed requirements. He grows it in company with *Vanda teres*, its near neighbour, in a compartment of a small hip-roofed house, where there is a tolerable amount of heat and moisture; in fact, about the temperature of an ordinary stove. Not a particle of shading is put on the glass; consequently the plants get abundance of direct sunlight and heat, which doubtless thoroughly ripens the growth, and thereby induces floriferousness. The plants are grown against blocks of teak, to which the numerous roots cling tenaciously, and seem to revel on their moist surface. All the plants of *V. Hookeri* are very vigorous, and probably other flowers will be produced. The numerous specimens of *V. teres* likewise bear every indication of rude health, and under such treatment as they receive here they will probably flower freely.

* "The County Geology of England and Wales." By W. Jerome Harrison, F.G.S. London: Kelly & Co.

Disa polygonoides, now in flower at Kew, is a more piny compared with the common *D. grandiflora*, but, nevertheless, a pleasing curiosity. It has long, broad leaves similar to those of some species of *Polygonum*. The stems, about 1 ft. high, are erect and slender, terminated by a dense spike about 2 in. long of tiny flowers orange-red in colour, and exactly similar in shape to those of *D. grandiflora*. As seen in the house, it has the appearance of a miniature *Tritoma* or *Kniphofia*. It is one of the few botanically interesting Orchids that may be admitted into even a choice collection.

Spathoglottis Fortunei.—This Orchid is a near ally of *S. Lobbi*, figured recently in THE GARDEN, but is even prettier than that species. It resembles it in the size and form of the flowers and in the habit of growth, but the yellow is brighter and is set off to advantage by the chocolate-brown wings on either side of the column. It is a light, airy Orchid worthy of culture in the choicest collections. Like the rest of the species, it is terrestrial, and much resembles *Bletia hyacinthina* in habit. It has for some time past been one of the principal attractions in the Orchid house at Kew, where it is grown in the cool compartment.

Lælia (Trigonidium) monophylla.—This veritable little gem among *Lælias* may now be seen in flower in the Orchid house at Kew. It may be best described as being a miniature of *L. cinnabarina* or *harpophylla*, the leaves and bulbs being not more than 4 in. or 5 in. high. The flowers, produced singly on slender stalks from the top of the pseudo-bulb, are about the size of those of *Sophranitis coccinea* and similar in shape, while the colour is a cinnabar-red, a shade or so darker than that of *Epidendrum vitellinum*. It has a distinct look about it which at once arrests attention.

Cattleya Ainsworthi.—This lovely hybrid variety is in flower in the Royal Exotic Nursery, Chelsea, and is finer than we have hitherto seen it; it must certainly rank as one of the very finest of autumn flowering *Cattleyas*. Its parents are *C. Mossiæ* and *C. speciosissima*, and it bears the impress of both in a remarkable degree. The flower is larger than the finest *C. Mossiæ*; the sepals are unusually broad, wavy edged, and of an uniform delicate mauve. The labellum is broad, shallow, and crisped on the edges; the colour is an intensely deep rich amethyst, pencilled with lighter hues and broadly margined with pale mauve, while two large blotches of lemon-yellow above the orifice of the lip harmonise charmingly with the other colours. Near this plant was a fine flowering specimen of *C. gigas*, one of the best forms we have seen, the rich glowing hues of the flowers contrasting strikingly with the delicacy of tint in the hybrid. Like many other hybrid Orchids, *C. Ainsworthi* is as yet rare, but in years to come it will rank among the most popular of Orchids.—W. G.

ORCHIDS AT DOWNSIDE.

AN exceptionally handsome plant of the showy *Oncidium macranthum* is now in bloom in Mr. Lee's fine collection at Downside, Leatherhead. Much of its beauty is generally marred by the straggling habit of its flower-spike, but as managed here this difficulty is overcome. The spike, which is many feet in length, is trained round sticks, so that the numerous flower-bearing branches radiate from it in all directions, the result being a compact head of beautiful bright yellow flowers of wax-like texture, each nearly 3 in. across. Twenty-eight of these fine blooms were open. I have often seen this *Oncid* trained in the same way, but more loosely, showing too much flower-spike and stick, but I never saw so compact and beautiful a plant of it as this is before. It was grown in the coldest house. Among other Orchids at present in bloom at Downside are some fine plants of *Epidendrum vitellinum majus* with many spikes, bearing from ten to fourteen flowers on each; *Oncidium ornithorhynchum*, with numerous graceful-branched spikes of purplish lilac flowers;

O. concolor, *O. Forbesi*, *O. incurvum*; and *Arundina bambusæfolia*, with its pretty *Cattleya*-like flowers borne on the tops of its graceful stems. I believe almost the whole of the recent importations of this pretty plant have fallen victims to the excessive heat. Grown cold and wet, as at Downside, it succeeds like a weed. I also found in bloom here *Zygopetalum Gautieri*, a fine plant of the showy old *Cymbidium giganteum*, *Lælia elegans Turneri*, *L. elegans alba*, *L. purpurata alba*, *L. præstans*, numbers of *Odontoglossum bictoniense*, *Mesospinidium vulcanicum*, and various other handsome things, among which that pretty hybrid of Messrs. Veitch's, *Dendrobium rhodostoma* is conspicuous on account of the distinct bright purplish claret tint on its flowers. This plant is apparently a perpetual bloomer; I am sure I have seen it in bloom at all seasons during the last two years. In the cold house hundreds of fine spikes of *Odontoglossum* promise to produce a great show in the dead of winter, and at present there is sufficient bloom to make a good show. Among others in lovely condition were the rare *Masdevallia radiosa* and *infracta purpurea* and the pretty *M. vespertilio*. At my last visit I was afraid the *Phalenopsis* were on the wrong road, but since then the interior of the house has been re-arranged, and a raised stage has been placed above the close one to bring the plants nearer the glass. The whole of the plants have been placed on the tops of tall cylinders, a little *Sphagnum* and charcoal only being used around them. They now have a different complexion from that which they had when I last saw them, and are fast improving. How many valuable plants would be saved if taken in time thus and seasonably treated it would be difficult to form an estimate. JAMES O'BRIEN.

Harroon-on-the-Hill.

ORCHIS LATIFOLIA.

WE have been delighted with Mr. Wolley Dod's interesting remarks on this variable Orchid, and equally so with the fine specimen figured. It is seldom indeed that one sees the flowers of *O. latifolia* 6 in. in length, and with a stem $\frac{1}{2}$ in. in diameter. The two forms of *O. latifolia* mentioned by Mr. Wolley Dod are certainly quite distinct, although intermediate types linking these and, indeed, *O. maculata* together are often found, a circumstance which has led many to suppose that these two species (*O. latifolia* and *O. maculata*) are identical. There is, however, this marked difference between the two, that whereas *O. latifolia* when coming into flower appears bristly, from the bracts being longer than the flowers, *O. maculata* is perfectly smooth, the bract and germen being of equal length. Both forms of *O. latifolia*, especially *incarnata*, are found in abundance here, many specimens of the intermediate type being quite equal to what I have as *O. maculata superba*. The reproduction of these Orchids rather puzzles us, for on examining the roots of over ninety specimens only one new tuber was present at each (except in one case, where two were attached), a fact which leads us to believe that they are propagated in greatest quantity from seed. The reverse of this is the case with *O. maculata superba*, which increases rapidly from tubers. Again, the seeds of *O. maculata* require a long time to germinate, for a quantity sown in 1880 and 1881 have not appeared yet, a circumstance which leads us to favour the old idea that most Orchids require several years to be reproduced from seed. We have been rather puzzled with an Orchid that appears here in amazing quantities about the end of April. It is usually found in marshy mountain ground, and the flowers are of all shades, from a rich pinky purple to nearly white. Both leaves and flowers are thickly spotted, and the whole plant is seldom over 6 in. in height. Several to whom mention has been made of this Orchid suppose it to be the mountain form of *O. maculata*, but it is hard to conceive how an Orchid that flowers in July would, when transferred to the mountain, appear nearly three months earlier.

Llandegai, Bangor.

A. D. WEBSTER.

Arundina bambusæfolia. Flowers of this from Glasnevin show it to be a graceful and pretty Orchid, not unlike some of the *Lælias*, especially *L. pedunculata*. The flowers, which are about 3 in. across, have delicate mauve sepals, and a rich amethyst tinted lip. It is a terrestrial Orchid, but seldom seen in flower.

Epidendrum Schomburghii.—This is a distinct species with flowers about the size of those of *E. vitellinum majus*, and of a fine orange-red. The fringed lip adds much to its attractiveness. The flowers, about ten, are borne on the upper part of a tall, slender spike. Flowers of it come from Mr. Moore, Glasnevin, who also sends blooms of two fine *Lady's Slippers* (*Cypripedium superbians* and *C. concolor*).

Orchid flowers from a correspondent include *Miltonia spectabilis* and its very distinct variety *bicolor*, which has a two-coloured lip; *Odontoglossum Pescatorei*, an extremely pretty variety with a deeply blotched lip; and *O. Roezli* and its white variety, which our correspondent says have been in flower since last October and will continue until the next. They are therefore perpetual flowerers.

NOTES FROM ASHTON COURT, BRISTOL.

THOSE who have seen the numerous fine productions from this garden at the London exhibitions and elsewhere for some years past will not need to be told that fruit both hardy and under glass, is well grown by Mr. Austen, the gardener there. Grapes are again this season very fine, especially *Black Hamburgs*, both early and late crops; the late kinds *Lady Downes* and *Black Alicante* are fast colouring. Even where Grapes are well grown collectively it sometimes happens that an odd Vine or two, under different conditions from the rest, produce exceptionally fine fruit. Such is the case here with the examples of *Mrs. Pince* and *Black Hamburg*, each of which have an unusually strong cane trained longitudinally in a Peach house. *Mrs. Pince*, as grown here, is one of the finest Grapes in cultivation, fine bunches, very large in berry, and beautifully coloured.

The subject now and then crops up about the best way of training Peach trees in a lean-to house, so as to secure the greatest amount of fruit-bearing surface on the trees. Some, and amongst them many good cultivators, are in favour of the very old plan of training them to trellises fixed across the house with others on the back wall in place of the more usual course of running the trellis lengthways under the roof, with or without other trees covering more or less of the wall at the back. In wide, high houses the method of training across the house is more loss than gain, as the back parts of the tree, especially towards the bottom, are too far away from the glass for the fruit ever to get enough light, and this holds good with the trees on the back wall; but, in comparatively narrow houses that are not lofty, and that stand in a position where the full amount of light reaches them, the case is different, for the cross trellises, without being stood too close to admit enough light and sun to the trees, can be placed at a distance that will give considerably more extent of surface than the trellis fixed lengthways, especially when it is taken into account that the back wall can by this arrangement be kept covered from top to bottom with healthy bearing wood. If proof of this were needed the long range at Ashton Court would be sufficient, for the quantities of splendid fruit of both *Peaches* and *Nectarines*, early and late, which Mr. Austen every year gathers from off these houses would be difficult to surpass. This season the trees from end to end are carrying abundant crops, the later being particularly promising. One advantage of this method of training is that, necessitating as it does the trees being kept individually to a less size than they are usually allowed to run when a single trellis occupies the house, a better succession and more variety can be secured. Coming in quickly, as the crop of any variety of

Peach does in most places, it is better to have more trees which, if the selection of kinds is right, will give a longer supply, to say nothing of more variety, which in itself is worth taking into account.

Pines, as usual, both fruiters and successions, are in good condition; a number of fine fruit were ripe with others to follow. Of Melons the same can be said. The season here for these is from the early lot, coming in as soon as length of daylight and sun in the spring admits of their ripening with flavour, to the latest autumn plants, which are kept going as long as the season will permit. The Fig house produces quantities of fruit in the course of the season. The fine variety Negro Largo, that sometimes gets the character of being a shy fruiter if it has much root space, bears here freely planted out.

Orchids.—Both the cool and warm house sections are grown in houses not the best adapted to the wants of the plants, yet they continue to thrive in a way that leaves nothing to wish for. The warm house is an unusually lofty lean-to structure with a correspondingly high back wall. In order to secure the necessary light, such things as *Saccolabiums*, *Aerides*, *Phalenopsis*, and *Dendrobiums* are hung up overhead near the roof, and thrive and flower in a manner, especially the *Saccolabiums*—plants that not a few people fail with—which shows they are perfectly at home, with broad, thick, leathery leaves that *Vandas*, *Saccolabiums*, *Aerides*, and others of like habit make when in rude health. Amongst numbers of well managed plants in the various houses there is a *Bougainvillea glabra* occupying a considerable space of the roof in the large conservatory, and an *Allamanda*, which almost covers the space overhead above the back path in a long house, which are deserving of especial notice from the unusual quantities of flowers they bear, and the length of time they continue in bloom; the *Bougainvillea* keeps on from spring to autumn making immensely strong shoots that are hung in festoons with thousands of flowers. The *Allamanda* for the greater part of summer and autumn is a complete sheet of yellow. Where these plants have enough root room, and are judiciously treated so as to keep up a continued and vigorous growth, they produce an amount of flower such as the half-starved examples often met with give little evidence of.

T. B.

A RARE SHRUB GARDEN IN IRELAND.

IN one of the wildest and most inaccessible corners of the county Clare, where it borders on the county Galway and most picturesquely situated on the shore of a pretty lake of considerable extent named Lough Graine, is to be found one of the most extensive and interesting collections of rare and beautiful hardy shrubs which I have had the pleasure of seeing for many years past. It has been formed by and belongs to William O'Hara, Esq., until quite recently one of the resident or stipendiary magistrates for Clare County, and now retired on a well-earned pension after many years of zealous service. This fine collection suffered much during the dreadfully severe winters of 1879-80, losing many of its finest specimens and rarest plants during those two most trying years, so that everything now to be found therein may be safely reckoned as perfectly hardy. It has everything in its favour as to position, being low-lying and thoroughly sheltered on all sides from the bitter winds, especially the western blast, which on higher and more exposed ground in same county burns up and does more damage in the early spring months to delicate shrubs and trees almost than the frost itself. Its native soil, also, which is a brown fibrous peat, is especially adapted to several families of beautiful flowering shrubs that will not really thrive in any other, and consequently the beautiful *Sikkim* and many hybrid *Rhododendra*, the *Andromeda*, and several varieties of *Ledum* are here thoroughly at home, and flourish and thrive in a truly amazing manner, reaching a size that I have hardly ever

seen them attain elsewhere, and being now covered with flower buds for next spring's blooming season. Among the rarer varieties of shrubs (several of them being hitherto quite new and unknown to me) which I found growing in this most interesting garden I may mention *Citharexylon cyanocarpum*, which yearly produces large bluish lilac flowers, but has not yet fruited. It resembles much one of the thorny varieties of *Berberis*. *Rhododendron blandfordiae* was represented by a large bush quite covered with flower buds, and apparently in fine health and vigour—perfectly hardy. *Hydrangea glauca*, which I had never before seen, was covered with its pretty bunches of small pure white flowers. *Clethra alnifolia* was in great vigour, and abundance, and just on the point of opening its beautiful racemes of white sweet-scented flowers—truly a most charming and free blooming autumn shrub. The large bushes of *Pernettya mucronata* were masses of white flowers and pretty bunches of berries just changing to their rosy purple tint of ripeness. The bushes of the shrubby *Hypericum pseudo-patulum* and *nepalense* or *uralum* were masses of golden beauty. I missed, however, the fine *H. oblongifolium*. The lovely *Desfontainia spinosa* had been very fine, but was killed to the ground in the winter of 1879-80; it was, however, shooting up again from the root.

W. E. GUMBLETON.

NOTES FROM NEW ENGLAND.

Freesias.—Eighteen years ago a quantity of bulbs were sent to the Massachusetts Horticultural Society from the Cape of Good Hope and distributed among the members. When they flowered they appeared to be an unknown kind. I had some of the bulbs; they were very beautiful, and I supposed them to belong to some undescribed species of *Sparaxis*, but when in London I saw the *Freessias* described in the Colchester Plant Company's catalogues, and at once discovered my plants to be the same. They were so handsome and delicately fragrant, that we propagated them extensively. Seedlings did finely. It is the true *Leichtlini*, or at any rate exactly like it—pale yellow with a bright orange spot, and so fragrant, a pot of five or six bulbs perfumes the whole house. Messrs. Smith say, "Leichtlini produced no seed of itself, although we attempted to fertilise it with its own pollen." This seems strange, when one plant produced abundance of seeds. It is a valuable plant for cut flowers, and when well grown the flower-stems are 15 in. to 18 in. long, with intermediate flowers 1 in. or more in length. It is undoubtedly one of the finest acquisitions of late years. We are now just potting the bulbs, though it may be done at any time up to December.

The Bermuda Lily.—*Lilium Harrisii* and *L. japonicum floribundum*, for under both of these names a Lily has been introduced to our cultivators, the first by Mr. R. Harris, and the last by J. Kift, both of Philadelphia. Mr. W. Rolker speaks of these two Lilies as being different; they may be so, but it is extremely doubtful. Mr. Harris describes *L. Harrisii* as producing eight or more flowers from one stem; and Mr. Kift the *L. japonicum floribundum* as producing twenty to thirty flowers on one stem; and specimens were exhibited last May in New York directly from Bermuda with from thirty to fifty flowers. This Lily has been quite a surprise to growers; flowering as it does more freely than *L. japonicum*, and producing such a quantity of its pure white trumpet-shaped blossoms, it may be called an annual or perpetual Lily. Mr. Harris says the Lily was brought from Bermuda ten years ago. What is remarkable about it, if you will believe it, is that a bulb no larger than a Pea will flower three times in eighteen months, and that seeds sown in October produce plants which flower abundantly in June, only nine months from sowing. Precocious, surely! Since these specimens were seen last spring the bulbs have been imported from Bermuda, and are without any doubt all from the same stock. How and where it origi-

nated is not known. One would at first suppose that the climate of Bermuda might effect the change; but Mr. Kift says he has had bulbs of his own growing three years old which produced fifty-two flowers on one stem.

Colours of flowers.—Is it true that "all flowers," as Mr. Grant Allan states, "would seem were in their earliest form yellow, then some of them became white, after that a few of them grew to be purple?" &c., and he instances the pale yellow Forget-me-not, Wallflower, and Primrose. How about the white Lily (*L. candidum*), *Nymphaea odorata*, *N. alba*, *Chrysanthemum leucanthemum*, and the Hawthorn—were they yellow and changed to white? One scientific writer says flowers were made scarlet or bright coloured on purpose to attract the bees for fertilisation, and now Mr. Allan comes and tells us they were all made yellow. Who is right?

"Deutzia gracilis" is perfectly hardy here beneath the shade of trees" (at Adlestone Lodge), writes "W. G." Dear me, how strange! Why this pretty shrub is one of the greatest ornaments in the lots in Mount Auban and other cemeteries, as well as in suburban gardens, flourishing like a Bay tree and covered with its spikes of snowy blooms. Temperature 5° to 20° below zero in winter and not the smallest twig hurt. *Spiraea crenata* fl.-pl. is, however, very often injured, losing the tips of the best flowering shoots.

Rubbish.—I like "Peregrine's" remarks on rubbish; they are just to my way of thinking; and here, I may say, herbaceous rubbish is the least objectionable, for if we have a few plants which ought to be consigned to the rubbish heap, their places can soon be filled. But when, after waiting eight or ten years for a novelty in the way of a Pear or Apple tree to produce fruit, and then find that the wonderfully fine sorts are mere rubbish, not half as good as the old varieties, much time is lost. There is often much beauty of foliage or form or some redeeming quality in the homeliest flowering shrub; but there is no value in poor Apples, poor Pears, or poor vegetables simply with new names.

Root-work.—A correspondent cautions all lovers of plants to "beware of the stumps." Now, I thought they formed a very pretty feature in the wild garden. Certainly, at Mr. G. F. Wilson's, at Weybridge, I was much delighted with the many plants he had in the finest condition growing on root-work, arranged with the best taste, producing a most picturesque effect. That the roots will rot is certain; but they will last a long time and afford many years of gratification, and the plants can be re-set with the greatest certainty of living. But everybody cannot arrange them in a natural and picturesque way.

C. M. HOVEY.

Boston, Mass.

Maiden-hair Ferns in rooms (A. M. C.).

—These do not succeed well in the majority of cases when grown in rooms. To attain the best results, it is necessary to give them as much light as possible; consequently they will be in close proximity to the windows where the draught or cold air entering the room will be somewhat detrimental to their well-being. This should be avoided as much as can be done. If I were to attempt growing this Fern in a room I would prefer it under a bell-glass, one with a hole at the top. By keeping this a trifle tilted on one side a constant circulation of air would be kept up, yet not too draughty. In potting this or any other Fern for growing in rooms, it is best to pot firmer than for ordinary cultivation. The growth, though not so strong and well developed, will be more sturdy and robust, and better able to resist the drying atmosphere of a living room. Peat and sand will suit well, but a little loam may be added if not too retentive.—J. H.

Exhibiting (A. M.).—Two classes are usually provided for Melons—one for green fleshed and one for red. Collections of vegetables (except so stipulated) need not necessarily contain dishes of Potatoes, though as a rule they do.

GARDEN DESTROYERS.

WASPS IN GARDENS.

WASPS are, and have been, unusually troublesome this season, especially since warm weather has set in. They are considered by some to be scavengers, but the good, if any, they do in that way is small compared with the injury they work on fruit, which, during a dry, hot time, they devour wholesale, as may be seen by the husks they leave hanging on the Gooseberry bushes, which they completely clear out of their pulp. If this were all they might be tolerated; but they also attack the best Peaches and Nectarines, the choicest Plums and Apricots, and eat up all the Grapes they can get at. To keep them from these latter is a tolerably easy matter, as with coarse muslin the openings in vineries for ventilation may be covered, and the provoking marauders excluded; but to protect the trees on walls in a similar way is quite out of the question. The best plan to adopt is to search out and destroy the nests, which may be found by watching closely the course which the wasps take, and if this is done early in the morning when the sun is rising they may be seen afar, as they look large and show up in the distance, and the same again in the evening. There are various ways of getting rid of the nests, the most expeditious perhaps being by the aid of turpentine. This, if forced into the hole by forming a plug of wadding soaked in it, and banking up the mouth of the hole with earth, will stifle all that are inside. Tar, used in a similar manner, also answers well, especially if it has a little turpentine stirred up in it; but, where nests exist where they can be got at, the surest way is to squib the holes, and then dig the nests out. Powder and sulphur, in the proportion of one part of the former to three of the latter, make capital squibs, as the fumes are driven in by the force of the powder, and the sulphurous smoke is so stifling that the wasps are stupefied by its action as soon as it reaches them, and while in that state may be dug out and destroyed. The right time for the work is late at night, when the wasps are all at home; but, as they are ever on the alert, it is necessary even then to approach them quietly, or they become disturbed, and the watchers are soon out and about. Besides destroying every nest that can be found, it ought to be the business of every one who has a garden to entrap wasps, as by so doing their numbers may be greatly diminished. An excellent trap may be made by using two hand-glasses placed one above the other, with the bottom one on bricks, so as to raise it clear from the ground. To let the wasps into the upper glass, a small hole must be made in the top of the lower, through which they will enter and never find their way back. Fallen Apples, or any waste fruit, or treacle or sugar, answer for putting under the lights as a decoy, and for bottles to be hung about there is nothing equal to a mixture of sugar and beer. So successful have we been with these that we have emptied out over half a peck of drowned wasps; and always in the autumn we get an immense lot of queens, as they are out of the nests then in search of safe, dry quarters to lie up for the winter. I find that the best bottles for entrapping wasps are those that are very clear and moderately small, with open mouths.

S. D.

Mealy bug on Vines.—There are constantly so many inquiries as to the best means to be adopted to eradicate mealy bug on Vines, that I think it may be useful if I describe the measures which I adopted here with complete success. Our first attempt was to get rid of them by hand-picking. I need hardly say this utterly failed; so, as soon as the leaves had fallen from the Vines in autumn, we set to work and whitewashed all the walls, painted the pipes, and gave every part of the house a thorough cleansing. This being done, all the inside woodwork was painted with the strongest turpentine we could get, and the Vines pruned and dressed with Gishurst compound—6 oz. to 1 gal. of water, made into the consistency

of thin paint with the aid of a lump of clay, and applied vigorously with a brush. The next season we found the number considerably reduced, and by constant hand-picking we kept them pretty well under all the summer; but as they had only found a lodgment in the early vinery, and afraid that they would extend to the one adjoining, the next autumn we had the inside and out painted by our regular tradesman; the interior of the house was, of course, thoroughly cleaned as before, as well as the Vine rods. That is now six years ago, and we have not seen a bug on them since.—J. C. C.

SOCIETIES.

APPOINTMENTS FOR THE WEEK.

Sept. 12.—South Kensington: Meeting of Fruit and Floral Committees.

13 and 14.—Edinburgh Great International Exhibition.

INTERNATIONAL FLOWER SHOW AT LILLE.

THE new horticultural society of the north of France, the abode of which is in the Palais Rameau, at Lille, held its first international show this week. A rich amateur of Lille gave the town a certain sum of money, something near £40,000, on condition that the town should build a place suitable for flower shows, and that a horticultural society should be established in it, and have a flower show every year. This was some years ago, and when the building was finished it was splendidly inaugurated with a flower show. This gift of M. Rameau gave birth, as it seems, to the new Société Régionale d'Horticulture du Nord de la France. I may add that great thanks are due to Mr. A. van den Heede, as he was really the promoter of this new society. The building, which has been christened Palais Rameau, stands in a garden. It is a large place, built with stones, and covered up with glass; it seems well appropriated for shows, containing, as it does, a large hall with a gallery all round and a large winter garden at the back. This first international show has proved a great success, both as regards the quality and quantity of plants exhibited. It was open to the public last Sunday; several Belgian firms exhibited. The garden round the palace was filled up by outdoor plants, such as Conifers, annuals, &c., and also by horticultural implements.

Standing on the top of the landing in the hall the whole view of show was most attractive. The most noteworthy exhibits were a group of *Coleus* well grown, and leaves measuring 9½ in. in width, and 1½ in. in length; the smallest were 8 in. by 10 in. Such large foliage in the case of these plants had never been seen before. The exhibitor was an amateur from Lille, M. Bruyère, who was the winner of the first prize. His other lots consisted of Palm trees, stove plants of all sorts, all well grown; also a *Tillandsia tessellata* very big. The next most attractive exhibit was a collection of cut flowers of tuberous Begonias, all good and double, some were really extra fine, being three times as large as an ordinary *Camellia* flower. M. Crousse, of Nancy, was the exhibitor. M. van den Heede, nurseryman, of Lille, gained the first prize for his groups of Orchids and made-up bouquets. M. Linden, of Ghent, had a splendid group of stove plants, all well grown and remarkably healthy. M. Delesalle, of Lille, came in second with very good plants. Amongst the amateurs we must not forget M. de Léan, from Douai, who had a very good collection of plants. M. Verdier, of Paris, showed a large group of *Gladioli* all good and some very striking. Amongst other exhibitors we must not forget Messieurs d'Haene, Dallièrre, Pynaert, Desbois, of Ghent, and Makoy, of Liege. We cannot finish without congratulating the new society on its great success in this first trial.

Hailstorms and forests.—Our Geneva correspondent writes, under date September 1: "Hailstorms, as is well known, often play sad

havoc in Switzerland as well as in other parts of Europe. They generally last only a few minutes, but in that time the crops of a whole district may be destroyed, trees stripped of their fruit and leaves, and even Potatoes in the ground hacked to pieces. Birds are sometimes killed by the hundred, and a Grape Vine touched by the hailstorm is ruined for ever. Seven years ago there was a hailstorm in this canton, which in less than five minutes did damage estimated at a million francs. In some districts there are mutual hail insurance societies as in other countries there are mutual fire insurance societies. In these circumstances everything relating to the phenomena and causes of these visitations is studied with great interest, and papers on the subject read at the late meeting of the Association of Swiss Geographical Societies, held this week at Geneva, by Herren Beaumont and Riniker, of Aargau, are attracting considerable attention. The utility of forests as a safeguard against avalanches and a hindrance to *tourments* and snow-drifts has often been pointed out, but it has never before been suggested that forests are a preservation against hailstorms. Such, however, is the opinion of Herr Riniker, who is chief forester of Canton Aargau. He says that where there are forests there are no hailstorms, and in support of this theory he adduces a remarkable fact, for the accuracy of which he and many others can personally vouch. In the south of Aargau there is a little chain of mountains known as the Lindenberg. The Lindenberg are about 16 miles long, of an average height, above sea level, of some 800 ft., and completely covered with wood. About twenty years ago, the forest was divided in two places by wide gaps, with the consequence that the valleys at the foot of the mountains were soon afterwards visited with frequent hailstorms. The hail-charged clouds were seen to traverse the gaps. In 1868 the wider of the two open spaces was closed by a plantation of Firs, and since 1871 no hailstorm has crossed the forest. In explanation of this phenomenon Herr Riniker suggests that, as hailclouds are saturated with positive electricity and trees conduct from the earth negative electricity, the meeting of the two currents develops sufficient heat to prevent the complete congelation of the clouds, and even to thaw the hailstones contained in them—for the clouds of this description pass very near the earth—and so convert the frozen particles into rain. If further observation should confirm the accuracy of Herr Riniker's conclusions in this regard, the importance of forests in countries where hailstorms are frequent will be greatly increased."—*Times*.

Material for rock-work.—My experience in making rock gardens of the best type is, that with an eye to Nature you can scarcely fail on the side of economy. Either indoors or out, good soil specially prepared for the plants you wish to grow, and rough, unequal-sized blocks of sombre-looking stone are all that is required for the work. The only skill required is effective placing of the stones on already contoured soil.—T. D. H.

Rose A. K. Williams.—Owing to the time necessary for the production of this plate our publication of it has to be postponed.

Names of plants.—*E. R.*—Variety of *Hydrangea japonica*; *Desfontainia spinosa*.—*J. G.*—*Eucomis punctata*.—*Mac*—*Phalaris arundinacea* fol. var. *Alpha*.—1, *Tanacetum vulgare*; 2, *Polygnum sachalinense*.—*T. H.*—*B.*—1, *Agrostemma coronaria*; 2, *Linaria vulgaris*.—*A. J.*—*H.*—1, *Campanula persicifolia*; 2, *C. muralis*; 3, *Impatiens glandulifera*; 4, *Tradescantia repens*; 5, species of *Gnaphalium*.—*Mr. M. W.*—*Harpalum rigidum* (yellow); *Anemone japonica*.—*A. K.*—*Lilium auratum virginale*; *L. venustum*.—*V. S.*—6, *Potentilla anserina*; 8, *Urtica dioica*; 12, *Linaria vulgaris*; 19, *Malva sylvestris*—all common weeds. Our rule is to name but four plants at time.—*Claydon*.—*Physostegia imbricata*.

COMMUNICATIONS RECEIVED.

J. D.—*G. B.*—*T. B.*—*D. S.*—*W. F.*—*J. S. W.*—*C. W. D.*—*J. M.*—*W. H.*—*S. J. C.* & *Co.*—*D. P.*—*S. N.*—*H. H.*—*d'O.*—*A. D.*—*B. J. C.* & *Co.*—*G. I.*—*R. W.*—*A. K.*—*R. D.*—*A. L.*—*E. O. G.*—*A. M.*—*J. O. B.*—*M. C.*—*Mac.*—*G. B.*—*A. D.*—*J. M.*—*C. L. H.*—*R. G.*—*W. W.*—*W. F.*—*J. S.*—*G. B.*—*F. J. M.*—*J. F. R.*—*A. D. W.*—*S. J. C.*—*C. N.*—*E. B.*—*J. S.* & *Sons.*—*A. L.*—*T.*—*A. W.*

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"This is an Art

Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

SELECTION, OR NOT SELECTION.

AN article in last week's GARDEN under this head, which should apparently have been entitled "Our own selection for ever!" furnishes me with a text for a few remarks that it may be worth while to make. Something of what I have to say has been anticipated by the editor of THE GARDEN himself, but a little repetition, even though it be but *crambe repetita*, is perhaps not inadmissible, nor indeed is it fair that we "rubbish" Jeremiahs should leave the monopoly of "damnable iteration" to the triumphant prophets of "good things."

Some little time ago I submitted a small bone of contention to the consideration of the readers of THE GARDEN, labelled "Hardy herbaceous rubbish," which has since been nibbled at on several occasions, but which the writer of the article with the above heading has swallowed whole and apparently found somewhat indigestible. Mr. Smith commences his article by misquoting a remark of mine about *Campanula Van Houttei*, which he regards, it seems, as "the culmination of folly." I may, perhaps, therefore assume that the *spreta injuria forme* vicariously excited in his breast has invoked a corresponding vigour of language such as a difference of opinion on a subject less important than the comparative beauty of a flower would not generally be held to necessitate. If Mr. Smith be an amateur, I am no more concerned to discuss his views on gardening generally than I am to criticise his literary style, but if he chance to be in any way connected with the trade I shall take leave to doubt whether the professional fraternity will consider themselves much benefited by his advocacy. One can fancy some of the more delicately constituted readers of THE GARDEN waking with a nightmare of an "own selection" composed of lumps of *Heracleum Sphondylium*, *Saxifraga virginica* and other similar luxuries, together with a plant of Ragwort nicely potted and correctly labelled "Senecio Jacobæa," and sent gratis to compensate for carriage.

Apropos to "added plants" and "compensation for carriage," it has been hinted more than once in THE GARDEN lately that much of our rubbish is cultivated and distributed for these philanthropic objects. I cannot say whether this is so, nor am I going to undertake to teach other people their business, but, speaking for myself only as a purchaser, I may say that I see no necessity for the practice at all. The plants sent do not compensate for carriage, and it is, in my opinion, perfectly unreasonable to expect that they should. Purchasers will, I take it, continue to send to nurseries, whether far or near, where they can buy what they require, and where they have reason to know they will be well treated, and no one likely to buy such things at all would grudge the few extra pence or shillings for the carriage of really good plants. The only real "compensation for carriage" is to send strong plants of what is ordered, and this unfortunately is just the very thing that so frequently is not done. It is the miserable little, ill-rooted, thumb-pot morsels,

scarcely affording a meal to an adult slug, which cause so much disappointment and annoyance, and which give rise to the dissatisfaction one hears more and more expressed by gentlemen possessing large collections, and by smaller people as well with some even of the leading firms in the trade. I buy little things here and there from many places, but there is one plant nursery that I especially affect. They never make me any "presents," but I find I scarcely ever lose what they send me.

In my little disquisition on "rubbish" I intended to make no attack on anything, and most certainly not on my own hobby, which happens to be hardy flowers of all sorts; but I desired to promote a little more vigorous criticism on some of our garden subjects. The real question at issue is, What is the use to ordinary people of a gardening newspaper? It is idle to talk about dictating to people what they shall or what they shall not grow; but as the majority of people possessing gardens cannot grow everything, they may reasonably like to hear now and again a little comparative criticism on the subjects on which they are interested. We are, however, an advanced class, and need no enlightenment on facts of elementary observation. I, for instance, am quite aware of the beauty of the vegetable kingdom in general, and of that fine weed, the *Senecio Jacobæa* in particular; in the same way I admit (for the bourgeois go with the thinkers up to a certain point) the rights of man and the "own flesh-and-blood" theories of humanity; but I don't want Mr. Gladstone to remind me of the latter, nor do I need THE GARDEN to teach me the former. Moreover, I shall not ask my chimney-sweeper to dinner, and if a Rag-wort has the impudence to come up in one of my mixed beds, I shall certainly put him in the fire. I am the last person to say a word against catalogues, which I find excellent reading, and which afford me a good deal of amusement during the winter months; but nurserymen are not exempt from the ordinary rules of trade; they are more or less bound to advertise "novelties" whether they be new or not, and they cannot well be expected to underrate their own wares. But it is here that we occasionally look to our "GARDEN" for a little acid to the alkali. The majority of readers, I apprehend, do not want in a gardening newspaper a simple amplification of a tradesman's catalogue conducted on strictly mutual admiration principles. When gentlemen with large collections will tell us about their "good things," we are grateful; if they will tell us something about the culture of these good things—whether easy of culture, for instance—we are more grateful; but if they will aid us with a "line" to discriminate and so to choose the best and most distinct varieties of the various classes, we are most grateful. I say "we," for I fancy the editor of THE GARDEN will allow me to use the plural number on this occasion. A suggestion has been made by "Delta" that those interested in the matter should send a list of what they consider worthless plants to THE GARDEN. It is not a bad idea, but I doubt if it will come to much, for the number of people who regard the police as an excellent institution is unluckily considerably less than the number of those who are willing to act as special constables.

In conclusion, let me say that I entirely sympathise with those gentlemen who, having the means, have also the taste for making large "collections" of hardy plants. They confer, as the

editor of THE GARDEN has said, a benefit on the gardening public, and I know of no greater pleasure than spending hours in well-stocked gardens of this sort. If I ever find myself within measurable distance of Malpas, Mr. Wolley Dod shall no longer have reason to complain that no one comes to see his flowers, for I will find my way to his place, send in my card, and ask to be allowed to walk round his garden. I should prefer to come before July 1, and the first thing I should ask about would be his plant of the *Eritrichium nanum*, and he may show me his *Veronicas* if he will; but even in autumn I will promise to be properly interested in his *Michaelmas Daisies*.

Wormwood Scrubs, W.

J. C. L.

NOTES FROM NEW ENGLAND.

Demoralised Columbines.—We have a good many Columbines here, and the more we have the more determinedly mixed do they become. As the plants in our clay land are short-lived, we must treat them as biennials; and as our garden room is limited, we cannot grow them so far apart as to render hybridising impracticable; we are, therefore, obliged to raise a fresh stock every year from our own saved seeds, and so far as we can from seeds sent us by friends. And with what woeful results. Our own seedlings are bad enough, but our seedlings got from other sources are no better. And in nearly all cases the hybrids or varieties are but miserable representatives of the parent species. Among reds, *truncata*, *formosa*, *Skinneri*, and *canadensis* are blended together in one common mass, and *flavescens* and *chrysanth*, too, have united with the reds in miserable confusion. Judging by the general appearance of the *chrysanth* mongrels, that species seems to have had a preference for *formosa*, perhaps the brightest and best of the reds. Among the blue and violet-purple Columbines intense confusion reigns. What a lovely little gem is *glandulosa jucunda* (of Thompson)! also *pyrenaica* and the small form of *Bertoloni*. *A. oxysepala* (raised from Dr. Regel's seed, but which Dr. Gray assures me is *sibirica*) was the earliest of all to blossom with us, and it is profuse and pretty too. *A. olympica* (of Thompson, but *glandulosa* Dr. Gray says) is a magnificent blue and white Columbine. As garden plants, why overlook our *canadensis*? As a rock plant, thrifty, long-lived, and copious, it inhabits the warmest and driest parts of our rockery, and indeed the wildings I brought hither from the woods have become larger and more profuse in the garden than I ever knew them in the wood.

The new Columbine, viz., *Aquilegia longissima*, to which I referred some months ago, is now in bloom with us. In general appearance it is not unlike *A. chrysanth*, but the flowers open wide, and the spurs are very long and slender. It does not seem a good grower nor a free bloomer, and, so far, it has not set a seed. It blooms as late as *chrysanth*. The following is the botanical description of it, by Sereno Watson, in the "Proceedings of the American Academy of Arts and Science," vol. xvii.: "*Aquilegia longissima*.—Somewhat pubescent, with silky hairs; stem 3 ft. high; leaves deeply lobed with narrow segments, glaucous beneath, green above; flowers lake, white, and straw colour; the lanceolate sepals broadly spreading, 12 lines to 15 lines long; the petals spatulate, about 9 lines long; the claw opening by a narrow orifice into the very slender elongated spur, which is 4 in. long or more. Allied to *A. cœrulea* and *A. chrysanth*, but distinguished from both by the narrower petals and the constricted mouth and the much more elongated spur."

Iris lævigata.—Your note (p. 10) regarding this glowing purple Iris being a moisture-loving

plant coincides with its behaviour with me. Our Iris bed (in the botanical arrangement of our garden) is in an open, sunny situation. The grosser Irises, like *germanica*, *pallida*, and *sibirica*, do well in it, as do also the Kämpfer Irises, so far as growth is concerned, but their blossoms are injured by warm sunshine. I planted a clump of *Iris lævigata* in this bed and another clump of it in a moist border on the north side of a tall Beech hedge. That in the front border grew smaller, while that behind the hedge grew much stronger. *Iris lævigata* blooms eight or nine days earlier than the Kämpfer Irises; still I believe the latter are only long cultivated forms of the former.

Black Walnut.—*Appropos* of Mr. Berry's notes on this Walnut as a useful timber tree (pp. 83 and 131), I may say that my experience of it is that when grown on thin, poor, or cold land it will not pay; on good, rich land it may pay. And then the question arises, if your land is good and rich, is Black Walnut the best paying crop it will produce? So far as high or low-branched trees are concerned, I am rather a convert to the "survival of the fittest" system. Plant thickly; the strong will grow, the weak will die, and that which will grow will be straight and clean stemmed. Of course this may be heresy in a country like Britain where woods are kept so prim and neat, and there are trained foresters everywhere, and there is a large demand for under-sized timber.

Podophyllum Emodi.—Your mention of this (p. 89) prompts me to say that I find it rather fastidious in America; but *P. peltatum*, our own Mandrake or May Apple, in good wood soil grows immensely. It hides its rather pretty flowers by its broad leaves, but its fruits are too good to be hidden. In "Hardy Flowers" you say the fruit is as big as a good Cherry; why, it is as big as a fair-sized Plum, and very good eating too.

Cannas.—"J. G." (p. 91) speaks of Cannas being naturalised in the wild garden, and says, provided a covering of fallen leaves be put over the roots on the approach of winter, various sorts may be grown in perfection. Will he kindly say what sorts he finds to be so hardy? and whether or not he puts leaves enough over them to protect them from being frozen? and if not, how much frost he finds a Canna root can bear with impunity?

Limnanthes Douglasi is not so hardy as *Nemophila phacelioides*. A curious fact about raising annuals from seed is, that many sorts, as *Eschscholtzia*, *Nemophila*, and *Collinsia*, if sown in August will germinate in the autumn, survive the winter, and make fine-blooming plants in spring; and seeds of the same sorts if sown in October will remain dormant in the ground till spring, when they will grow up a full crop; but if you sow seeds of these too early in spring, the chances are that the great majority of them will rot rather than germinate; at least that is what they do with me. Again, some sorts, as the annual Campanulas, if sown in May or June, after the dry weather has set in, will lie dormant in the ground till August or September, when they will come up a full crop.

The *Actæa spicata* var. *rubra*, to which you refer (p. 85), grows wild in American woods; nevertheless, it is a desirable ornamental plant. It has whitish flowers in early summer, and within a few weeks after the flowers fade its berries begin to colour. They are the attraction; they are bright and showy, and last upon the plants for months; they look somewhat like highly-coloured Cranberries. It grows about equally well in open or shady places. The white Baneberry is only worth a place in the wild garden.

Lilium longiflorum Harrisii is perpetual blooming with me, that is, the main crop of flowers appears at the same time as do those of the other longiflorums; after they have passed fresh sprouts come up now and then and blossom.

Tree stumps.—"All lovers of plants, and particularly alpine plants, should beware of tree

stumps," says "V." (p. 109). Why so? Don't you know that our dwarf Cornel or Bunchberry (*Cornus canadensis*), Partridge Berry (*Mitchella repens*), *Dalibarda repens*, Fringed Polygala (*Polygala paucifolia*), Twin-flower (*Linnaea borealis*), creeping Snowberry (*Chiogenes hispida*), Checkerberry (*Gaultheria procumbens*), Gold Thread (*Coptis trifolia*), Club Mosses, as *Lycopodium annotinum* and *dendroideum*, and many other such like plants delight to grow among a crumbling mass of rotting tree stumps. Rambling through the woods and cleared timber lands, I observe that the tree stumps that have decayed to an earthy mass are favourite hillocks of the above named plants, also of *Oxalis Acetocella*, little *Vacciniums*, and others. I have also noticed in Maine and New Hampshire, where old stump fences are mouldering into earthy dust, Bunchberry and Checkerberry form a solid sod, and that, too, in the open sunlight, away from trees or other shading shelter. As many of your readers may not know what a stump fence is, I will explain it: It is a fence made by laying uprooted tree stumps on their sides and close up against each other, the under side of the stumps facing the field.

Packing fruit.—With us, as with you, this is a vital question. In your report (p. 14) you tell us a little about the fruit packing in connection with Messrs. Webber's prizes, but you do not tell us enough. You speak of fresh-dug Moss. I presume you refer to *Sphagnum* Moss, and if you do, am I to infer that you mean newly-gathered Moss, free from Grass, leaves of bushes, and the dead-looking root part of the Moss itself? Also, in what condition of dryness should the Moss be used? Likewise, is it advisable to pack the fruits in Moss only? or would it be preferable to use paper (and if so, what kind of paper?) between the fruit and the Moss? So old and prominent a firm, and such extensive fruit dealers as the Messrs. Webber are, must know from positive experience what is the best way of packing fruits for transmission some distance by rail, and I am sure their views on this subject would be to me, as also to many others, valuable and appreciated information. We want their experience as to packing Grapes, Peaches, Figs, Strawberries, Currants, Pears (fast ripening), Apples (early), but especially Peaches and Strawberries. Tell us in what sort of punnets or boxes they are packed, and how many layers are in a punnet, whether these boxes are ventilated or not, and whether the fruits are packed firmly or not.

WILLIAM FALCONER.

Botanic Garden, Cambridge, Mass.

PLANTS IN FLOWER.

FRENCH SWEET PEAS.—Mr. J. Caudwell sends us Sweet Peas raised from French seeds, which he says produce larger flowers than those from English-raised seed growing in his field.

ACACIA SEMPERFLORENS.—A very vigorous form of the common *Robinia* comes to us from Mr. Stevens bearing the above name and in good bloom. The varieties of the American Locust seem to be promising.

CEANOTHUS GLOIRE DE VERSAILLES.—In September this still comes to us full of flowers. It is accompanied by two other varieties. The French are raising good varieties of these graceful shrubs, which are excellent for warm soils and positions. From Grasmere, Byfleet.

CLEMATIS MADAME GRANGER.—This comes to us from Messrs. Veitch's nursery at Coombe Wood, and is remarkable for the depth and beauty of its fine colour, a maroon-purple. The outside of the flower is of a greyish colour. It seems a very beautiful species, and likely to be useful if free in habit.

EVERLASTING FLOWERS.—The common *Helichrysum macranthum* we fear we have been inclined to undervalue. Like many other annuals, it suffers from neglect in raising and in subsequent culture. But seeing it in a number of varieties

and finely grown in Kelsey Park lately, we were convinced that it deserves a front place as an autumn flower. The colour of the varieties is generally excellent, ranging from a pure pale canary and the most delicate of creamy buffs to fine orange and crimson kinds.

POLYGONUM SACHALINENSE.—Mr. Stevens sends us this in flower. Though so large in leaf, the flowers are not so large or showy as the Japanese *P. cuspidatum*, but they are interesting, coming in dense bunches and of a very delicate green. The plant is worth a place for its fine foliage and bold habit.

CLERODENDRON DICHOTOMUM.—We have this from Messrs. Veitch, who tell us that it is not only hardy, but very fragrant. The plant grows freely, forming a large, globose, dense bush, every shoot of which terminates in large corymbs of flowers like those sent. It flowers freely. We have long known one or two forms of this usually stove family in the open air, but this is a novelty.

PERPETUAL CARNATION.—A lovely scarlet perpetual Carnation comes to us from Mr. Knight. The Oaks, Epsom. It is not remarkable for large size, but is extremely bright and free from flake or streak, so common in some of the scarlet Tree Carnations. It is, in short, a pure self, of which we have too few, and as it is stated to be an unusually free bloomer, we hope that it may be taken care of.

AGAPANTHUS MOOREANUS.—Under this name a small-leaved variety of *A. umbellatus* is sometimes to be met with. At Kew there are two plants of it, and we much admired the dwarf compact habit of the foliage and the slender bright blue flowers of this minor form. Where room cannot be spared for the larger kind, or where it is considered too coarse for indoor work, this handsome, compact little variety will be likely to give satisfaction.—B.

ANEMONE FULGENS, planted in the end of May in a partially shaded situation, is now a sheet of bloom; the colour is as brilliant and the flowers as large as those which this grand *Anemone* usually produces in March and April. It may not be generally known that this beautiful *Anemone*, and also all the single forms of *A. coronaria*, may be had in bloom at pleasure by planting the roots at intervals from August to June.—PETER BARR.

SNAPDRAGONS.—Mr. J. Caudwell, of Wantage, who seems determined to support well the cause of hardy flowers in Berkshire, sends us a number of these, and asks our opinion of them. We prefer the few selfs, though evidently they are not so popular as the poor washy, spotty kinds with which this fine plant is now infested, so to say. It naturally has fine colour—the yellows particularly are good—but the tendency is to raise striped and variegated kinds, which when placed together produce a weak, poor effect.

DOUBLE GAILLARDIAS.—We have received from M. C. Lorenz, of Erfurt, a boxful of blooms of his double *Gaillardias* for the purpose of showing that a correspondent, who wrote against them some time ago in THE GARDEN, could not have got the true strain. The blooms sent are certainly bright and beautiful, and perfectly double. They measure some 2 in. across, each of the little florets composing the head being yellow and red at the base, colours which give the blooms a bright and attractive appearance. As cut flowers they will be invaluable.

FUCHSIA RICCARTONI.—Nothing in the way of hardy autumn flowering shrubs can match this old favourite *Fuchsia* this season; it is flourishing and flowering everywhere in this locality (Wilts) exceptionally well. I have huge bushes of it from 6 ft. to 8 ft. high, and from 8 ft. to 10 ft. through, literally laden with flowers. It is difficult to conceive anything so beautiful as these huge bushes are just now; they are growing on a sloping bank, and show themselves off to the best advantage. Such a position seems to suit their habit and growth to perfection. The past winter was so mild and free from severe frosts that last season's growth was not cut down to the ground, as is

usually the case with Fuchsias; hence the reason of old plants being uncommonly large and fine this autumn. *Fuchsia gracilis* is also unusually large and profusely flowered, but cannot compete with *F. Riccartoni* in any sense.—G. B.

SINGLE DAHLIAS.—Mr. Ware sends a number of his large collection of single Dahlias, the merit of which for our gardens is now everywhere recognised. We hope further real improvements may be obtained. The fact that there is now a demand for any beautiful single kind should stimulate raisers, as when only the double ones were tolerated the raiser had nothing to look for as regards his single kinds which were numerous.

IXORA DUFFET.—One of eight trusses produced on a medium-sized plant by Mr. Cole, gardener to Mr. James Lawless, of Exeter, is sent us by Messrs. Veitch, who introduced this very brilliant and vigorous plant. It was figured in *THE GARDEN* soon after its introduction, and we are pleased to have evidence of its high merit in cultivation. At night its colour is superb—a fine coral-red, which puts other showy flowers near into the shade.

AUSTRALIAN ORCHIDS.—We send you the first flower from a species of terrestrial Orchid from Australia. It is a *Caladenia* of some kind, and is very interesting. You have the whole plant cut from top of the tube. These terrestrial Orchids repay any trouble in growing them. This and *Diuris lilacina* represent two very interesting families.—F. H., *New Plant Company, Colchester*. [An interesting little Orchid, a variety of *Caladenia Patersoni*.]

ORCHIDS.

HEXTABLE HORTICULTURAL COMPANY, SWANLEY.

LESS than twelve months ago the ground on which this establishment now stands was devoted to the production of vegetables, and yet, owing to the energy of Mr. Martin, the manager, and the business-like manner in which the company is conducted, it has already the air of a thoroughly established concern, and a healthy and valuable stock has been got together. The place is devoted almost entirely to Orchids, although in two of the houses other plants are grown, which are only waiting to be displaced by the rapidly increasing Orchid stock. The houses at present existing (but to be added to shortly) are six in number, commodious, span-roofed structures, each 50 ft. in length, and running north and south. They are admirably heated by Messrs. Kinnell and Co., of Bankside, who have placed two of their 7 ft. long flued saddle boilers side by side for that purpose, a more than usual quantity of piping being placed in each house, so that a regular gentle heat can be maintained even in the coldest weather without driving. By these means it is said the atmosphere in the houses in the dead of winter is as pure as in the summer, when but little artificial heat is employed, a circumstance which, coupled with the naturally good air of Swanley, may lead us to expect to see many good things exceptionally well bloomed there. Mr. Martin's object is to go in for quantities of good things chiefly fresh imported, to grow and flower them well, so as to obtain some of those rare and valuable hybrids or fine varieties which are now so frequently obtained, and to use the ordinary varieties for cut flowers, a branch of the business in which the company is particularly interested.

The first house is a moist, cold one, containing upwards of 10,000 *Odontoglossums*, chiefly unproved, but at the further end are some very rare named varieties, some of the best plants of *O. Mulus*, &c., in the country being there. How interesting it is to watch this host of fresh comers knowing that new things are among them, but also knowing that it is idle to speculate as to which are good and which bad. Last month I saw two that had been condemned, one of which had been sold for a few shillings; these two on blooming fetched seventy guineas, while another fine plant which several had agreed must be distinct proved a very bad *Odontoglossum crispum*.

The second house is filled with *Tuberose*s in full bloom, and their beauty and fragrance, and the regularity of the spikes render them worth a journey to Swanley to see. Culture has all to do with the flowering of these charming plants; few things are so badly done in private places generally, and even in trade establishments they often fail. I know a place in which this year they have proved a complete failure, though supplied from the same stock from which the Hextable plants came. Mr. Martin pots his in turfy loam in 4½-in. and 6-in. pots, and places them on a gentle bottom heat, at the same time giving a little air to keep the house from getting too hot. If kept too close at first, he says, they run too much to leaf. The third house contains upwards of 3000 plants of *Lycaste Skinneri*, all of this year's importation, yet all growing and rooting freely, and many of them in bloom or bud. I may safely say I never saw such plants before. They are now growing cold, as the *Odontoglossums*, but is intended to winter them at about 55°, a temperature in which they should thrive well. I hope that now we have some good importations of this showy Orchid we shall manage it as well as we now do *Odontoglossum Alexandræ*. Managed well, it is easy to grow, and as the flowers are very showy, various, and lasting from six weeks to two months, it should be grown in quantity. The fourth house is occupied by *Dracenas* and *Palms*, one side being filled with beautifully coloured plants of *D. terminalis* and *D. stricta* from 1½ ft. to 2 ft. in height. With all the new varieties raised and imported, nothing has ever yet been obtained equal to these two varieties and *Cooperi*; indeed, it would be difficult to conceive anything so bright and high coloured as these *Dracenas* are at Hextable, and Mr. Martin shows good judgment in keeping to old favourites. They are grown in small pots on bottom-heat until they are coloured, when they are hardened off ready for use.

In the last two houses are some fine plants of the lovely white *Cattleya Wallisi*, *Phalenopsis*, and other Orchids in bloom arranged over *Adiantum cuneatum*, *A. gracillimum*, and the new dwarf *A. Pacoti*, and, though not in bloom, some grand masses of *Oncidium Marshallianum*, *Cattleya Trianae alba*, *Lælia purpurata alba*, *Cypripedium Maulei*, *Cattleya Dowiana*, *C. Mendelli*, *Lælia elegans*, a fine batch of *Cœlogyne cristata alba*, and other good things in that way. Between the plants on the bed in one of the houses were some thousands of young plants of *Cocos Weddelliana* and *Geonoma gracilis*. The whole stock shows the difference between country and London air in putting vigour into the plants. Outside are quantities of *Chrysanthemums* and *Roses* for cut bloom, and a good batch of the pretty *Rubus roseæfolius* fl.-pl. well set with buds. JAMES O'BRIEN.

Harrow-on-the-Hill.

THE A B C OF ORCHID GROWING.

(LYCASTE SKINNERI.)

MANY, perhaps we might say the greater part, of the cool Orchids are winter flowering, and on that account are all the more valuable. One of the best in this respect is *Lycaste Skinneri*, which not only produces its flowers in winter, but, if well treated, flowers abundantly at that season, when the more gorgeous *Cattleyas* are resting. It has this disadvantage, that the flowers are borne solitary on their stems, which are generally about 6 in. high. It must be acknowledged that this Orchid, though very beautiful, is by no means so lovely or so rich in its colouring as other popular Orchids, but it has its own special advantages, which in great measure make up for want of brilliancy. The flower has great substance; it is thick and fleshy, and on this account lasts for a long time. For the same reason it will bear a great deal of knocking about without much injury. *Lycaste Skinneri* may be called the drawing-room Orchid, for it might, no doubt, be grown with a little care in an ordinary sitting-room. If not grown in the room it will bear with perfect impunity being brought into it when it is in flower. This is a very great advantage. At great houses

we have all seen Orchids brought in for room decoration—*Dendrobies*, *Epidendrums*, *Calanthes*, *Cœlogynes*, and others, but a visit to the gardener at those houses would often reveal the fact that his temper is sorely tried when the plants are brought back in such a plight that they have to go into hospital for some time to recruit, and very likely never recover from the effects of drying fires and possibly gas-lighted rooms. But *Lycaste Skinneri* is one of those good-natured things which will put up with a great deal. *Palms* and *Lapagerias* are said to be the most long-suffering of plants. *Lycaste Skinneri* is almost as hardy and vigorous. But how is it grown? The fact is that after being once well and properly potted, it is one of the very easiest things to grow. The secret of growing it well is simply to keep it always moist and always cool. It is the coolest of cool Orchids, and more artificial heat than you would give a *Cineraria* is unnecessary. It likes the warmth of a warm greenhouse in spring and early summer when it is making its first growth, but no more.

Suppose you buy an imported specimen, looking dry, but healthy and sound. Pot it in the usual way in lumps of fibry peat, *Sphagnum*, and charcoal, putting the chopped Moss carefully on the top, so that it may take root and grow rapidly. Then be careful about giving too much moisture till you see the new growth appear, when watering may be gradually increased, chiefly from the syringe, with now and then a careful clip. By-and-by, when the large leaves begin to unfold, it is wonderful how much water this Orchid will take and enjoy, especially if it is growing in the light just shaded from the direct rays of the sun. I believe one of the best ways to grow this and many other Orchids is to suspend it under clear glass in a south aspect with a sheet of white tissue paper to shade it slightly from the sunshine. Of course this is a plan which would only be suitable when a small number of plants is grown, but, when convenient, it is useful.

Lycaste Skinneri is a gross feeder, not of course like some other very rapid growing greenhouse plants, such as *Calceolarias*, which can scarcely have too much liquid manure, but it undoubtedly likes guano water, and when it is making its growth, a judicious use of it will make an immense difference to the size and vigour of the leaves and pseudo-bulbs. Moreover, a few bits of perfectly dry old cow manure, inserted here and there amongst the Moss and charcoal at the top of the pot, will prove to be a great source of strength, for the young roots will run into them and derive much benefit thereby. When the growth is finished the moisture given may be decreased, but the plant must never be altogether dried; it should be kept, if possible, in a cool, moist atmosphere and always damp. When the flowers come out it is necessary to be very careful that they do not get splashed with spray from the syringe, or by drip, for they will not bear it, but soon become spotted and utterly spoiled. The drier the atmosphere when the flowers are out, the longer they will last, but the health of the plant itself must always be considered.

As the plant gets established, the *Sphagnum* may be allowed to grow up amongst the pseudo-bulbs. It looks well in itself, and the fresh-growing Moss apparently is conducive to the health of the Orchids. It certainly adds to its interest and beauty.

This is one of the cheaper Orchids, and yet it keeps up its price well in the market, probably on account of its habit of flowering in winter and its hardy temperament. The far more beautiful white variety, *L. Skinneri alba*, is so scarce, that it is too dear for ordinary gardeners. But as it is said to be no more difficult to grow than its more plentiful cousin, we may hope that ere long it will be sold at a reasonable price. There are a great many varieties of *L. Skinneri*, some much more beautiful than others. In imported plants we must take our chance about that. But there is no small interest in watching the opening of the slowly-formed flower to see whether, after all, it is worthy of the care which has been bestowed upon it. We might say that it is certain to be worthy of it, but

not always equally worthy. However that may be, we are quite sure that those of our readers who are successful growers of *Lycaste Skinneri* will not be disappointed with the fruit of their labours.

J. L. S.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J., SURREY.

AUTUMN colours are appearing in many leaves, supplying handsome additions to the glowing colours of the later flowers. Single white Dahlias are beautiful with red-tinted leaves of Chinese Peony, and Gloire de Dijon Roses with those of Virginian Creeper. Green-leaved wreath-like sprays of the same useful plant garland a bowl of brown earthenware that holds flowers of the splendidly decorative Cactus Dahlia. A tall glass has *Helianthus maximus*, the black-stemmed variety, cut 3 ft. long, with double and single perennial Sunflowers. Flowered branch-tips of Catalpa are handsome in a large blue jar. A table bouquet of delicately refined beauty is of Macartney Rose, with plenty of its brightly polished foliage, and one or two small sprays of *Clematis Flammula*. Red-tinted Carrot leaves are useful with many flowers; in a bouquet of rose-coloured and white Scabious they are doing good service.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Housing greenhouse plants.—The time to which it is safe to allow greenhouse plants to remain out of doors varies with the different parts of the kingdom; but it is not advisable to run any risks in this direction, for even a few degrees of frost, although it might not do more harm than affecting the points of the young shoots and bronzing the leaves, still it is much better to avoid this, as any injury in this way not only causes an unsightly appearance, but its effect is usually long apparent. The kinds least able to withstand a low temperature should be first taken in, such as *Pimeleas*, *Boronias*, *Leschenaultias*, *Chorozemas*, *Hederomas*, *Pleromas*, *Swainsonas*, *Aphelaxis*, and others of a like nature, leaving *Acacias*, *Neriums*, *Camellias*, *Heaths*, *Eriostemons*, and the more hardy section generally to the last. Avoid over-crowding, and elevate each plant sufficiently up to the glass. This last is not alone necessary to give them the most light possible, but it has the additional advantage of allowing a better circulation of air to the under branches, which, even in the winter months when there is little growth going on, is nevertheless necessary. See that each plant is quite free from insects and mildew, either of which, if present, will spread and increase, and become a source of injury to all they affect.

Hydrangeas.—There are different seasons for propagating these—spring and autumn. Such plants as are forced in spring usually make a considerable number of side shoots at the bottom. Plants struck from these and now in 3-in. or 4-in. pots, and that have been fully exposed to the sun and air, will now have a strong flower bud at the extremity; they will be better out in the open air for some time yet until the leaves are about ready to fall, when they should be put under glass where frost can be excluded either by fire heat or covering with mats. Where spring propagation has not been followed or where there is any deficiency of stock, the points of the shoots consisting of three joints if now taken off plants turned out in the open air will strike in a little bottom heat, keeping the tops quite cool by the admission of air; this latter precaution is necessary to prevent their making top growth, which would destroy their blooming capabilities. When propagated in this way the cuttings should be put singly in 3-in. pots, which will be big enough for them to remain in until they are about being started to force in the winter or spring, just keeping the soil sufficiently moist to prevent the roots suffering. For greenhouse decoration these single

stemmed *Hydrangeas*, with their large heads, are amongst the most useful hardy plants that are used for forcing.

Cinerarias will now be making more progress than earlier in the season, as they like a moderately cool temperature; they are better kept in cold pits or frames for the next two months than stood, as often seen, on dry shelves in larger structures. A moist bottom for them to stand on is desirable, such as that afforded by a bed of ashes. They should be examined frequently to see that they are free from aphides, on the detection of which, means ought to be at once taken for their destruction, otherwise the plants will lose their bottom leaves, the presence of which in a fully developed and healthy condition is requisite to their well-being, as also to their appearance. If the earliest lot are not yet in their blooming pots they should be immediately put into them; 6 in. or 7 in. diameter are large enough for all purposes, if they are well supplied with manure water as soon as the roots have got fairly hold of the soil. If the smaller succession stock are large enough to move to the pots in which they are to flower, it is better to shift them than to allow the roots to get much matted, for if *Cinerarias* ever become at all stunted, in whatever stage of growth they may happen to be, they never move so freely afterwards.

Nerines.—Although comparatively little grown, these fine bulbous plants are amongst the handsomest flowers in cultivation. Half-a-dozen good specimens, containing eight or ten strong bulbs each, give an effect at this comparatively flowerless time of the year such as not many things are capable of. Let them now be well supplied with water, so as to keep the roots fairly moist, and give them all the light possible, which will intensify the colour of the flowers.

ORCHIDS.

J. DOUGLAS, LOXFORD HALL.

East India house.—With the shortening days the influence of the sun is not so much felt as it hitherto has been, and therefore it is not necessary to shade so much. In order to save trouble we put permanent shades on the sides and ends of the houses, and we still retain the shading on ends or sides exposed to the direct rays of the sun about mid-day, but it has been removed from the east and west sides. The roof shading is let down as often as it is necessary to protect the plants from hot sun, but we do not allow it to be down longer than is absolutely necessary for that purpose. The attention which the plants require must now vary according to the genus to which they belong. We grow a miscellaneous collection in our house; in the warmest end, or rather corner, for one corner even in the warmest end is a few degrees warmer than the other, the different species of *Phalanopsis* and heat-loving *Cypripediums*, such as *C. Stonel*, *C. niveum*, &c., are placed; next to them come *Odontoglossum Roezli* and the different species and varieties of *Cattleya* that love heat. *Laelia elegans* and *L. purpurata*, I fancy, prefer a few degrees warmer temperature than that of the *Cattleya* house. If these are grown in the coolest end of the East India house, it will soon be found that *L. purpurata* has started to grow from the base of the last bulbs that flowered, and very soon young roots will start from them. I find this to be a good time to repot any plants that require it. *L. purpurata* forms thick fleshy roots freely when in good health and requires plenty of space. If the plants are rather pot-bound the roots will be attached to the sides of the pots, and it will not be possible to remove them without breaking the pots, and even that must be done with gentle taps, removing the potsherds carefully. If the pots are of large size they ought to be filled to two-thirds of their depth with clean potsherds; over these place a layer of clean Sphagnum Moss, and then repot in a compost of good fibrous peat and Sphagnum, the peat predominating; mix crooks and bits of charcoal with the compost. A word about *Vanda* teres.

This plant ought yet to be in the hottest and sunniest part of the house, and it ought to be syringed over-head daily with tepid water. What a long time it lasts in flower! We had two spikes this year, one succeeding the other, and the two have been in bloom for nearly four months; one of the spikes even now is as good as ever it was. We grow our plants in clean crocks with just a little live Sphagnum on the surface, but the largest proportion of roots is formed above the Sphagnum; they cling to Teak rods, and seem to draw sustenance from the moist atmosphere of the house. The temperature should not be less than 65° at night.

Cool house.—*Odontoglossums* and *Masdevallias* are the principal occupants of this house, and it is necessary to give the treatment best adapted to their wants. As a rule, most of them are making their growth, and require a moist atmosphere and plenty of water at their roots. *Odontoglossums*, such as *O. Pescatorei*, *triumphans*, *crispum*, *citrosum*, *Halli*, and *Oncidium macranthum* are making their growth just now, and the pseudo-bulbs are in various stages of development. No rule can be laid down for potting them; in our own case we do it when we can, but the best time is after they have done flowering, and when the next growth has started. They may be shifted, if they have previously been in small pots, without disturbing the roots much, but if they are large specimens and have been grown in good sized pots, the compost is apt to get sour; in that case it is best to remove it. Sometimes I have washed off all the compost; this is easiest and most safely done by dipping the ball of roots and compost in a pail of water and working amongst the roots with the fingers until all the sour material is separated. Then lay the plants out for an hour or two, so that the roots may be comparatively dry before re-potting. It is best to under-pot rather than over-pot. As a rule all *Odontoglossums* and *Masdevallias* require a compost of equal parts of good turfy peat, Sphagnum, and broken pots, with some charcoal added to it. Insect pests must be destroyed by dipping the plants as previously recommended, and not by fumigating. Tobacco smoke may probably do more injury to the plants than to the thrips. Still, some good growers fumigate their Orchids, but it is usual to drop a little flowers of sulphur into the axils of the leaves where the thrips are; this turns them out, and they fall an easy prey to the smoke.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Hardy fruits.—Notwithstanding the lateness of the season, the early kinds of fruit are becoming fit for gathering quite as early as usual, and where this is neglected, such varieties as Williams' Bon Chrétien Pear and Irish Peach Apple, probably owing to the low temperature of the soil and atmosphere, fall from the trees before they have attained their normal size or state of ripeness. As this state of the crop does not speak well for the quality of the fruit, timely attention should be devoted to lifting, root pruning, and replanting in fresh compost best calculated to induce the formation of an abundance of healthy feeders before the leaves fall. In all cases, where a bearing tree is lifted or a young one planted, ample drainage is very important, as it favours the free passage of water in cold, wet summers, and the compost being rough and free from manure it can always be kept moist and healthy by means of mulching in dry, warm seasons. Where our advice as to the thinning of the shoots of Peaches and Nectarines on walls has been neglected, it will be well to look them over after the fruit is gathered, and to remove every shoot that is not wanted for another year. Those left can then be nailed or tied in close to the wall and well syringed to cleanse the foliage from insects, as perfect buds cannot be secured where the leaves are injured or destroyed before the wood is ripe. The gathering of Apples and Pears will now claim daily attention. Unfortunately, they are not very abundant, and the

few we have should be secured as they become ready, and before they get injured by falling from the trees. It does not often happen that every fruit on a tree will part freely at the first picking, but by taking all that are ready, and by leaving the most backward, a valuable succession of all kinds may be secured. If late Plums, which it is thought advisable to keep as long as possible, are not well coped, the temporary coping boards used in the spring may be placed over the trees for the two-fold purpose of throwing off wet and carrying the netting which it will be necessary to suspend where wasps and birds are troublesome. Wasps in this locality are unusually troublesome, and, fruit being scarce, they make short work of a tree of the first quality when they commence upon it. Next to glass lights reared up in front of the trees, Haythorn's hexagon netting is the best material we have yet met with for preserving the fruit, as it lets in a large amount of light and warmth, and being deep enough to cover an ordinary wall, it can be put up and taken down in a short time with very little trouble. If not already done, the newly grafted trees should be examined, as the young scions swell rapidly about this time, and unless the ligatures are loosened and the strongest growths are secured to stakes, they are very liable to get blown out by the wind. As the planting season is at hand soil and drainage should be got ready for use, and to secure healthy trees from the nursery they should be selected before the leaves fall.

Figs.—Although many growers of pot trees have a few trees at the warmest end of the house, the mixed orchard house is not the best place for them, as they are so subject to scale and spider, which spreads with fearful rapidity during the time the Peaches are ripening, and as a rule does more harm to the latter than all the Figs they produce can ever repay. It will therefore be well for the amateur to look about for a snug corner where he can erect a case against a south or west wall, and then plant a Brown Turkey or any other moderate growing prolific variety for giving a supply of this delicious fruit through the autumn months. If variety be his object, he may place along the front such kinds as Osborn's Prolific, Negro Largo, White Marseilles, and a delicious variety named Doctor Hogg, all in pots with saucers under them for the reception of liquid manure during the time they are growing and producing fruit. To make the arrangement complete, the roof should be composed of portable or running lights for letting in warm, summer rain, and a flow and return pipe should run along the front for giving off any warmth in cold, wet weather, and to ripen up the wood when the crop is over.

KITCHEN GARDEN.

R. GILBERT, BURGHEY.

TAKING up late Potatoes is now the order of the day. Magnum Bonum is not only thoroughly good, but this year with me the best of croppers, without a speck of disease. Victorias, although a capital crop and the best of table kinds, are not proof against disease. Champions are again a fine crop of really useful tubers. They are best grown entirely without manure. This variety we grow the most of, and find it better and more profitable than any of the older kinds. Onions, Shallots, and Garlic, now being harvested, should be moved daily, an operation done quickly with an ordinary wooden rake. When quite dry do not delay an hour in getting them under cover and safely stored; they are for all culinary purposes, perhaps, the most useful inmates of the kitchen garden. The last week of sunny weather has been, indeed, a treat, enabling us not only to kill weeds, but to get all our Celery earthed up. It is a good plan to give it a good watering before earthing, but, of course, the foliage must be dry before earthing takes place. Keep a sharp outlook for slugs and the Cabbage grub. I always endeavour to have the first row of young plantations of Cabbages nearest the edging as good as the middle ones, and every plant of the same size.

Market growers sow the seed by the half acre, and hoe the young plants out like Turnips; the result is plants stiff and hard at the bottom instead of being tender and drawn up. The most perfect Lettuce plants are, however, got by sowing thinly on the winter Onion beds. Thus treated, they are as broad as they are long. The mode of raising plants may appear to many to be a very simple matter; but to raise them properly requires a little experience. I am this year much disappointed with a certain kind of Celery, which last year was dwarf and really good. This year it is like a young giant, but I have some heads seeding of the right sort. It is quite impossible to get all correct; therefore, take the advice of an old and respected master of mine, and that is, "When you get a good thing, keep it." W. C.

INDOOR GARDEN.

LILIUM CANDIDUM FORCED.

WHERE white flowers are in request early in spring this Lily, when forced, is invaluable. September is the proper month in which to have it potted preparatory for forcing. The word forcing, as ordinarily understood, is indeed hardly applicable to the treatment which it requires. It is, therefore, necessary to say that it will not bear hard forcing; from the time it is potted until it comes into flower it requires very careful treatment, but such as will neither tax the skill nor the appliances of the cultivator. For convenience sake I shall assume that there is plenty of this Lily in the borders which may be had for the lifting. In that case dig them up carefully; preserve all the old roots and pot them at once; choose only the largest and soundest bulbs, put four in a 8-in. pot or six in a 10-in. pot; any kind of soil will suit them if moderately heavy and rich, because they require a fairly good soil to maintain a vigorous growth. As soon as they are potted and have had a good watering place the pots in the shade of a wall or fence and give water as often as they require it. In this position they may remain until the end of October, when they must be placed under cover; a cold pit or frame or any other structure will answer until the end of January. Provided they are just kept secure from frost and kept growing, success depends a good deal upon the treatment which they receive at this time. The main object is to get the pots full of roots, but they will not be thick if exposed to the varying influences of an outside temperature, and allowed to suffer from the want of water. The forcing, as it may be called, is a ticklish piece of business, and all the more so if the bulbs have not been properly prepared. It is useless to hurry them. The beginning of February is quite early enough to begin forcing, and then they ought not to be exposed to a higher temperature than 45° by night, and 50° by day. If the night temperature runs down to 35°, it will be better for them than if it were 10° higher continuously. A light position and a moderate amount of air they must have, or the flower-stems will be very weak and the individual flowers small. To prevent them from becoming drawn, they should be placed on inverted pots, in order to get them as near the glass as possible. As red spider is liable to attack them, they should be syringed night and morning, and the flower-stems should be neatly staked as they increase in height. The common Tiger Lily will thrive under the same treatment, but it does not flower so early by ten days or a fortnight, although it grows stronger and produces more flowers than the white Lily. J. C. C.

Cinerarias (W. R., Arklow).—Your Cinerarias are badly attacked by a fungus named *Trichobasis senecionis*, an ally of the fungus which sweeps off Hollyhocks. The fungus is local, and in some places rare; it has not been met with in Scotland. It usually attacks Groundsel, notably *Senecio Jacobaea*, but it has been known to spread to *Senecio pulcher* and completely destroy it. We have not seen it before on Cinerarias; therefore,

Cineraria growers may well be on their guard against this enemy. If you would send us a brief description as to the present state of the plants, and say when they were attacked, and whether they are grown under glass or not, it would be of general interest. Many useless weeds nurse the fungi that destroy garden plants.

Hypocalymna robustum.—This pretty hard-wooded greenhouse plant, figured in the last number of THE GARDEN, thrives well in good peat mixed liberally with silver sand, and potted very firmly. On no account must it be overpotted. Unlike many Australian plants, it dislikes large shifts. Its habit of growth is very graceful, throwing up, as it does, long spikes of its brightly-coloured blooms. These may be cut back after their beauty is over similar to those of an *Epacris*, leaving the short shoots to form spikes for the next year's bloom. Treated in this way, it will always have a neat and healthy appearance, and form a much prettier plant than is sometimes seen trained round sticks or on a wire trellis. In that case it invariably gets naked at the bottom. It requires careful watering after being cut back, and should then have a position where it can be kept closer than hitherto, and syringed daily for a time in order to induce it to break freely. Afterwards it may have an airy quarter in a greenhouse or cold pit, so as to ripen the wood for next year's bloom.—W. CUTBUSH, *Barnet*.

Lattice-leaf plant.—In the Victoria house at Kew there is a good healthy specimen of this plant (*Ouvirandra fenestralis*) growing in a tub placed beneath a stage in a subdued light. It appears that one of the chief causes of failure with this plant is excessive light, which of course causes *conferve* to grow rapidly, and encase all plants with which they come in contact. By keeping the water in which the *Ouvirandra* is growing well shaded there is no fear of *conferve* attacking it, and the shade appears to agree with rather than injure it. The plant at Kew is in an 8-in. pot, which stands on an inverted pot in a tub about 18 in. deep. This tub is painted white, so as to show the network of the leaves, and as the water is kept clear by means of a siphon pipe, which pours into the tub a continual stream of water, the leaves are well shown up. For soil, any mixture appears to suit this plant, the best being a good loam without any peat, which soon turns sour when placed in water. Some of the leaves on the Kew plant are very large. It appears to thrive better when kept in pots than when planted out. The other species, *O. Bernieriana*, appears to be lost to cultivation, as one never sees or hears anything of it now-a-days.—B.

SHORT NOTES.—INDOOR.

Propagating.—In making a propagating pit inside a span-roofed house, provided the pit is covered with glass, does it matter whether it is far from the roof of the house or not?—R. R. W.

Indoor climbers.—Will some of your readers tell me how to treat *Tacsonia manicata* which thrives well, but never in six or eight years has flowered? also *Bougainvillea speciosa*, which grows most luxuriantly, but we have seen no flowers.—W. H. M.

New Pelargonium (*H. G.*).—Your sport from *Vesuvius* that has proved constant both out of doors and in pots since 1881 is a pretty salmon kind edged with white, and different from salmon *Vesuvius*; still we think we have seen handsomer kinds possessing as near as possible the same colours.

Vallota.—The fine variety of *V. purpurea* about whose name you inquire (p. 224) is generally known as *V. eximis*. It is by no means uncommon, and is in every way superior in size of bloom and in substance and texture of its flowers to the old and somewhat poor and thin-flowered *Scarborough Lily*.—W. E. G.

Glazing without putty. Allow us to direct attention to the fact that our greenhouses glazed on the "Eclipse" patent system were "highly commended" by the judges at the show of the Manchester, Liverpool and Lancashire Agricultural Society, held last week in Preston, that honour being the highest conferred by the society at its show. *PEIRCE & Co., Sheffield*.

FLOWER GARDEN.

GARDENING IN THE LONDON PARKS.

IN the *Gardeners' Chronicle* for August 19 there is a description of the bedding arrangements in the London parks, evidently written by someone who knows nothing about hardy plants, and who does not wish to know anything about them; it might be passed over as that but for one sentence referring to a newly-made mixed border of hardy plants at Hampton Court cut out on the turf, and seen in the same view with various arrangements of tender plants, mixtures, and otherwise. The writer says, "This is a very practical method of testing the popular fancy as well as extending and cultivating a taste for such hardy plants as are worth cultivating for border decoration." To both these statements I think all lovers of hardy plants will demur; to the first absolutely, and to the second conditionally. *Vox populi*, in matters intellectual, is much more often *Vox diaboli* than *Vox Dei*, for the simple reason that for want of intellectual culture the people are more likely to prefer the simple and the stupid, which they can comprehend, than the high and complicated which they cannot. What business have the parks, which are kept up at the public expense, to pander to the lowest tastes? Their designers being free to do as they choose, they ought to be ahead of the times, exponents of every improvement in gardening, instead of lagging behind and endeavouring to continue an obsolete system, discarded by even the humblest cottagers and suburban householders, who are now decorating their gardens with Pinks, Carnations, Phloxes, Pansies, Columbines, Primroses, Polyanthus, Auriculas, &c., glad to be rid of the troublesome tender things, and to get all the old favourites back again.

Hardy and tender plants compared.

—As to the comparison between hardy and tender plants, if made at all let it be fairly made, and not, as I have seen it, between bedding plants, perfectly chosen, perfectly arranged, and perfectly cultivated, and a collection mainly of herbaceous rubbish, receiving nothing in the way of cultivation but what they ought not to receive, and planted without a particle of sense or taste. What would make a perfect comparison at Hampton Court would be to lay out the old-fashioned garden between the palace and the river with hardy plants, so that the bedding and hardy garden could be compared as a whole. Hardy plants do not look happy in beds cut out on closely shaven grass turf; the formality of outline and arrangement does not suit them. Irregular beds breaking into the grass in a natural manner is the best arrangement, so that the plants look Nature-planted. Still, a long border of, say, 10 ft. wide, filled with a careful selection, ought to challenge comparison with any bedding arrangement, and surpass it in changing interest, especially if supplemented with a few hardy and half-hardy annuals, and varied with bush Roses and flowering shrubs. I have seen hardy plant borders newly planted this season which were perfectly absurd—a few tufts of common white and red Pinks, a few bad Polyanthus, some common Daffodils, a few Sedums and Sempervivums, Tradescantia virginica, Veronica spicata, Catananche bicolor, perennial Cornflower, and a few tufts of Arabis and Iberis and variegated Grass. These were intermixed with some spring-planted Sweet Williams and Stocks and some starveling Pansies, and arranged rigidly at regular intervals

along the border, the same space to an inch separating the recurrence of each kind of plant, and that was supposed to be a border of hardy flowers laid out at the public expense.

A hardy plant border.—In one public park I have noted the cultivation of a hardy plant border for the last twelve months. First it received a good turn over with the digging-fork in November instead of being only weeded. There was a great heap of leaves and manure laid up to rot in the winter, and I was in hopes of seeing that laid round the Pansies, Irises, and Pyrethrums, but the whole of it went on the Grass, and was allowed to lie there until the turf was rotted under it in great patches. The hardy plants got no manure of any kind, but the beds that were to be filled with the bedders were turned up rough all winter and plentifully manured in spring, the result being, as already described, a contrast between the bedding system in perfection and hardy plants badly selected, badly arranged, and wholly neglected. How much space in some of the parks is taken up by ranges of glasshouses to protect and propagate the tender bedders during winter and spring, and by shrubberies to hide these plant factories, which if hardy plants only were grown could be thrown open to the public or made decorative. It is no more than the duty of those responsible for the management of the parks to put a stop to the present useless waste of space, time, and money. There is not a park in London where the whole decoration could not be carried out with hardy flowers only, presenting a succession of bloom from April to November, and the effect would, if properly managed, be far more beautiful and striking to the casual visitor and greatly more so to the *habitué* than that of the present system. The alterations required would be next to nothing—merely the reduction of beds to the level where they are raised, or made to resemble banks, while the saving of fuel and labour in the winter would soon pay for even the choicest Lilies and Irises. Hardy plants are expensive in quantity, but why not buy a few and propagate? How many cuttings will a good strong Pansy plant yield in one season? Why, forty or fifty at the least—a whole bed in a single season. Then how many good things can be raised from seed? Four packets of good Carnation seed, costing £1, will yield four hundred plants at the least, and these may be multiplied by at least twelve in one year. Then take biennials, Sweet Williams, Canterbury Bells, Rockets, Stocks, German Wallflowers, Chimney Campanula, Snapdragons, Scabious, and French Honeysuckles; these are no trouble to raise from seed, and, properly planted, take care of themselves till blooming time. How much better to fill the beds with these than with plants which, in a cool season like this, have barely reached the designer's ideal by the middle of August, just seven weeks before we may expect the first night's frost to reduce the splendour of the sub-tropical foliaged plants to the semblance of the rotting seaweed left on the beach after a gale.

Spring bedding and carpet gardening.

—Spring bedding is even a greater mistake than summer bedding, because the plants used for it being hardy would be much better flowering in their natural places amongst later flowering plants, and planting in October ruins most of them, and excludes all the best of them from cultivation. What miserable-looking things autumn-planted Daisies, Hepaticas, Phloxes, Christmas Roses, Primroses, Polyanthus, &c., are compared with the same plants moved to their bloom-

ing places with good balls of earth in the last week of August, or established for years if they require that treatment! and as for the May and June flowering plants, they are out altogether. The very two most flowery months of the year we are to have the blackness of darkness; and in a cool season—and we have many such—no floral display worth looking at until the middle of August. I should think the utter absurdity of the thing only need to be pointed at to be evident to the meanest capacity. Since writing the foregoing I have seen a good deal of the carpet bedding, which is considered to be less objectionable than the usual style of using intense reds, blues, and yellows; it is certainly an improvement as regards colour, but ten times more objectionable as regards formality. The geometric forms are more rigidly defined, and hundreds of yards of turf are, like Dante's vision of Fraud, "depicted o'er with nooses and with shields." It seems incomprehensible that any reasonable being should, in his right mind, come to think that a bed of flowers should look like a combination of a Berlin wool mat with an occasional cart-wheel and Union Jack introduced by way of a change. Admiration or even toleration of such a style of garden decoration evinces utter blindness to the whole beauty of the vegetable world, and ignorance of even the rudiments of what a garden is. People who admire such infantile rubbish should go to school and learn elementary drawing; and when they can draw a Foxglove, or a Burdock, or a Teazle on the scale of Nature with tolerable accuracy, they will be in a fit state of education to discuss the relative merits of geometric and informal planting.

J. D.

Hardy perennials.—I shall feel greatly obliged by your informing me where I can get concise instructions as to the way of planting and laying out flower beds, so as to get the best show most of the year with perennials.—C. S. [The best plan is to search the list of plants in flower every week published in THE GARDEN for several years. See also, at different seasons, places where the plants you are interested in are well grown and arranged.]

SHORT NOTES.—FLOWER.

Dahlia Zimapani. Will someone who knows the origin of this new plant be kind enough to tell us if it be not really the same as an old friend long known as *Bidens atro-sanguinea* or *B. atro-purpurea* in gardens?—W.

Pelargonium Paul Jacobi.—This is a brilliant kind, very firm in the substance of petal. We have noticed it particularly of late from the way in which it bears up under rains that soon destroy the flowers of most other kinds.

Gladioli and Irises from Haarlem.—I send you a sample of flowers of one of our new Gladioli belonging to the floribundus type, and of two varieties of Iris biflora.—J. H. KRELLAGE. [The flowers were not recognisable after their journey; masses of pulp, in fact.]

Seedling Dahlia (J. C. T.).—A beautiful single variety well worth preserving. The bright yellow tuft of stamens in the centre and the violet shade, like that of some Cacti, towards the extremities of the rich crimson-scarlet petals set the blooms off to great advantage.

Unseasonable flowers.—Here in Lancashire Polyanthus have been blooming ever since March, and Auriculas turned out of pots after flowering have bloomed throughout the whole of the summer. Many other flowers, too, are singularly out of season this year.—J. E. WAITING, Grange.

Begonias out of doors.—We have heard a good deal of the merits of Begonias for bedding, but the examination of some gardens where they are used leads us to think they are without any merit. Even in good situations south of London they look wretchedly dull. In the greenhouse in baskets they are admirable.

ORNITHOGALUM ARABICUM.

AMONG the species of *Ornithogalum* worthy of culture this is the finest, yet it is a plant but little known even in the best gardens, and it is only within the last few years that it has been grown largely in some of the hardy plant nurseries about London—a singular fact, seeing that so long ago as Parkinson's time it was in cultiva-

black, the contrast is very striking. It flowers in May in the neighbourhood of London, continues a good length of time in perfection, and is particularly well adapted for cutting, for which purpose it should be grown largely. During the early part of last summer a bed, containing some hundred plants of it in full flower, in the Tottenham Nursery was particularly attractive.

stems grew nearly 3 ft. high, and bore huge clusters of bloom. As a pot plant, too, it is a beautiful object for conservatory decoration. Good-sized bulbs of it should be procured in autumn, potted some three or four together in a 6-in. pot, and kept rather dry until the leaves appear in spring, when the bulbs should be well watered, and occasionally with weak manure water. After flowering the



Ornithogalum arabicum.

tion, and an early number of the "Botanical Magazine" contains a tolerably good representation of it. When well grown it is a very fine plant, attaining about 2 ft. in height. It bears but few leaves, and the flower-stem is slender, terminated by a broad flat cluster of blossoms, as shown in the annexed illustration, prepared from a fine specimen in the Hale Farm Nursery, Tottenham, where it is better grown and in larger numbers than we have elsewhere seen it. The flowers are pure waxy white, and the centre being greenish

The bulbs were planted rather closely together, and the mass of spikes, top-heavy by the weight of the large heads of flowers, waving gracefully with the slightest breeze, produced a most beautiful effect. In warm localities planted in light soil it is perfectly hardy, but in order to grow it in perfection the bulbs should be well protected during severe cold and encouraged in growth by stimulating manure. The finest plants of it were growing in a narrow border of light sandy soil at the foot of a south wall. Here the

plants should still be taken care of and kept moist until the foliage has quite decayed. If grown in one mass in a bed in the open air, some kind of half-hardy annual should be planted with it in early summer, so as to avoid a blank space after the foliage has died down. W. G.

Miniature Spiræa.—The plant described under this name in your last issue but one (p. 202) is doubtless *Spiræa crispifolia*, as some plants

bearing this name and only 2 in. or 3 in. in height which I met with the other day at the Stanstead Park Nursery were covered with tiny bunches of what had been bright rose-coloured flowers some ten days or a fortnight ago, as was evidenced by one of their number somewhat later in developing itself than its fellows, and which was just showing colour. This variety, from its extreme dwarfness and freedom of flowering when in quite a small state, must be quite a gem for the adornment of the rockwork garden.—W. E. G.

HARDY CYCLAMENS.

THESE are flowering very freely in the open ground just now, as, indeed, they do every year with us. The varieties now in bloom are *C. hederæfolium* and *C. europæum*. Early in spring *C. coum* will succeed them. Hardy Cyclamens are most useful plants; they never fail to flower. Severe frost does not injure them, and they will grow in almost any kind of soil or position, but to be appreciated they should have a narrow border to themselves close to a main walk, so as to be immediately under the eye. When out of flower the leaves even are handsome; in fact, I hardly know which are most to be admired, the leaves or the flowers. Shortly after the leaves are gone the flowers appear; therefore they may be said to be always in full dress. Those who intend to commence cultivating them should plant them at any time when they are out of flower, but undoubtedly the best time is the month of August, just before they come into bloom. The soil should be examined; if very hard and lumpy, it must be broken up and made fine. Any ordinary kitchen garden soil will grow them equally well as any other. In planting, put the crown of the bulb just under the surface. My first stock of Cyclamens was raised from seed some years ago, and although somewhat tedious work, I managed to get some small flowering bulbs in two years. I have, however, learned since that my management was not quite right. I treated the young plants too kindly by growing them under glass the first year. This is unnecessary, as they do better in the open air. It is quite necessary to sow the seed in a pan, and keep it in a pit or frame, but as soon as the plants get large enough to handle, they do best planted out where they are to remain. If planted 6 in. apart each way, they will want nothing more done to them for four or five years, except it be a sprinkling of fine soil over the bulbs just before they come into flower. At the end of five years the bulbs will have grown to a large size, and will have become crowded; then they will want a change of soil. In dealing with the varieties I have named, they may be safely taken up and replanted early in the month of August. Each bulb should be lifted separately, and when all are taken up, the old soil should be taken away and fresh material substituted. This is assuming, of course, that they are to be replanted in the same position. If they can be transplanted elsewhere, that would give them a change of soil without further trouble. In replanting large bulbs they must be placed farther apart than small ones. Nine inches from each other is not too much for bulbs from 5 in. to 6 in. in diameter, as that distance will only give them sufficient room in which to develop their handsome foliage.

J. C. C.

Siebold's Plantain Lily.—This exquisite plant (*Funkia Sieboldi*) combines all the good qualities of a flowering and fine-foliaged plant in one, and is very beautifully scented as well. Anyone who has seen the large sub-tropical beds in the London parks, edged with this noble plant, will hardly need to be reminded of its suitability for edging, as its fine foliage and drooping Lily-like flowers stamp it as one of the very best of hardy plants. It also makes an excellent pot plant, and under glass its exquisite fragrance is more apparent than in the open air. We have some large pots full of them, either for foliage or flower, are able to hold their own against *Eucharis*,

or any of the tropical plants that frequently show but a poor return for what is expended on them; indeed, this beautiful plant only need be tried once to recommend itself. It will grow in almost any kind of soil, and the longer it is left undisturbed, the finer will be the display of both foliage and flowers. Top-dress it annually, and you will say it is the best of fine-foliaged hardy plants. Keep a few large pots for the decoration of the conservatory, and, although the leaves will be smaller, the flowers will be purer and more fragrant, so that either as a flowering or fine-foliaged plant, Siebold's Plantain Lily will be sure to have its admirers, and to become one of the most popular of plants.—J. G.

Bedding Pelargoniums.—These have this year fully held their ground as flowering plants. The early part of the season was cool and moist, and while the tender subtropicals and carpet bedders were languishing from want of heat, the Pelargoniums were making good progress; therefore they filled the beds early, and latterly they have made a brilliant display. I have especially noted that when planted in poor ground they are far more floriferous than in rich, highly-manured soil. In the latter they all run to leaf; of course, in the case of such as have pretty leaves or are of a slender or delicate habit of growth rich soil is an advantage, but with sorts grown for their bloom the ground must not be made rich. There is now such a variety of sorts in every shade of colour, from clear white to the most intense scarlet and every shade of pink, that a flower garden without Pelargoniums would be ineffective indeed. The fault hitherto has been too much of a good thing. As regards Pelargoniums for winter decoration, it is now time to get the stock of plants that have had their blooms pinched off during the summer brought under glass and set in a light, airy position where they can be well supplied with moisture at the root. Cuttings in pots or boxes must also now be put under cover and kept moderately dry. Pick off decaying foliage and stir the surface soil; keep them well ventilated, so that may they make plenty of roots, but not much top growth. As soon as the tops begin to grow pinch the points out, so that they may each develop four or six shoots—the foundation of a neat little bush for next year's display.—J. G. G.

Daisy culture for market.—Throughout this district, where cottagers as well as trade growers in all directions grow Daisies for market, all are just now busy in pulling their stocks to pieces, and dibbling them out into fresh soil for increase. Where the ground is good it is the rule to do this twice in the year. First in May after the winter stock has been cleared out as far as is safe, the remaining plants, usually the weakest in the beds, are lifted, parted, and replanted for the summer. The inducement thus thrown upon the plants to make new roots from the summer growth causes them to become well established, and even in dry, burning soils the plants suffer but little from the summer heat. The planting now is consequent upon the good growth made during the summer, and the stock is increased by division about sixfold. The past summer has been an exceptionally good one for not only Daisies, but all kinds of hardy spring-blooming plants, and no doubt the special benefits resulting from the extra strong growth made will be evident this year. Perhaps it is largely owing to this and the now prevalent rains that Daisies are being divided earlier than usual, but early planting means strong early-blooming material in the spring. Many thousands of the large red and white are sold at 6d. per dozen, and by the piece of several hundreds even cheaper than that. Even at that price, however, from 8s. to 10s. per rod of ground may be made, and the soil used for the growth of a summer crop. It is strange that none of the growers have taken to the *Acubia*-leaved form to any extent, but they regard it with distrust, as it is at times shy, and sometimes reverts. If the best coloured plants be always selected for stock, however, that defect is avoided. Market growers sell their best coloured plants first, and leave the uncertain ones for stock, and hence, deterioration

soon ensues. As a market commodity, it seems as if planters will never tire of the Daisy, and certainly it is one of the most charming of hardy spring flowers.—A. D.

Habenaria viridis.—"W. H. A." speaks of this Orchid as "extremely rare," but as it occurs in forty-four counties in England and Wales and twenty-five in Scotland, this is hardly correct. That it is local and seldom very abundant, may be admitted; but it is found readily on our South Downs in East Sussex, and also near Hastings. I have also gathered it near Braemar, in Aberdeenshire. It flowers in June, and is here only 4 in. to 6 in. high, so that it easily escapes notice from its colour, differing but slightly from that of the surrounding turf.—"F. C. S. R.," *East-bourne*.

CARNATION SWINDLES.

MR. SMITH, who writes so pathetically as to how he has been victimised by the sharp dealers in single Carnations, usually called "Jacks," has himself somewhat to blame, for anyone at all conversant with named Carnations and Picotees must know that they cannot be offered at 5s. per dozen, much less be hawked about the country by peripatetic dealers. The best preventive of such transactions is to enlighten the community as to the nature of the plants offered and of their origin. Of course all the plants so sold are seedlings and single. If Mr. Smith had examined those offered to him before purchasing he would have noted that there was a suspicious resemblance in the appearance of the leaves, or grass as it is technically termed, sufficient to put anyone on their guard. This feature arises from the fact that the dealers prefer those having broad leafage, and thus the growers select and breed specially with that object in view. Near to me many thousands of these single Carnations, which are best known about here as "Jacks," are grown, and just now large breadths of them raised from seed sown in the spring may be seen in all directions ready for hawking next spring. Many are sold by honest hawkers and also by the growers for what they really are, mere single kinds; and, indeed, it would not do to carry on the nefarious system, so successfully practised in remote districts, near home. The growers who supply these hawkers are fully aware that they will sell these "Jacks" as good named kinds, but the risk and the profit are all the dealers', and not the growers'. The latter are content to sell at from 6d. to 9d. per dozen, or at from 5s. to 6s. per 100, a fair price to them, though owing to the ease with which these "Jacks" are raised, a profitable one. Hawkers dispersed throughout the country are numerous, and they take different districts every year, generally remote ones. They are well known to the growers—old customers indeed; but as a rule the former take care to have cash before they supply the goods. The plants are lifted and packed closely into shallow boxes without tops, and in this state are sent all over the country. The dealers are provided with a good supply of Moss and twine, also labels and a trade list or two. The plants when received by them are separately mossed up, tied and labelled with a name, and in this way are sold, as Mr. Smith has shown, at an enormous profit. One can fully understand the great desire of all who have gardens to get some good Carnations and Picotees, but these, it should be known, increase slowly, and by means of layers, and will always fetch good prices. But really good double border flowers may be had from seed if such seed be purchased from any respectable firm. Strains of such border kinds, grown chiefly on the Continent, will give from 70 per cent. to 80 per cent. of double flowers and in great variety. I saw last summer about an acre of such plants raised from seed sold to the grower very cheaply. This was a very fine lot, and the single flowers were very few. Seed is sown in the open ground in April and the seedlings are put out into beds in July. In good ground many of these will the next year carry twenty or more stems, and almost hundreds of flowers. Let me recommend all who want cheap Carnations to purchase seed of the best strains, sow it next

spring, and thus ensure an abundant crop of plants for themselves. A. D.

TREES AND SHRUBS.

THE WALNUTS.

(JUGLANS.)

THE common Walnut is well known, but the American representatives of the genus *Juglans nigra* and *cinerea* are not often employed by planters, although both form handsome trees, and grow quicker than the common kind. The black Walnut (*J. nigra*) has very elegant pinnate foliage, each leaf being composed of thirteen or more leaflets, far more pointed and serrated than in the ordinary Walnut, a fact which will be seen by comparing the accompanying illustrations. The fruit is nearly round, the shell being very thick and solid, so that, although of a good size externally, the edible part is but small. This tree attains a larger size than any of the others, and



Black Walnut (*Juglans nigra*).

usually has a bold, straight trunk, covered with dark, rough, and closely-furrowed bark; the branches of which the head of the tree consists are large and spreading, and when clothed with their light green elegant foliage present a very different appearance from that of any of our common trees. This Walnut appears to be entirely rabbit-proof, as when nearly everything else is barked it is left untouched even in a young state. In planting the Black Walnut it should be borne in mind that scarcely anything will live, much less thrive, beneath it.

The Grey Walnut or Butternut (*J. cinerea*) is nearly allied to the preceding, but is smaller in growth and more spreading in habit; indeed, so much so, that when young it is often necessary to shorten the side branches in order to cause it to form a leader. The bark is also lighter in colour than that of the last, but the most prominent distinctive character is the fruits, which in the Black Walnut are nearly round, but in this species oblong.

The varieties of the common Walnut, which are many, are chiefly valued for their fruits, which vary in size, number, and time of ripening. Of kinds remarkable in other respects may be mentioned the cut-leaved sort (*laciniata*) and the weeping kind (*pendula*), which at best is not, however, equal to many other weeping trees. In *monophylla* the whole of the leaflets are blended into one large leaf. The species of Walnut are increased by means of seed, and the varieties by grafting; the seed should be sown as soon as possible after being gathered, for it soon loses all vital power, and of course does not germinate.

ALPHA.

Hydrangeas and Fuchsia Riccartoni.—In sheltered positions few deciduous flowering

shrubs are better adapted for ornamental effect than the Hydrangea. At irregular intervals along the margins of drives in the park here are masses of these plants, which at present are the admiration of everyone, the foliage in some cases being literally hidden under masses of bloom. Planted in clumps of say a dozen together with a dark background such as that produced by Laurels, Rhododendrons or any other dark evergreen shrub, the Hydrangea appears to great advantage, the colour of both foliage and flowers being much enhanced in such a position. A good companion and one that associates well with the Hydrangea is *Fuchsia Riccartoni*. Hundreds of these plants are in flower here at present, and few such sights can be seen as a nursery border containing perhaps four or five hundred of this plant in bloom. In the park they are clumped similar to the Hydrangea, formality in planting being avoided as much as possible, the patches of each plant being irregular in shape, size, and distance apart. Both plants are much hardier than is generally supposed, having stood our severe winters with impunity. During intense frost the previous year's growth may be destroyed, but when pruned back early in spring, they shoot afresh and produce abundance of bloom during summer. They are readily propagated from cuttings inserted in sandy soil in August or September, and at the age of two or three years they are fit for their permanent positions.—A. D. WEBSTER, *Llandegai, Bangor*.

TIMBER SALE.

THE annual sale of timber, saplings, and fagots on the Longleat estate took place on August 31. Some good timber was offered, and the result was, especially as regards the Oak timber, rather unsatisfactory, the average price realised being about 6d. per foot below the valuation. Lime timber trees sold the highest, but they were exceptionally fine; one blown down during the great gale last spring contained about 340 ft. of timber. Elm is worth very little money just now; a splendid Wych Elm (about 300 ft. in it), the finest tree of the kind I ever saw, lying on the ground, only fetched 6d. per foot. This timber was at one time worth 1s. 6d. per foot, and was in request for boat building, but it seems that the red wood of old Larch is now in favour for building racing boats and other similar light craft. Ash is still in good demand, particularly if copse grown and winter felled. The prices at the sale were hardly up to expectation. Beech sold well



Grey Walnut (*Juglans cinerea*).

considering the quality, as much of it offered was not first class. Larch was eagerly bought at a good price for such young and small sized timber. Weymouth Pine, Scotch Spruce, and Silver Fir timber sold at a low figure. One of the latter Firs is perhaps worthy of mention, as it was when standing

the highest tree on the estate; it measured when lying on the ground 142 ft. long. The butt end and sound part of the tree contained 200 ft. of timber; the upper part of the stem, being dead, broke into



Common Walnut (*Juglans regia*).

many pieces when it was felled. I measured this tree a few years ago with the aid of an apomecometer, and made it out to be 138 ft. high; so the little instrument was pretty correct. It was, however, a very good subject to practise on, being on level ground and standing out clear from other trees. One very large Abele tree, rotten at the core, was sold for £11; had this tree been sound it would have contained fully 500 ft. of timber. Oak and other hard-wood saplings sold remarkably high, comparatively higher than the Oak timber. This class of wood is in great demand at the coal pits. Larch and other Fir poles also sold uncommonly well. Fagots sold badly; a few years ago they would have fetched double the price. This is mainly on account of bakers having converted their ovens into coal instead of wood-heating. Subjoined is a table of prices, &c. :—

Description.	No. of trees.	Average size.	Average price per ft.
Oak	470	12 ft.	1s. 3d.
Ash	77	10 ft.	1s. 10d.
Elm, Wych	3	130 ft.	6d.
Elm, English	2	105 ft.	7d.
Lime	2	200 ft.	2s. 2½d.
Beech	112	21 ft.	9d.
Weymouth Pine	2	85 ft.	8d.
Larch Fir	355	6 ft.	1s. 2½d.
Scotch Fir	30	25 ft.	6½d.
Spruce Fir	52	18 ft.	6½d.
Silver Fir	5	88 ft.	7d.
Abele Poplar	1	decayed butt	£11 the tree
Oak and other saplings	276		4s. 11d. each
Larch and other Fir poles	214		2s. 7d. each
Oak tops and other fagots	3500		13s. per 100

G. BERRY.

Araucaria seeds.—I have some seeds of *Araucaria imbricata* just ripened in my garden; will anyone kindly tell me the best way to grow them? Should they be sown in heat or in the open ground? and how long do they take to germinate when sown quite fresh? This information is not to be found in any books I have on conifers. Perhaps it is rare for these seeds to ripen in England.—B., *Basset Wood, Southampton*.

Pinus excelsa.—A good evergreen tree for wet ground. Two years ago I planted in two separate places of very wet ground a series of evergreen and deciduous trees, comprising such as are generally considered to thrive best under such conditions. On looking at them the other day I

found all the *Pinus excelsa* (and there were seven of them) had thriven admirably, but they and Poplars and Willows were the only trees that remained. If this tree (*P. excelsa*) is found to flourish in a wet soil, what a boon it will form to those who wish to ornament such situations. Some of your readers may probably have planted it under similar circumstances, and if so, one would be glad to know the results. —WM. PAUL, *Waltham Cross*.

ROSE GARDEN.

A GARDEN OF ROSES AND VIOLAS.

On a recent visit to the botanic gardens of Birmingham, at Edgbaston, where one never fails to find much to admire of fresh interest, or new beauty, I was much pleased with a separate garden wholly furnished with Roses and Violas. The garden is near to the house of the curator, Mr. Latham, so widely known as an accomplished botanist and a successful cultivator. It is considerably lower than the surrounding surface, and in excavating and arranging the central parallelogram, the sides all round have been formed into a sloping bank. This is planted with Roses, and these are fringed against the turf with Violas. The centre is laid out in largish simple-shaped beds, and these are wholly furnished with Violas, each with one variety only. These beds are placed at considerable distances on the Grass, which affords one a better opportunity of seeing and thoroughly appreciating the rich effects of the Violas in single beds or in contrast with others of different colour. At the time I saw them, in August, the Violas were simply magnificent. The Roses were then almost out of flower, but this mode of planting on banks gives them a coign of vantage for decorative effect, as the flowers virtually rise up, as it were, to meet and fill the eye. The Violas seem to flower throughout the season in the climate of Birmingham.

Varieties of Viola.—The following were employed: Pilgrig Park, a large, showy white, with a fine black bar in the centre. This is a fine, compact, continuous blooming variety. Among purple or violet colours, Waverley and Holyrood were very fine. The latter is by no means new, but is a fine bedding variety of a rich blue-violet colour. Yellow Prince and *Lutea grandiflora* made magnificent golden or yellow beds. Mr. W. Dean, of Walsall, a great authority on Violas, whom I had the pleasure of meeting at Birmingham considers Golden Queen of Spring, Queen of Spring, and Yellow Queen the purest of golden or yellow Violas. All these are selfs without dark or other coloured blotches, the absence of which makes them the more effective for bedding purposes. The same authority recommends the blue self called True Blue as a good beat on Blue King and others. It is also without any central blotch, a compact grower, an early and continuous bloomer. Enchantress well deserves its name, being a beautiful mauve, of excellent habit, while Perfection and Blue Bell could hardly be surpassed for richness of colour, excellence of habit, and prodigal profusion of bloom. Some little way from this garden of Roses and Violas the white *Viola cornuta* was also growing and flowering with the utmost luxuriance. This is still, in my estimation, one of the best of all the Violas, its purity of colour, length of stem, and delicate sweetness of perfume rendering it so useful for cutting for chaste decorative purposes on a small scale, as well as for button-holes, hand bouquets, and wreaths. Returning to the

Rose and Viola garden, how the interest and beauty of both plants were enhanced by being planted together. At first blush few plants might seem more incongruous than Roses and Violas, but in reality they match and run together admirably. Even when both are in flower each is enhanced in beauty by the striking contrast between them. And when Roses get into the sere and yellow leaf, what more useful as a foil to hide from prominent sight their bare boughs and falling leaves or blooms than bright fresh

fringes or beds of Violas in full beauty. Unfortunately, I fear Violas cannot be grown everywhere with or beside Roses. If they could, it might be well to surface all beds of standard Roses with them; then whatever failures overtook the Roses, the ground line would at least be clothed with verdure and beauty. Even dwarf Roses planted more thinly might also have the ground among them covered with Violas. How infinitely more gardenesque and even picturesque these living surface coverings to those foul manurial mulchings that not seldom mar our enjoyment of the queen of flowers. If, indeed, Violas would grow and flower freely everywhere, one might hope that the difficult problem of the sub-cropping of standard and other Rose beds was in a fair way of being satisfactorily solved. But unfortunately they will not; and if they would, what would the Rose enthusiasts say? Violas feed at the same tables as our show Roses. Never; perish all the Violas in the world first. Stay, good friend and brother rosarian. There is no need of your anathema. Violas perish fast enough throughout East Anglia and many other large districts without your ban. They will not live under Roses nor in the open. The air is too arid and the earth too hot and dry for them. Such, at least, has been my painful experience. But where they thrive and go on flowering throughout the season—few flowers are more effective and useful than Violas. Artificial waterings and rich deep soil will also do very much to neutralise the withering effects of an arid atmosphere and dry, hot soil. But in East Anglia especially it is almost impossible to carry them through the season creditably.

Viola cornuta.—When Mr. Wills first brought this into fame he forwarded a basketful to me, and I planted it profusely, edging eight large beds with it, and making many yards of border. We made a fresh start many years later with *Viola cornuta alba*, from seeing how well it went through the season in the gardens of the Castle of the Peak at Chatsworth. But in both cases the climate was dead against us, and slew its thousands, until we were forced to content ourselves with a comparatively few plants in borders. I write this not to discourage any from cultivating Violas, but rather to prevent disappointment, for the beauty of those in the Botanic Gardens at Edgbaston, Birmingham, has once more determined me to try again. As one travels from east to west and from south to north, one of the most striking changes in the furnishing of gardens is seen in the more liberal and successful use of Violas and Pansies, till by the time one gets to York or Edinburgh it seems a magnificent effect may be enjoyed throughout the season by the judicious selection and culture of Violas alone, for are not all the Pansies Violets? though the converse does not hold good. Probably with richer soil and more water they would do better in the arid east or sunny south. But at present it seems as if a cool air as well as a moist atmosphere and earth were essential to the perpetual flowering of Violas and Heartsease. Has anyone succeeded in getting them to go creditably through the season in East Anglia? and under what conditions as to site, soil, special culture, and general treatment?

D. T. FISH.

Roses now in bloom.—The following Roses are now blooming with us on a stiff clay soil, viz., *Hybrid Perpetual*—Alfred Colomb, Antoine Mouton, Baronne de Maynard, Bessie Johnson, Baroness Rothschild, Boule de Neige, Countess of Oxford, Duke of Teck, Duke of Connaught, Exposition de Brie, Fisher Holmes, Jules Finger, La France, Marie Baumann, Maréchal Vaillant, Monsieur Fillion, Mlle. Suzane Rodocanichi, and Mlle. Marie Rady; *Teas*—Belle Lyonnaise, Devoniensis, and Gloire de Dijon; *Noisette*—Céline Forestier and Maréchal Niel; *Bourbon*—Souvenir de la Malmaison.—J. CARTER & Co., *High Holborn*.

The best autumnal blooming Roses.

—The three very best with us just now are the old Jules Margottin, Souvenir de la Malmaison,

and Gloire de Dijon. We can cut these in quantities, and the Souvenir is now equal in form and colour to the best Noisettes or Teas. The three next best and most useful are Niphetos, Homère, and Boule de Neige. The autumnal Homère is also of capital shape, which is far more than can be said of the majority of its summer blooms, while no Rose can now rival the pure white buds and half open flowers of Boule de Neige. We have been budding this Rose in quantities for bouquet and general decorative purposes, for which its free autumnal properties render it most valuable. Other Roses, such as Adam, Bougère, Souvenir d'Elise, &c., are blooming freely, but none have equalled these six in profusion of flower here up to this date, the 21st of August.—D. T. F.

GARDEN FLORA.

PLATE CCCLIV.

ALPINE CROWFOOTS.

ALLOW me to direct attention to a few of the more showy and choice species of this numerous and highly interesting class of alpine plants, and for the purpose of simplification we may class them under three heads—1, those which have entire leaves, that is, leaves which are undivided; 2, with leaves crenate or dentate; and 3, where the leaf is divided more or less into segments. In the first division there are three European species which are well worth culture. *R. amplexicaulis* is very beautiful either as a rock or border plant. It grows from 12 in. to 18 in. high, and bears a number of pure white flowers, each being more than 1 in. across. *R. pyrenæus* is dwarfer in habit, and its flowers are not quite so large as those of the preceding, but when the plants are really well grown and massed together, they are then pretty and attractive. *R. parnassifolius* is another distinct and beautiful species, the blossoms of which are pure white and circular in form; they are borne in clusters on short, sturdy stems. The leaves are nearly round, very thick and fleshy, and of a light, glaucous green, resembling those of our native Grass of Parnassus. In the second division we have *R. magellensis*, *R. crenatus*, *R. Bertoloni*, and *R. Thora*. The three first named, though in all respects similar, are lovely little alpine, with numerous slender stems, from 2 in. to 4 in. in height, supporting at their extremities a perfectly circular snow-white blossom nearly 1 in. in diameter. The leaves are nearly round, crenate, and deep green. They are natives of the Tyrol and Eastern Alps. *R. Thora* has large, leathery, round, crenate leaves, bearing a number of pretty yellow flowers about $\frac{1}{2}$ in. to $\frac{3}{4}$ in. in diameter. It is quite a distinct kind, and, I believe, a native of the Eastern Alps. The fine and noble New Zealand Buttercup (*R. Lyalli*) may be named under this class. Its leaves are very large, nearly 3 in. across, thick and leathery, with minute crenations on the margins. The blossoms are probably the largest and finest of any Crowfoot yet known; they are said to be snow-white. A few plants of this species are growing in the York Nurseries, and are looking well. In the third division we have about five kinds well worthy of cultivation. *R. alpestris* is a well-known sort. It forms dense clusters of shining deep green leaves and numerous snow-white flowers, borne on stems from 2 in. to 4 in. high. *R. Segueri* is similar in general appearance, but has larger and more deeply cut leaves; the flowers too are larger, borne on slender stalks, or when the plant is vigorous and strong they are then borne in small clusters. *R. glacialis* is a highly interesting alpine with thick,



RANUNCULUS ANEMONOIDES.

leathery, deep green and deeply cut leaves; their divisions, however, are broad, giving the plant a bold appearance. The flowers are produced several together, large, pure white internally, externally tinged with pale pink. When seed is formed, the petals, which are persistent, gradually change to pale pink, then rose, and finally deep rose. I remember meeting with this plant on the maritime chain in considerable quantities, and it was highly interesting to see them in these different stages of colour. In ascending the mountain, (which was very steep), the first plants met were those that had flowered and that were bearing seed, and their petals were about the colour of those of *Rosa pyrenaica*; then the higher we climbed the paler the blossoms became until they were as white as the snow fields above them. *R. anemonoides*, represented in the accompanying plate, only recently brought to notice, is destined to become a great favourite. The blossoms are white with a slight flush of violet internally; while externally they are rosy pink, and are about the size and similar in form to those of *Anemone palmata*. They are borne on stems only from 3 in. to 6 in. high. The leaves are light green, deeply and several times divided; the segments are also incised, a circumstance which gives the plant a feather-like appearance. It may be remarked that the leaves are mostly developed after the flowers, which explains their absence in the otherwise faithful picture here represented. *R. rutæfolius* is a closely allied species to the foregoing. Its flowers are white, but not so large as those of *R. anemonoides*. *R. montanus* (the Pyrenean Buttercup) is a well-known spring favourite in our rock gardens; its blossoms are a clear brilliant yellow, and produced in such abundance, that they form a rich golden mass, only about 2 in. above the ground.

CULTURE AND POSITION.—So far as I have noticed, having observed alpine Crowfoots in their native habitats, we may, I think, safely divide them into two classes, viz., those found in rich alluvial soil more or less intermixed with broken stone, and those found where a considerable portion of peat is present. Good drainage is most important; in fact, the plants like to root down the sides of perpendicular rocks. They all prefer a deep soil, as where the soil is suitable the roots penetrate to a considerable depth. Those found in loam prefer a heavy, rather than a dry, sandy soil. The compost for both kinds should be prepared in the following way: Take sods of rich loam, which has been laid up until the grass is just dead; break these into rough pieces, about the size of Walnuts, and intermix with them broken stones of a similar size and a small portion of white sand. The peat should be treated in a similar manner. For the kinds requiring peat, use two-thirds of peat to one-third of loam. The following kinds I have found to thrive best in loam, viz.: *R. amplexicaulis*, *R. glacialis*, *R. pyrenæus*, *R. Seguieri*, *R. alpestris*, *R. montanus*, *R. parnassifolius*. Kinds requiring peat soil: *R. anemonoides*, *R. crenatus*, *R. rutæfolius*, *R. Bertoloni*, *R. magellensis*. *R. pyrenæus* I have also seen growing in peat earth. R. P.

Things in America.—Mr. W. C. Barry writes from Rochester, N.Y., under date Aug. 22, as follows: "The Peach crop here is a total failure, owing to unfavourable weather at the blooming season. I have a few trees in my own garden

in a protected situation which are yielding a few fruits, but our large specimen orchard has no fruit. Taken altogether, we have had a remarkable summer, cool and dry, and crops of many things will be very light. The Potato yield is very light, Corn too, and Apples and Pears will be scarce. The Wheat crop was very heavy. We are now enjoying green Corn and Tomatoes, and expect to have Melons in abundance in about a week. Grapes are looking very well, but it will require warm weather to ripen the fruit."

FRUIT GARDEN.

PRESERVING RIPE FRUIT.

Ice preservation.—That fruit can be preserved for a long time in a frozen state, and even in a non-frozen state, so long as the temperature does not exceed 32°, is a well-known fact. But it is equally well known that articles so preserved lose flavour every day after they are so stored, and that when exposed afterwards to an ordinary temperature they perish almost immediately. This happens to fruit when merely set on ice and not actually frozen; but it is certain that the freezing does not improve its chance of keeping, and very much depends on how the frozen mass is thawed, sudden thawing being mostly destructive to the tissues of either fruits or vegetables. For many years we have been in the habit of storing both fruit and vegetables in the ice house, but they are deteriorated by the treatment, and must be used immediately they come off the ice. In tin boxes we have kept Peaches sound, though dead ripe when gathered, for a month, and Nectarines for six weeks, in a perfectly spotless condition; but they lost flavour greatly towards the end of the time, and grew discoloured almost before dessert was over, although only brought out of the ice house in time to be dished up for the table. By the following morning they had become quite black and useless. I remember a collection of fruit being staged at one of the Royal Horticultural Society's provincial shows, wherein the Peaches, dishes of fine fruit as regards size, greatly puzzled the judges about an hour after they had awarded the collection the first prize. The Peaches had been selected from a large quantity of fruits in the ice house that morning, and were "cold" till they were set up, but they became quite black before noon. Two of the judges who looked at them made the remark, "They were all right when we judged them; it's the result of the heat, we suppose." It is but fair to the exhibitor to say that at that period he was about as much puzzled as the judges by the sudden decay of his Peaches, and never afterwards trusted to ice-house-kept fruit for exhibition purposes. Melons that would not keep more than a few days in the fruit room will keep a long while on ice, and retain their flavour longer than Peaches. They, besides, are long in cooling, although the condensed moisture on their surface in the warm dining-room would, to an experienced person, betray the quarter they came from, and they are much more refreshing than when warm out of the Melon house or even the fruit room. In placing fruit on ice, the main thing to observe is not to pack it in any way or to wrap it in anything. It should be placed on a tray or in a tin box with a lid to keep off drip, but each fruit should be set out singly by itself and not come in contact with its neighbours, and great care should be used to prevent bruising, as that will greatly hasten decay when the fruit is taken out. It is not needful to bury the boxes quite in the ice; but they may be set in it with the lid of the box above the surface, so that any of the fruit can be got without trouble. Peaches, Nectarines, Melons, Pine-apples, Figs, and other soft fruits that do not keep long succeed best preserved in this manner.

Bottling Grapes.—With regard to the preservation of fruits in other ways, what interests growers at present almost more than anything else is the keeping of Grapes after they are ripe. There can be no doubt that the present system of

bottling in the fruit room is a great improvement on former plans, but it is not attended with success in the hands of everyone, nor even always in the hands of those who practise it successfully. It is admitted also that the fruit deteriorates in quality from the day it is cut. Successful keeping of course depends much on the kind of structure the Grapes are stored in. The great points are perfect dryness and an equable temperature, but dryness is of most importance; a fluctuation of temperature to the extent of 10° or 12° will do no harm if the room be dry. Ventilation is not necessary. If the room be well dried before the fruit is placed in it, the best plan is to shut it close up and open it as little as possible. We have noticed this in the excellent fruit room where our late Grapes are suspended. The bottles are hung to ropes suspended across the ceiling, and it was observed that berries invariably damped worst just opposite the door, although it was not opened more than could be helped, and since then no Grapes have been hung in that position. It may be mentioned also that the Grapes kept worst the first year in this fruit room, the only reason being that the walls of the house had not had time to dry thoroughly. That this was so was proved by the fact that the fruit and often books became quickly mouldy from the mugginess of the atmosphere and had to be removed; but in following years this has not happened, and the large numbers of horticultural periodicals stored on the shelves keep perfectly dry, and so do the Grapes.

Disease germs in the air.—There is, however, another aspect than that in which the subject has been hitherto regarded from which the preservation of fruit should be considered. Quite a sensation has been caused lately by discoveries in relation to disease germs by eminent investigators, which have an important bearing on the subject of decay in fruit. It is now proved that decay in dead or living animals is not caused simply by exposure to the air, or even bruises, but by the disease germs conveyed to the object through the medium of the air. When meat, we are told, "is effectually screened from the atmosphere, putrefaction never sets in." The same, we believe, may be said of fruit, in which decay begins and goes on in very much the same manner. It has been long known that pasting a piece of gum paper over a wound would check decay setting in extending; we have often done this ourselves in or the case of Melons that cracked before they were ripe, and have even painted the cracks inside with vine styptic, and with success. Long ago, having bought some Calanthe bulbs in which decay had set in, from Brisbane or some other cause, the tissue being black and rotten for a good depth, the rotten part was scooped clean out and well painted with patent knotting, and the decay never extended further. It would appear, therefore, that if we could screen such tender fruits as Peaches and Figs, Pears and Apples, &c., from a free circulation of air, or from the air altogether, we should preserve the same both longer and better than is now done. It is a puzzle to many how Newtown Apples keep better in the barrel than out of it, even in well-appointed fruit rooms; but in all probability it is due to the more effective exclusion of the air in the barrelled state. It is certain, at all events, that Apples newly removed from the barrel often present bruises sustained in the packing; but the flesh at the bruised place always gets black and worse after the fruit is unpacked, and decay progresses rapidly. It is the same with imported Spanish Grapes, which keep best in the barrel amongst the cork dust. With such facts before us, it may be questioned if the modern fruit room, with its exposed shelves, is the best place for preserving fruit after it is ripe. Old growers used to keep all their best Pears in closely shut drawers, and kept them best there; and we know an old Scotch gardener once who avowed that he seen Apples kept longest and best buried in the ground, the cause of successful preservation under such circumstances being no doubt exclusion from the air and its contaminating germs. Raw or cooked meat will keep much longer, and even in the worst weather, if simply buried in

common flour, the reason, it is supposed, being that the flour filters the air before it reaches the meat. Has anyone ever tried to keep Grapes or Peaches in the same manner? Grapes may be covered up in flour and afterwards brushed quite free of it without injury. Would it not be well to try further experiments in this direction?

J. S. W.

RESTRICTION AND EXTENSION.

I WAS pleased to read "J. S. W.'s" description (p. 219) of a prolific Apple shoot, for I am a firm believer in the benefits arising from extension in certain cases, and in the folly of cutting off the heads of young trees year after year, as was the practice in my younger days, with a view to strengthen them. Unpruned trees are, however, not always fruitful, nor are restricted ones always barren. I can well understand the merits and demerits of the two systems—one, natural or unrestricted lately christened extension; the other, the various forms of trained or closely pruned trees or bushes on dwarfing stocks—for I have for years lived in the very midst of Apple orchards where extension is largely practised, and the restrictive system also in full operation, especially at Barham Court, where it is well able to hold its own against any amount of adverse criticism. The results there are simply marvellous; there need be no question as to whether restriction could do as much as extension, for not only in quantity, but also in quality is the produce of the little trees there something to be envied. The market growers about Maidstone freely acknowledge the suitability of the restrictive system for gardens in private establishments, but not for market grounds. In these the widespread natural grown tree is the best for producing ordinary market fruit in quantity. The fact is, there is room for both systems, and no amount of bolstering up one at the expense of the other will affect the final result, for as long as there are all sorts and conditions of gardens, so long will there be need for systems which best suit special requirements. Judging by the quantities of trees grown in the restricted style in our largest fruit tree nurseries, there need be no fear of its extinction for some years to come. I have myself personally inspected many hundreds of acres of Apple orchards this year where the trees spread broad and shot up high like forest trees; yet in every orchard there were far more trees without fruit than with anything approaching a crop, while in sheltered gardens restricted trees mostly carried a fair crop. In the fruit reports, too, I find this to be the general remark concerning the Apple crop of 1882. There can be no question that the storms of wind in spring were the main cause of many failures in the way of Apples, at least in the southern part of the kingdom. I find here that Apples are almost a blank, and that standards suffered more than dwarfs or restricted trees. I nevertheless heartily congratulate "J. S. W." on the success of his attempts to popularise the extension system; his shoot 2 ft. long with twenty-six fine Apples on it is more than will be gathered from some fair sized orchards this season. Let us hope that next year may be as good as 1881 when home-grown Apples were well-nigh a drug in the market. Let me, in conclusion, commend the plan of giving a fruit tree of any useful kind to workmen or cottagers, for that is a step in the direction towards increasing their home comforts. In the case cited by "J. S. W." the result proved satisfactory to all parties, but I can quite conceive that if he had given another workman a restricted tree, and enjoined him to keep it confined to a limited number of shoots, he would have been equally gratified with the result.

Seaford Nursery, Gosport. JAMES GROOM.

bush, and would probably do well on the Paradise stock, though the trees would most likely be shorter lived.—E. H.

KITCHEN GARDEN.

UNTHINNED ONIONS.

JUST the practice which "Peregrine" advises in relation to the non-thinning of Onions is that which prevails amongst growers of them in a large way for the picklers. They, however, do not sow in rows, but very thickly broadcast, simply weeding once or twice according to the condition of the soil and the state of the weather. The produce is truly what may be called button Onions and in immense quantities. Picklers are grown in few gardens, because Onions pickled are not esteemed a piquant or digestible article of food. Still there are large quantities consumed somewhere, for they are grown annually elsewhere by many tons. I think few gardeners will care to adopt the unthinned plan of cultivation if the term may be applied to practice, that is, cultivation of the poorest kind. Not only does every good gardener like to show the best samples he can grow on the exhibition table, but in his garden quarters also, and a bed of small button or unthinned Onions would be to him a sort of reproach; indeed, visitors would, whatsoever he might say to the contrary, go away with the impression that his assumed preference for small bulbs was but a blind to cover unskillfulness or negligence. Besides, except for pickling purposes, I have grave doubts whether button Onions have any value whatever. They are, as a rule, too small to satisfy the cook, and far too much trouble to clean and store. On the other hand, there is not the slightest need for huge Onions, except it be for baking or stewing, cooked forms that some delight in. Of course, the large Onion, both materially and figuratively, carries weight with it on the exhibition table, and if bulbs can be got that will weigh from 12 oz. to 16 oz. each and are handsome in addition, they must carry off the prize in preference to smaller samples. Unlike Potatoes, Onions are good more or less according as they are firm and solid, and big hard bulbs will be as good as small hard ones, and far better than big soft ones. It is because of this I advocate the introduction of a pair of scales to aid judges when awarding prizes to Onions. Very often the biggest gets the award without reference to beauty or solidity, and this latter feature, the most important of all points in a good Onion, can only be fairly determined by weight. Judges also seem to have a strong penchant for flat Onions—perhaps because they look larger, and, as they think, must be heavier. The latter point, however, does not always follow. If one will compare by weight good samples of the more pointed and conical Trebons or the Globe Tripoli with the hollowish based flat Tripolis that look so much bigger, they will often be surprised to find how much heavier the apparently smaller Onion is than it looks. Bulbs that weigh over 16 oz. each are not at all common, and they ought to look perfect monsters for the weight, but the Trebons bulbs I have are not so big looking after all, and are as solid as cricket-balls. With spring-sown Onions the flat white Spanish is the most favoured form, because being broad they look large, and a good selected strain always gives handsome bulbs. Such a fine market kind as the Bedfordshire Champion is, or even James's Keeping, because somewhat egg-shaped, does not look so big or so heavy, and yet may be so or even heavier. If, according to their kind and form, they are as handsome as the others are, and are tested by weight, the heavier of the two, then, irrespective of any penchant for flat Onions, should have the award. For a general crop, either for market or for private consumption, good, firm, well matured bulbs, weighing three to the pound, are as good and as useful as can be wished. It is more important to ripen the crop well and early, that the bulbs may be all matured, and thus keep well, than it is to have big bulbs, of which the cook

uses perhaps half a one, whilst the other half is thrown away. A. D.

EGG PLANTS AND THEIR CULTURE.

SEEDS of various kinds of Egg plants are offered in some seed lists, but in others they are not to be found. In some gardens a few Egg plants may be grown in summer, but in the majority of them they are not cultivated; and altogether the Egg plant may be regarded as a little-known vegetable, especially as many of those who do grow it do not use it as a vegetable, but simply as an ornamental plant. It certainly is this, and more too, as the best purple-fruited variety is one of our choicest vegetables, and one which should be widely and generally grown as such. Those who grow Tomatoes need not be afraid to take Egg plants in hand, as both succeed under similar conditions, and the eggs may be cooked and used in much the same way as the Tomato. Of all kinds the purple-fruited one—the Aubergine noir de Pekin of the French—is the best for culinary work. There is a white-fruited sort, the fruit of which resembles an egg more than the purple one, but it is seldom used as a vegetable. As an ornament it may be grown, but that is all. As the purple one merits most consideration, we will therefore confine our remarks chiefly to it. Being annuals, Egg plants are readily raised from seeds, which may be sown at any time. When wanted in summer sow in March, and if only wanted for autumn and winter, later sowing will suit best. The plants grow quickly, fruit early, and soon mature their crop. In beginning their culture the best way is to procure a packet of good seed from a respectable dealer. Let the one or more kinds purchased be distinct, not mixed. Some dozens of plants may be raised in a 6-in. pot. This should be well drained, and filled up with a light sandy mixture. On the surface of this the seed should be sown and covered lightly. The pot should then be placed in a frame or house in which the temperature is about 60°. Here the young plants will soon appear, and afterwards they should be kept close to the glass and light to prevent them from being drawn up too straggly. As soon as the two first rough leaves have been formed, they should all be turned out of the seed pot and placed singly in small pots. At this time the potting mixture should consist of two parts loam, one of sand, and one of leaf soil. At all subsequent pottings the loam and sand may remain the same, but half-decayed manure should take the place of the leaf soil. During the period when they are in the smallest pots they should be kept in a nice growing atmosphere, and when the roots are plentiful, and the top growth has developed in proportion, they should be shifted into larger pots. Good plants may be had in 6-in. pots, and large ones, capable of bearing a great number of fine fruits may be grown in 8-in. and 9-in. pots. These are the sizes we prefer. When the seed is sown in March, they will be ready for their fruiting pots by May, and from then onwards for the following six months they will continue to supply fruit. In spring it may be necessary to grow them in a place artificially heated, but throughout the summer and autumn they will succeed, in any part of the country, in an ordinary frame, and in some parts they will do very well out of doors. They are sometimes planted out at the bottom of warm, well-sheltered walls, to be trained up like Tomatoes; but, as a rule, they are best kept in the pots, as, if a bad season occurs, they can be taken in again without re-potting.

Greenfly delights to feed on Egg plants at all times, and heavy syringings have frequently to be applied to keep it off; but during the time when the bloom buds are open it is best not to syringe or wet the flowers. Dryness hastens the setting of the fruits, and prevents many of them from becoming deformed. The fruits have not altogether a scendant habit, but they will grow tall and branchy, and the main stem should be supported with a strong stake before the fruit becomes weighty. When once the first fruits are formed, they will swell quickly; and as they are cut off

Cox's Orange Pippin.—So far as I am aware, this beautiful Apple has no equal when in season at Christmas, which with us is its best time. We find, too, that as the trees increase in age, not only do they bear better, but the fruit is much finer. A warm soil suits it best, and it should be well drained. This variety bears well as a dwarf

others will form, and a few well-grown plants will keep up a constant supply throughout the season.

When well furnished with leaves and a profusion of richly-coloured fruit, many might think them too interesting to be concealed in a frame or kept in the background, and there is no objection to their being brought into a greenhouse or a conservatory and used for decorative purposes like any of the other Solanums. As has just been stated, greenfly is their great enemy, and it must be sharply looked after, as when once in possession it is not easily removed, and quickly disfigures and cripples the plant. From the time when the fruit is formed until the plants cease to bear, liquid manure may be given once or twice weekly; and when any of them show signs of being exhausted through heavy bearing, a rich top-dressing will improve them. When more fruits are gathered at once than can be used, they can be stored away like Apples or Pears to be kept until wanted. As a rule, seed sown in spring, and one good batch of plants grown on to give a good supply of fruit from early in summer until late in autumn or winter will be sufficient; but where more are wanted, a quantity of plants might be



Egg Plant (*Aubergine noir de Pékin*).

raised now or at any other time for winter and spring fruiting. So long as the weather will allow they may be treated as frame subjects, and afterwards they will be quite at home, and will succeed well in the company of winter Cucumbers.

The plan has been tried of growing them in open quarters in the kitchen garden, and in exceptionally favourable weather they have done very well in such positions, but with the sudden and disagreeable changes to which we are now and then liable in summer, plants in the open cannot be depended on, and a reserve should be secured to fall back upon.

Margam.

J. MUIR.

Early Brussels Sprouts.—We are now gathering very good Sprouts, and find them to be exceedingly useful. People may say we do not want Brussels Sprouts, whilst there are plenty of Peas and Beans, but we find they are appreciated, and always try to get a few dishes early. The kind which we are growing is a very good selection called the Aigburth. The seeds were sown in February in a box under glass, and the produce was pricked out on a warm border, and finally planted out in May.—E. H.

Late Peas.—Mildew, that pest which so often disfigures and injures late Peas, has scarcely made its appearance this year here, and Peas have con-

sequently been plentiful and good. McLean's Wonderful and Laxton's Marvel are very good with us just now, being loaded with fine green healthy pods. Marvel is a very free bearer, having its pods generally in pairs. Wonderful has a finer pod, but is not quite so prolific. It is nevertheless an excellent Pea so far as quality is concerned. Both are of medium height (from 3½ ft. to 4 ft.). They were sown on June 13.—E. H.

Exhibiting Potatoes.—I trust your readers will not follow the advice given by "J. G. G." as to the non-washing of specimen Potatoes before exhibiting them. So well is it now understood that only when washed do Potatoes show all their blemishes and beauties, that judges invariably prefer washed tubers to those that are not washed, and also committees are generally insisting that the tubers shall be washed, so as to ensure uniformity of cleanness. At all the great Potato shows at the Crystal Palace, Harborne, Birmingham, and indeed almost everywhere, tubers are shown in a washed state. That tubers will discolour after exposure to the light for several days after being washed is inevitable; but surely no one would expect to exhibit the same tubers at half a dozen different shows. On the other hand, if tubers rubbed up as "J. G. G." suggests be exposed to the light for a few days also, it will soon be found that they too have become dull, and that all the freshness and beauty shown when lifted will have disappeared. Let me recommend intending exhibitors of Potatoes at any time or place to lift sufficient roots to enable them to select on the ground at least twice as many tubers of each sort as they may require, and if not needed just then, but later, to stow the tubers away in shallow bins or boxes, and in dry sawdust. A couple of days before the show is due get out the samples, select again two-thirds of the very best, wash these carefully in soft water and with a soft brush, and when wiped dry, select again for show the required number of the best from the washed selection. Those who do not take a little trouble must not expect to win. Paper up the tubers that are to be taken to the show, as that not only excludes light, but prevents rubbing. All exhibition tubers should be of medium size, true to form and colour, handsome, bright, clean, and free from scab, broken skins, worm holes, or other disfigurements.—A. D.

Diseased Tomatoes.—It seems almost hopeless to attempt growing outdoor Tomatoes. Fine strong plants on walls, full of fruit, are now a mass of black putrid leaves, the work of a few days. Is it the veritable *Peronospora infestans* which attacks them? or is it some closely allied fungus? Those under glass, subjected to full ventilation day and night, are untouched, a singular fact, as some assert, the spores are carried by the wind, and the air is full of them.—A. M., *Cranmore*. [Without seeing specimens it is impossible to say for certain what the disease in question may be, but as Tomatoes have been very badly attacked of late years by the fungus of the Potato disease (*Peronospora infestans*), and as the effect of this fungus on the Tomato agrees well with your description, your plants very probably have an attack of the Potato fungus. It totally destroys Tomatoes in some places, and round London it is almost invariably accompanied by a second fungus named *Fusisporium Solani*, the consort of the fungus on the Potato. Sometimes the latter fungus occurs on Potatoes by itself round London, and it immediately causes putridity of the leaves; the action is so rapid, that its progress can easily be measured day by day. It is a remarkable fact that in some places, as in Montgomeryshire, the *Fusisporium* is seldom or never known to occur; there the *Peronospora* causes putridity by itself. The assertion is a correct one that the spores of the assailing fungus exist in vast multitudes in the air. One of the simplest and easiest experiments known is to catch them on sheets of glass smeared with glycerine; they are carried by the gentlest breezes. Plants under glass, although subjected to "full ventilation day and night," have a somewhat better chance than unprotected ones, but,

nevertheless, Tomatoes, as well as Potatoes, protected by glass are sometimes entirely swept off by the *Peronospora*.]

THE PUBLIC GARDENS OF EDINBURGH.

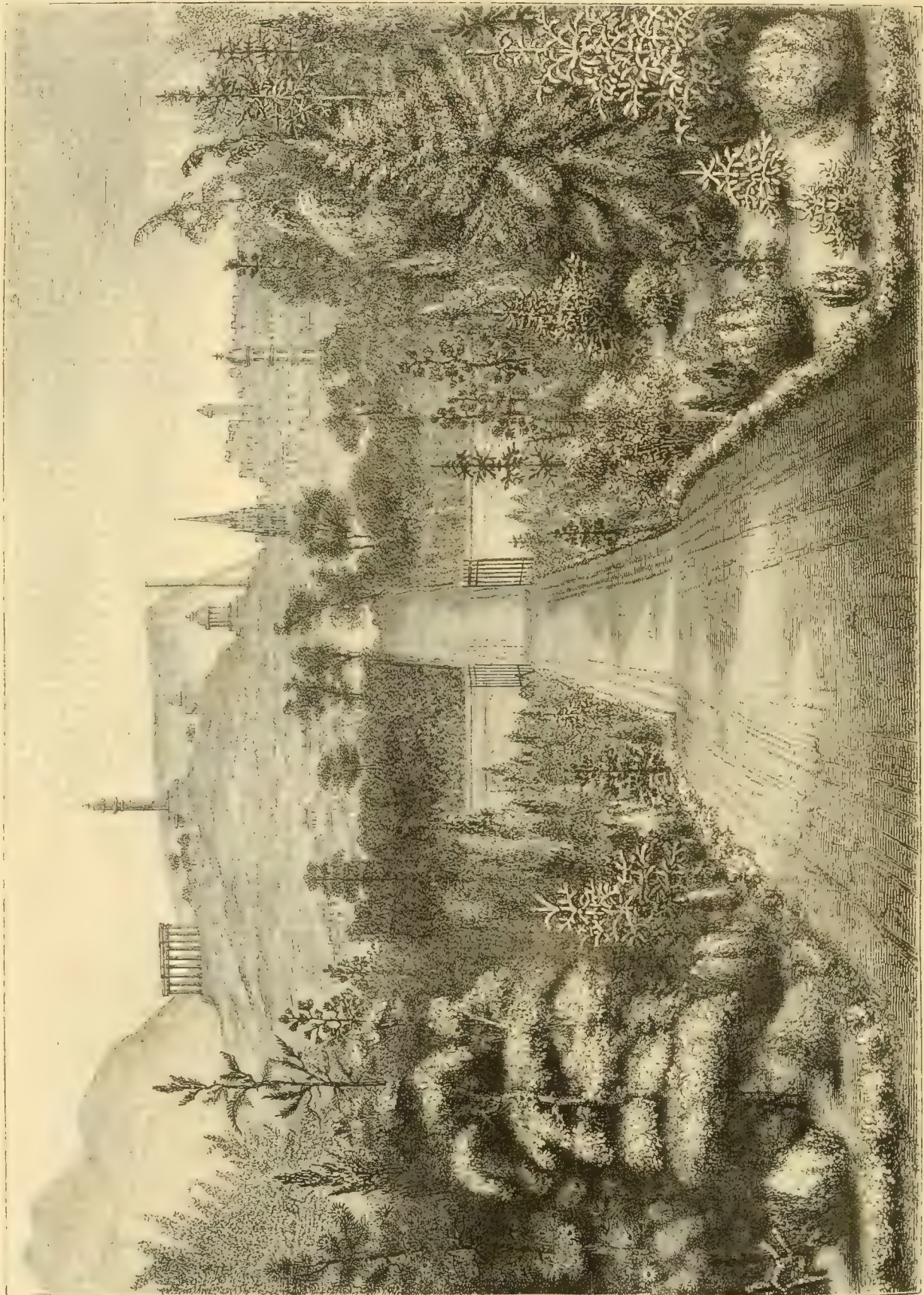
THE Swiss who thought a level country the loveliest would, perhaps, hardly admire the situation of Edinburgh, yet no city is so fortunate in its site. The bold mountain rocks that stand up in and near it secured it for ever open spaces before these were thought of as essentials in large cities. The sea, too, is near, and its swift winds beat about the walls and rush through the streets. The "pent citizen" can scarcely here step out-of-doors without feeling some of the benefits of "open spaces," while the streets are as wide and airy as if other aids mentioned were not so good. The old castle once had the town under its wing, and when more peaceful days came, and the new town arose away from the crag, and beyond the valley at its base, the city had one oasis in its centre, the like of which man could not have designed or given. Thus we have the Prince's Street Gardens, which, if they had not been cut through the whole length by a railway, would have been the most beautiful gardens in the centre of any city in Europe. But there are other possessions no less valuable: Calton Hill, rising in the town and giving a fine point of view and airy park in one; and Arthur's Seat, the most precious possession of the kind near any city. Finally, among these natural gifts secure for ever is the fresh sea near—inviolate. The north-eastern breezes across it will not comfort the sweet Verbena in winter, but they are part of the inheritance of a vigorous race, and do good work in cleansing air which man pollutes with smoke as carelessly as in London or Birmingham.

Of late some special attention has been paid to these gardens, and in this article we propose to consider in the public interest what has been done. With so many natural advantages anything done deserves the fullest consideration. A beautiful city with ample means will naturally desire to be liberal in the support of its gardens, but it is seldom aware of the need of not overdoing, and of the absolute need of letting many things alone.

Climate.—We Londoners very often grumble at our climate, and groan over the flowers that cannot be grown in it, but that of Edinburgh is worse. With due allowance for bad seasons, we have not for a long time seen so wind-worn and grimy a place for plants. Our abused London trees in the parks seem gentlemen-at-ease compared to poor toilers by the sea in these Edinburgh gardens. It requires good judgment to know what to plant. Some of the force given to the endless preaching of botanical technicality into unwilling ears at the Botanic Gardens might have been well employed in the useful and not unscientific process of finding out the trees and shrubs that really brave such a detestable climate. In the Prince's Gardens one may see perishing the Holly and the Yew. That is rather more than we expect in the parks of the "great wen," at least so far as the Holly is concerned. But this is from the folly of man, who prates without ceasing about science and progress, and lives complacently in his own chimney fumes. Rats will depart from their burrows if a dose of coal tar is laid at the door, but man, who fills the papers at this season with long scientific essays, destroys in his fairest city home its plants and trees and human lives with hellish vapours, and even obscures the sky and the fair landscape with a filthy pall.

Prince's Street Gardens.

Of the advantages of the ground in the central gardens of Edinburgh it would be difficult to speak too well. Such a noble group of rocks as those crested by the castle occur in no other public garden. Happily, not even human stupidity will be allowed to spoil them. As an instance of the prevalence of the quality we speak of, propositions have been made from time to time by individuals for which they call "improving" these rocks by terracing or shaving them straight in some way! Apart from the rock, however, the design is simple



VIEW IN EDINBURGH, SHOWING CALTON HILL IN DISTANCE.

and good; as yet not much has been done to mar it, though some mistakes will have to be presently alluded to. The view of the public and other buildings on either hand is admirable, the variety of building helping well, and the effect of the classical buildings which go across this valley and rock garden being extremely good. It is too often supposed that such scenes only fit a particular style of architecture. If the building is good all goes well with a fine landscape. There are a good many buildings about Edinburgh made on the principle of a many-legged table turned upside down or an elaborate cruet-stand not upside down, but happily they are not seen from Prince's Gardens. The gardens are divided into three portions—one at the smallest end cleverly covering over

The market, an excellent piece of work. On enquiring why the market was empty, we were told that it was only for trade sales in the morning, and the fine covered space remains in stately emptiness all day; so the main benefits of a market are lost to the citizens. Surely the market held by retail traders all day, as in Paris and many other towns abroad and at home, is at once one of the most useful and interesting things of city life. Our Covent Garden is wretched as compared with many other markets, but we do not empty it during the daytime like this excellently-situated market in Edinburgh, where the flowers, fruits, and vegetables for the supply of the city should be seen throughout the day. The trade sales would be effected in the morning in the usual way, and then the whole space taken possession of by retail sellers. If a portion could be set off as a flower market, all the better. It was an excellent plan to cover over this market, so as to leave a clear and good view over it, and a very graceful garden has been made on asphalt walks, which occupy a large surface over the arched and covered space below. Here, where only shallow boxes and vases can be afforded for soil, the spot is devoted to bedding plants and vase plants only. Their predominance here saves the need of representing them in wider parts of the garden, where a quieter and more natural style may be adopted. If there were not room for a flower market below, the roof would be an excellent place to make a temporary one, that is to say, in structures fixed so as to be removed daily. However, there is such a waste of space below throughout the day, that there is a good place should a flower market ever be tried here.

The gardens.—After the markets we have the gradually enlarging gardens—one full of flowers, and the other treated in a simpler, bolder manner, and both extremely good in effect. A long, straight walk, parallel with Prince's Street, is here a fine feature, terminated by the monuments or city spires at each end, and flanked on one side by a vast slope of Ivy, which runs up towards the street. This walk is far below the level of the busy street near and rightly so. It used to be on a level with the street, but Mr. McLeod did a wise thing in putting it quietly in a lower zone. However, the good effect of this walk can only be felt by those who see it, and it cannot, as we found, be shown well in an engraving. One division of the garden here is gay with *Violas* and fragrant with sweet-scented flowers and such bedding plants as suit the locality, but the larger and finer garden, in which the castle rock occurs, mainly depends for its flowers on hardy plants, and rightly so. Every step that can be taken to create different aspects of vegetation in such places is in the right direction. Alpine plants and the dwarfer spring flowers quickly perish in this valley garden, owing to smoke and humidity. The aim is to get the more vigorous summer and autumn flowering plants. With a good collection and bold, but natural-looking, groups, fine effects will be obtained well fitted for the situation and country. The aim should be to make each of the three portions of the gardens as distinct in the aspect of their floral decoration as possible without interfering with the graceful marginal fringing trees, so desirable as a foil to the surrounding buildings.

Trees.—In the face of the most unpleasant climate we know of for gardening, one witnesses the old and foolish struggle making a bleak northern land into a paradise for evergreens. The idea is to give us the vegetation of the temperate climate in spite of all the tests; but it merely leads to belts of smoke-begrimed evergreens, which perish during the first hard winter or in a cold easterly gale; and it leads us also to neglect the beauties of our northern vegetation. This is a mistake in all ways, because the hardy deciduous vegetation which might survive is, if anything, superior to the evergreens, and it certainly should be determined by this time the forms that can and cannot be depended upon to grow in the place. It is among the deciduous trees of the northern lands we should look for kinds to brave these rains and tempests. A careful look among the species that go farthest north in each country would go far to keep us; also trials of every variety of our own native trees and of those of Northern Europe. Sometimes a "mere" variety, as it seems to the botanist, may have precious qualities for our woods; and, therefore, extensive trials should be made where there are any difficulties in getting things to grow. When we, at no far-away day it is to be hoped, determine that the air of our cities shall not be constantly polluted, then we may indulge in some evergreens perhaps; now we have too many enemies for them—smoke, frost, and wind. Those stout enough to resist the last two are settled by the smoke. Had we not this it would be possible to select evergreens for our cities.

Defects.—It is a very sad and curious thing that up to the present day people who are concerned in town gardens and parks do not see the harm they are doing by introducing features such as the band-stand, a shelter house, and a large fountain here. The most essential part of the beauty of the lawn is spoiled by these. If each generation or a decade is to distinguish itself by setting down in some open space in a place like this anything of the above kind by which its advisers or benefactors endow it, the whole place must inevitably be disfigured. This garden is large enough for its purpose, and airy enough, but is not so vast that it needs shelter houses or any like structure. If there were the necessity for such things, the right way would be to place them at the corners or at the sides, hiding in a clump of trees, or so placed that they would not spoil the garden landscape. There are some who rightly object to a handsome building spoiling the landscape. Much more we object, then, to these wretched structures. From certain points of view the garden is marred by them. Why should they not be placed in some part of the city, so that all here should be quiet and changeable? It is not the structures themselves only, but every "dot" of the kind set down is attended by a series of walks and other cuttings up of the place. This is an evil which, however, is not confined to Edinburgh; it is a growing one everywhere, which some day will have to be put a stop to by a strong hand. Even the statues, well placed as they are in Edinburgh, may be overdone. There is no place we know of where they seem more fitting, but many additions might give a very different effect. Nothing spoils a garden more than a multiplicity of statues, as may be seen in various public gardens abroad.

A rockwork of the true orthodox pattern is at the upper or cemetery end—a well-meant attempt no doubt, but hardly needed in the presence of the mass of natural rock at hand! In the presence of Nature's rocks on such a noble scale, too, as these, even our valued Mr. Pulham cannot be said to "meet a great want." But the rocks are not Pulhamite, but of the very bad mixed pattern, and covered with nondescript and ineffective mixtures of plants and weeds, some of them of the coarsest kind. No trace of artificial rock, good or bad, should be seen in such a garden as this, which is itself a rock to a large extent. A better treatment for this end would be to conceal it with free-growing trees and to remove the walk somewhat away from the cemetery wall, in

order to leave that out of evidence as much as possible.

A suggestion.—It only remains to make this noble rock blossom as the alpine cliffs do, and that could be effected by sowing or planting where there is a little soil, with a selection of the bright things that adorn the arid rocks in mountain lands. It could be done without in the least interfering with the effect of the rocks, which must ever be the best the spot can give. To make it a collection of botanical "dots" would be useless; the way is to have masses and broad groups of one or two kinds in a spot, so as to get at once variety and general effect. It would cost very little, and a tasteful workman who knew the flowers we speak of could easily make it the finest rock garden ever seen.

The proposed winter garden.—A kind lady has left some money to build a winter garden here, and some are asking as to its fitness in one of the best positions in the gardens—against the bank on which stand the classical buildings devoted to art. The question raises that of gifts of like kind in general. Goodness of heart is not always accompanied by the best judgment as to what is worth doing. To stem the slow tide of patriotic benevolence in our country would be a gratuitous blunder, but it is no kindness to a donor to allow the doing of a foolish thing. The proposal to make what would be almost a new department here should make those responsible for the town gardens reflect that in most cases winter gardens are not very pretty structures within or without. They add an amount of "fuss," of walks, of stoke-holes, &c., which all should be counted with in dealing with a public garden. Everything has its place, and what might be fitting in a botanic garden, or combined with a group of houses, might be a serious eyesore in the central part of a garden which owes its beauty to the natural contrast it offers to the architectural work of man around, but without. Still, we have no doubt those responsible for the place will consider every point before they determine to place a big glass shed there. Our own opinion is against it, or anything else in the same position. We would remove every brick or stone from the garden rather than add one to it. In any case in which such buildings were found of use to the town we should place them so that they would in no way mar any part of the garden.

Arthur's Seat.—Here we have little to say, except that we are grateful for the most beautiful piece of broken ground, assuming the shape of a park in any city. With all our London parks, and Paris parks, and Vienna parks, and even Stockholm parks, the airy novelty of this makes it more precious than any of them. We should be inclined to prefer its bracing heights to the grand forest charms of Richmond, which is our finest London park. Ample space, great height, fine open drives boldly sweeping round the hill, Heath, Furze, and Hairbell in possession of the ground, as they have always been—the whole is indeed a precious treasure to Edinburgh, which is gradually extending round its base, and which it will for ever help to keep fair and sweet. But one looks from the hill down upon those horrible chimneys, worse than we have any example of in London; and it is sad to see the smoke being everywhere rolled forth. What Edinburgh would be without smoke it is pleasant to imagine.

Here one thinks that the simple art of letting things alone might be favourably practised elsewhere. But that is a neglected art. The mistakes made in gardens come often from letting fussy people in who want to improve things, which had better be let alone. One can only wish that the hunger for "improvement" will never seize on this noble mound. A single statue on it would be a mistake.

Calton Hill, a minor Arthur's Seat for those who cannot often climb the large hill. It stands up, as it were, to give the finest close view of the city, and is quite as precious in its way as the central garden; it would be hard to spoil. A cluster of rocks near the top is prettily decked

with rock plants. There is a noble rock wall with recesses, which would be a good position for the hardy climbers—Roses, Clematis, Vine, and Ivy, and some of these the superintendent is scattering along in a graceful way. A little star of tender plants set geometrically against a handsome group of rocks jars a little here. This exposed hill were better reserved entirely for the free, hardy northern things, which happen, too, to be the most beautiful and best fitted for the spot. To "garden finely" here would be an error, and one for which there could be no excuse.

Size of the public gardens.—The Prince's Street Gardens and a small portion of the Calton Hill are the only places as yet any attempt at gardening has been made. The other parks are at present used more as playgrounds, any improvements being confined to tree planting and the formation of roads and walks. The Queen's Park is open to all, as well as the corporation grounds, which are as under: Prince's Street Gardens East, 8·88 acres; Prince's Street Gardens West, 26·5 acres; Meadows, 73 acres; Calton Hill, 20·5 acres; Bruntsfield Links, 32·5 acres; Regent Road, 3·5 acres; Stockbridge Park, 20·5 acres. Queen's Park is roughly about one square mile (640 acres). It should be understood that the name Queen's Park is applied to the large extent of level ground around and at the base of Arthur's Seat. As regards the floral gardening being limited mainly to Prince's Street, we think it is rightly so. Nothing is more unwise than excessive floral decoration, which, as a rule, perishes every year, and has to be renewed at great expense every year; at least, none will deny that air, space, breathing and playing ground are more essential. It is very easy and not very uncommon to spend thousands of pounds a year in floral decorations and the necessary hothouses, &c. It would surely be more wise to add to the city grounds, parks, and park ways, and to keep them green and well planted with such ample means. It would be a mistake for Edinburgh to follow other examples, and devote large expenditure to tender plants and their preparation, considering that all parks and public (as distinguished from botanic) gardens are for vegetation that must be able to face our own climate.

BOTANIC GARDEN.

AMONGST royal botanic gardens that at Edinburgh justly takes second rank to Kew as regards size and importance, though one would scarcely imagine so, judging by outward appearances, and particularly by its mean entrance in Inverleith Row. It is as modest as could well be, not nearly so pretentious as the workmen's entrance close by, there being simply a wooden door, unembellished and encased in a high stone wall as if it were the door of a prison. In this respect this garden is a striking contrast to that at Kew, where there is a befitting grandeur and imposing aspect attached to at least three out of its five entrances, the meanest of which is better than the main one at Edinburgh. There is every facility for making the entrance to this garden in harmony with the rest of the place without much expenditure, and, seeing that such a vast amount of money is frittered away upon much less useful objects in the royal parks and gardens about London, it would not be too much to give the Edinburgh public at least a becoming entrance to their noble garden. Inside the doorway is as fine a public garden as any in the three kingdoms, and one containing many really fine features, but, unfortunately, some bad ones. It covers an area of about thirty acres, beautifully undulated and diversified, and as it lies high and only about a mile distant from the centre of the town, there are some interesting peeps at the Calton Hill, The Castle, and Arthur's Seat, and at various parts of the garden openings through the trees have been designedly made in order to let in peeps of distant scenery.

Trees and shrubs.—One main feature about the place which at once strikes the stranger is the fine tree and shrub growth, which gives the garden that snug-sheltered aspect which is so

sadly wanting in many public gardens, especially in some parts of Kew. Even the inevitable feature of a botanic garden, the "herbaceous ground," can be tolerated if its ugliness is masked by trees and shrubs interspersed as they are here. Some of the shrubs surpass any we know of. Those particularly noticeable are the broad masses of Heaths, Menziesias, and alpine Roses, of which latter there could scarcely be any finer, some of them being upwards of 6 ft. across, forming dense rounded masses, which in early summer are thickly studded with bloom. The best of the alpine Roses here are *Rhododendron hirsutum*, *myrtifolium*, and *ferrugineum*, and these are placed in beds by themselves; therefore, they are seen to the best advantage. The Heaths, too, are a fine feature just now particularly some varieties of the Ling (*Calluna vulgaris*). These Heaths form isolated masses of one kind, and the beds of irregular outline and some 6 ft. or 8 ft. across are grouped together, the result being an interesting heathery. Those attractively in bloom are the double variety of *Calluna vulgaris* and *Alporti*, a carmine coloured kind; *Erica spicata alba* makes a dense mass of white; and *E. Watsoni*, a dwarf pink flowered species and one of the best of all, is likewise very fine. It is interesting to observe how hardy some of the Sikkim *Rhododendrons* are here; of such as *R. Thomsoni*, *campanulatum*, and *Hookeri* there are numerous big bushes as healthy as under glass, though they flower but sparsely; *Rhododendrons*, indeed, are a fine feature in the garden. The late Mr. McNab made free use of them. Hollies, too, are exceptionally fine, and there is a large collection of them, legibly and accurately named. Both the green and variegated kinds thrive in perfection, making tall pyramids, which do not appear to have been injured by the late severe winters. Conifers are numerous, and, having regard to their proximity to the town, they thrive uncommonly well, particularly those of small growth. On one prominent sloping mound there is a large, bold group, forming a terminus to one of the principal walks. In the same part of the garden there is a rich collection of Coniferae not very remarkable for age or size, except the Yews, and particularly the Irish variety, of which some of the finest specimens we have seen exist here. This garden has had from time to time a fair share of illustrious visitors, judging by the many memorial trees planted about the place, a large space in front of the class-room being covered almost entirely by trees planted by members of the Royal family and others. *Quercus pannonica*, or *Q. conferta*, as it is more correctly called, seems to be a favourite memorial tree, and certainly it is a noble Oak, and distinct from any variety of the English Oak. During spring and early summer we imagine that the garden must wear a very bright appearance, judging by the numerous masses of fine flowering shrubs which it contains, and which, as a rule, look as if they had been left undisturbed for years.

The herbaceous ground is sadly prominent, and to make matters worse it is repeated in three different places, the main botanical arrangement, the collection of British plants, and that of economic plants, each as uninviting as could well be, the plants poorly developed, and, of course, accompanied by huge, staring white labels, which, by the way, are in a bad state, and do not in many instances stand for the plants they should do. The neat little T shaped iron label, which is being introduced at Kew, is undoubtedly one of the best of all botanic garden labels for hardy plants. In the arrangement of the plants in botanical sequence the plan here is to group the Orders by themselves, a commendable one, far better, in many cases, than that at Kew. At the present time there are at Edinburgh grand masses of Willow Herb (*Epilobium*), purple Loosestrife (*Lythrum Salicaria*), and others which really make an imposing display. The prevailing idea about botanic gardens is that in order to arrange and conduct them scientifically all idea of picturesque effect must be left out of the question, but that both may go well hand in hand there is ample proof here and elsewhere.

Besides trees and shrubs there are many pleasing features about the grounds. For instance, one cannot but admire the broad glades of turf which are left unmarred by beds or dots of shrubs; they add much to the noble appearance of a garden like this. Then, again, the hardy Ferns are a grand feature, particularly the large groups of the Ostrich Fern (*Struthiopteris pennsylvanica*), which are so old, that they have thick black stems like a Cycad, from which arise the tall plumes of fronds. Their effect, as a whole, is striking, and such as we have not seen elsewhere. There are also some grand examples of other hardy Ferns, particularly of the Crested Male Fern (*Lastrea Filix-mas cristata*), in which the late Mr. McNab took great pride. In another part of the grounds is a spring-fed, crescent-shaped pool filled in one part entirely with the Cape Pondweed (*Aponogeton distachyon*), a singular fact, as in many other places further south it is not quite hardy. Here it thrives in perfection, and flowers abundantly throughout the summer till late in autumn. Adjoining this pool is a bog bed filled with a host of interesting moisture-loving plants, including *Sarracenia purpurea* and *flava* and the *Darlingtonia*, which are hardy and thrive tolerably well here. There are also many other interesting plants we should like to mention if space permitted.

A capital idea is being carried out on the ground in front of the class-room. Here are large numbers of beds, and it is intended to fill them with masses of hardy plants arranged according to their various seasons of flowering. Even already the work is somewhat advanced; for example, there are beds of Japanese Anemones, white and pink, Delphiniums, Phloxes, Gentians, Geums, and Veronicas. Such an arrangement, if carried out well and thoughtfully, will be an interesting addition to the garden, and will in no way detract from its scientific purpose.

The glass houses are on an extensive scale, and are all filled to overflowing with vast collections of plants, but, strange to say, fully one-half of them and those containing the most interesting collections, are not open to the public. In a garden maintained as this is such a state of affairs ought not to exist, though, on the other hand, it ought to be stated that in order to maintain high keeping the present staff is inadequate. Having, however, regard to the vast difference in the amounts of the annual grants to the Edinburgh garden and that of Kew, the former will compare favourably with the latter, particularly as regards cultivation. The annual grant allowed for the maintenance of this garden is only £1500, while that allowed to Kew averages something like £20,000, a wide discrepancy when the extent of the two places is taken into consideration, and this circumstance accounts for the bad state of repair noticeable with respect to nearly every house in the garden. The principal range is of imposing extent, being some 150 yards in length, and it runs nearly the whole extent of the garden crosswise. The houses consist of lean-to's and high-roofed four-sided spans, the centre being of great height. The first house we entered contains the principal collection of Orchids, among which are some rare species. The walls and roofs of each are ornamented with climbing plants, and just now one of the greatest attractions is an exceptionally fine plant of *Bomarea Carderi*, which shows well what a grand twiner it is. In another house Scitamineous plants are represented by some wonderfully fine specimens, and at present there are some large *Hedychiums* beautifully in flower. Some grand examples of Palms and Tree Ferns are noteworthy, particularly the Wax Palm, *Ceroxylon adicola*, *Chamaerops Khassana*, with a tall slender stem; and *Cyathea medullaris*, the latter being a fine plant, remarkable for its quick growth, being only a tiny sporeling some ten years ago. A remarkable plant, and one we have never before seen, is *Wildenovia teres*, belonging to the *Restiaceae*. It is an extremely elegant plant with grassy foliage, which hangs in drooping plumes. The plant is a very large one, some 5 ft. through, growing in a huge pot, and is certainly one of the most remarkable

in the garden. In another of these houses an old plant of the well-known *Wistaria sinensis* runs through the whole length of the house, and in spring is far more appreciated than if it were against an open wall. Other remarkable plants in this range are *Clethra arborea*, as fine as any in the kingdom; *Baura rubioides*, a fine specimen; *Heritiera macrophylla*, *Dacrydium cupressinum*, a most elegant Conifer, and worthy of culture even in a small state.

The Rock Garden is certainly not a very commendable feature. It is of considerable extent, and the position is admirably suited for an alpine garden, consisting, as it does, of a series of undulating mounds, traversed by irregular winding paths, and culminating in a point commanding a wide view of the garden; but the stones, being placed so as to form square "pockets" over the mounds, produces a bad effect; and this, together with the numerous small conifers dotted over the surface, makes the whole look more like a collection of children's gardens than the rock-work of such a noble garden as this is. Seeing that such grand examples of natural rockeries exist in Edinburgh and its neighbourhood, one would scarcely have expected to find such a puerile attempt at making a rock garden as this is. Even at the foot of Nelson's Monument on Calton Hill, shown in the annexed illustration, there is an admirable little bit of rock gardening which might be profitably copied. This little example consists of huge boulders cropping out of a sloping bank, and between them are deep clefts filled with soil, in which a variety of common alpine plants are growing luxuriantly, and spread over the surfaces of the rocks in a charming manner. Of course it is impracticable to have such ponderous masses in an artificial rock garden, and no one expects to see them, but smaller ones might be similarly arranged. No doubt the motive of this "pocket" system was to keep the plants separate; but there are comparatively few alpine plants that require such restriction, and those that really do, such as *Saxifrages*, *Sedums*, and *Sempervivums*, can easily be kept within bounds by cutting them round once or twice in a season. Though the rock garden here teems with a vast number of plants in infinite variety, the bare stones are an eyesore everywhere; they are even stuck one upon the other, and are piled round the stems of *Yuccas* and other plants in a very inartistic manner. A few big boulders buried here and there about the mounds suggestive of natural cropping out would have been quite sufficient for the plants, which could then have spread into masses in the way in which they should be allowed to do, instead of being cramped into spaces a few inches square. There are also too many trees dotted about the surface, and too free use has been made of the *Araucaria*, a tree which certainly dislikes a dry mound. Notwithstanding these defects, there are many pretty spots in which the plants have had it all their own way, and have outgrown their boundaries. In one part a vigorous crustaceous *Saxifrage* is luxuriating in sweet copartnery with a healthy cushion of *Aubrietia*, and neither are any the worse for being thus associated. In other places the vertical ledges of the rocks are overhung with luxuriant masses springing from the crevices, all of which afford ample lessons in the matter of growing mountain plants.

The Palm house, a noble structure, embodies both the old octagonal building, which formerly served as a Palm house, and the newer portion, erected some twenty-five years ago at a cost of about £6000. It is rectangular, 100 ft. long by 60 ft. wide and some 70 ft. high. It has an iron arched roof with galleries running round it inside, from which a fine view of the plants can be obtained. The sides, which are solid, contain huge arched windows, but even with these the building has a somewhat heavy appearance, and at first sight seems too high in comparison with its length and breadth. Three low wings added to it would, we apprehend, improve its appearance, and besides give more room for the growth of small plants, for which there is but

little at present. The house, like all the others, is too crowded, so that the grand specimens of Palms and other plants which it contains are not seen to advantage. The finest plants are a pair of *Seaforthia elegans*, at present bearing beautiful long drooping clusters of flowers; *Sabal umbraculifera*, a huge specimen; *Cocos plumosa*, *Livistona chinensis*, *Sabal Blackburniana*, *Corypha australis*, and *Caryota urens*, besides numerous fine Cycads, such as *Cycas revoluta*, *Dion edule*, *Encephalartos Caffra*, and various other representatives of this noble genus.

There is here a fine houseful of well grown *Nepenthes*, and as fine a collection of *Sarracenias*, *Darlingtonias*, *Droseras*, &c., as could be seen anywhere—large and skilfully cultivated, yet the public never see them. The Lattice Leaf plant is also grown to perfection in the private houses. Again, there does not appear to be a collection of Ferns shown in the public department, yet there is in the private part an exceptionally fine collection, rich in variety, and very well cultivated; and the collection of Filmy Ferns, particularly of the larger class, such as *Todea*, &c., would be difficult to surpass. They certainly far excel the collection at Kew, and are better grown. Of course alterations needed to bring these into view cannot be effected without means, but these ought to be forthcoming.

Behind the walls in the private department, which we were privileged to see, there is more to attract one than in the rest of the garden. Here hardy plants are grown in perfection and propagated skilfully. Those fond of such plants could spend a delightful hour or so among them. There are fine plants of *Meconopsis*, the like of which cannot be grown in the south, particularly *Wallichiana*, and we learnt that a newly introduced species, *M. horridula*, has flowered here this season. *Epigaea repens* is grown here very finely; also various *Primulas*, notably *P. Stuarti* and *purpurea*, of which there are large specimens, better than we had hitherto seen. We had never seen *Senecio pulcher* grown so finely; it was flowering beautifully, and well showed what a beautiful plant it is. Some New Zealand *Veronicas* were particularly interesting. Those we took note of were *V. chathamica*, *Colensoi*, *salicornioides* (like a pigmy *Retinospora*) and *diosmæfolia*. *Mutisia decurrens* is grown admirably in the open, and no doubt it will flower when fully matured. Another species, *M. ilicifolia*, which we thought had been lost to gardens, is also grown here, but it is not so hardy as *M. decurrens*. The following are also some other plants we noticed, viz., *Saxifraga propaginea*, *Onosma stellatum*, not so fine as *O. tauricum*; *Cassiope fastigiata*, *Gentiana acaulis alba*, *Primula floribunda* (a pretty new yellow flowered species), *Myosotidium nobile*, a fine plant with leaves as large as those of *Funkia ovata*; *Androsace sempervivoides* (a little gem), *Gentiana ornata* (one of the prettiest of all alpine *Gentians*), *Arnebia echioides*, *Delphinium cardinale*, grown large and flowering abundantly; the true *Saxifraga purpurascens* and *Stracheyi*, both grown admirably; and *Ilex insignis*, the handsomest Holly we know, and one which will be a valuable addition to gardens if hardy.

Besides the open beds there are crowds of frames and pits filled with all kinds of hardy plants, the alpine being particularly noteworthy; they show admirably that such plants may be grown in perfection in pots plunged to the rim in ashes or other material.

Lentinus lepideus.—In your issue of the 2nd inst. I see a description of this fungus. Having supplied the original from which the illustration was made, it may perhaps be interesting to know a few particulars. This fungus appeared suddenly a few years ago, growing from a chink in the wall of a laboratory near to the ceiling, in all probability from some woodwork in the construction. The room, which is chiefly lighted through orange glass, was built about twenty-two years ago. The times of its appearance are irregular; sometimes it misses a year, but it always grows from the same spot, and each time consists of

one large growth and several small ones. The largest attained in 1880 a length of 1½ in., with a disc of 6½ in. diameter. Its form is probably due to the position of its growth, the ceiling preventing its upright development.—EDWD. DUNMORE, 28, *Osney Crescent, Camden Road, N.W.*

SOCIETIES.

CRYSTAL PALACE FRUIT SHOW.

THIS was held, in conjunction with the National Dahlia Exhibition, on Friday and Saturday last. We refer fully to the Dahlias in their various forms below, and would say generally of the fruit that most of what there was of it was fairly good; some very good, and some was perhaps indifferent, but not much. One most disappointing feature of the show was the empty spaces left on the tables, and for which certain intending, but non-forthcoming, exhibitors were responsible. The prizes were very good, and some 160 entries were made after the receipt of the schedules, but of that number not more than one-half was staged.

Grapes.—The finest collection of ten kinds came from Mr. Roberts, of Gunnersbury, who had a handsome sample of bunches throughout, well finished, and worthy of any garden. Amongst black kinds were Alicante, Mrs. Pince, Madresfield Court, Alnwick Seedling, and Hamburg and amongst whites, Foster's Seedling, well coloured, but berries rather small; Muscat of Alexandria, berries fine, but wanting in colour; white Tokay, and Buckland Sweetwater. Mr. Goodacre's collection included a few good bunches of Lady Downes, Black Alicante, Muscat of Alexandria, and Foster's Seedling. The class for five kinds brought a larger competition, the finest bunches coming from Mr. Allan. His collection comprised Trebbiano and Muscat of Alexandria, fine Chatsworth Seedling, a kind which has large oval berries; Alnwick Seedling, and Gros Colmar. Mr. Coleman's collection, curiously enough, was without a white kind, but the samples were even and good. In another collection Golden Queen was shown, but the berries, though fine, were greenish. Mr. Coleman had the best three bunches of Black Hamburg, really first-rate samples, that could hardly be excelled, and the Madresfield Court bunches in the class for that fine Grape were generally unusually large, though not fully coloured. Gros Colmars were poorly represented, but the competition in the Alicante class was good. The bunches shown by Mr. Howe were superb, although one was suspiciously like a double bunch, but, owing to the superior finish of the exhibit, the judges gave it the benefit of the doubt. Mr. Herrin's bunches were here, as in the Madresfield Court class, remarkably good. The best Muscat of Alexandria Grapes came from Mr. Hill, other bunches being larger, but lacking finish.

Collections of fruit.—The class for twelve dishes brought three competitors, Mr. Coleman taking the first place, though Mr. Roberts ran him close. The former had good Hamburg and Muscat Grapes, fine Bellegarde Peaches, Elruge Nectarines, Queen Pine, Pitmaston Duchess Pears, and other smaller fruits. Mr. Roberts had fine Hamburg and Madresfield Grapes, Hero of Lockinge and Blenheim Orange Melons, Cayenne Pines, &c. Mr. Goodacre showed fine Alicante and Muscat of Alexandria Grapes in this class. Fruit of hardly such good quality was shown in the collections of eight dishes, the best lot coming from Mr. Oclee, whose best exhibits were Muscat and Madresfield Court Grapes, Lord Palmerston Peaches, and a fine Hero of Lockinge Melon. Other good dishes were Irish Peach Apples, Morello Cherries, and Bon Chrétien Pears.

Other fruits.—Pines were poorly shown, but Melons were abundant, as usual. In the classes for scarlet flesh and green flesh kinds respectively Mr. C. Herrin was placed first with handsome fruits of Blenheim Orange and Hero of Lockinge. The best three dishes of Peaches were Barrington, Bellegarde, and Belle Beauce, shown by Mr.

Roberts; and Mr. Coleman in the single dish class had a grand half dozen of Bellegarde. The best three dishes of Nectarines were Lord Napier, Elruge, and Stanwick Elruge. The best Plums were Transparent Gage, Emperor, and Belgian Purple; and there were fairly good samples of Green Gage staged. Other kinds were Pond's Seedling, Jefferson's, Kirke's, and Victoria. Of miscellaneous fruit there were shown by Messrs. W. Paul & Son, Waltham Cross, some 200 sorts of Apples and Pears, mostly small samples. Messrs. Cheal & Sons, Crawley, showed some good Apples; and a capital lot of other hardy fruits, including some twenty kinds of Nuts and good Apples, came from Calcot.

THE DAHLIA SHOW.

EXCEPTING in the pot-plant classes, the exhibits in which were poor and the reverse of decorative, all the sections into which the schedule was divided were well represented, and in most cases very fully and with remarkably fine quality. This being the first national Dahlia exhibition, the committee may well be congratulated in having got together so truly a representative display of this grand old garden flower.

Show Dahlias.—The premier class of the show was that for trade growers and for forty-eight blooms, distinct. Here there was a tough contest between Messrs. Keynes & Co., of Salisbury, and Mr. C. Turner, of Slough, for the first place, but the former firm carried the position by a few points. The blooms were in each case singularly bright and fresh and well formed. Specially noticeable was a grand, reddish-crimson seedling unnamed; W. H. Williams, almost bright scarlet; George Rawlings, dark maroon; Prince of Denmark, crimson-maroon; Rosy Morn, rosy lilac; Arbitrator, cerise; Amaranth, yellow, all fine self; particoloured kinds consisted of J. Bennett, yellow-tipped reddish carmine; Miss Cannell, white, heavily tipped with purple; Henry Walton, yellow-tipped crimson; and Lady Gladys Herbert, white tipped maroon. In Mr. Turner's stand were superb flowers of James Vick, Prince Bismarck, Jas. Cocker, George Smith, and Fred Smith, all rich self; and Herbert Turner, Julia Wyatt, Constancy, John Keynes, James Stephen, Chris. Ridley, lighter self, with many beautiful tipped flowers. In other stands were Joseph Green, bright crimson; Georgiana, pure white; Aurora, buff; and Charles Leicester, bright red, all striking flowers. Messrs. H. Cannell and Mr. Boston showed remarkably well. In the class for twenty-four kinds Mr. Turner turned the tables upon Messrs. Keynes, having blooms of singular brilliancy and beauty. We noted here as very striking Lady Wimborne, rosy puce; John Wyatt, crimson; Alex. Cramond, shaded maroon; G. Rawlings, and others too numerous to particularise. In the stand of flowers shown by Mr. Boston, of Bedale, who was third, was specially noticeable a flower of Artist, almost indescribably marked; also Mrs. Harris, white, edged with lilac; Burgundy, rich dark puce, suffused with maroon; and Clara, rosy peach. The class for twelve blooms brought a fresh lot of exhibitors, and here it was specially interesting to find those eminent rosarians, Messrs. George Paul and Son, of Cheshunt, showing the tender autumn Dahlia in such good form; their stand, which was very good, contained W. H. Williams, Chris. Ridley, Lord Palmerston, James Service, Ben Crossland, and G. Barnes, all deep colours; with George Critchett, Constancy, J. W. Ford, Emily Edwards, Julia Wyatt, and Criterion, lighter colours. The competition in all the trade classes ranged from eight to twelve entries.

Fancy kinds.—In this section the leading prizes in the larger classes were easily taken by Messrs. Keynes and Turner, whose blooms in all cases were simply perfection. In this section were singularly beautiful flowers of Mons. Chauvière, James O'Brien, Professor Fawcett, John Saunders, Henry Glasscock, Jessie McIntosh, Fanny Sturt, Polly Sandels, Gaiety, Flora Wyatt, Grand ultan, Peacock, Miss Browning, Mrs. Saunders,

Magician, Queen Mab, Singularity, Summertime, and Beauty, all very striking, but having markings so diverse and complicated as almost to defy description. In the class for twelve blooms Messrs. Paul and Sons were but just beaten by Messrs. Rawlings Bros., Romford. The blossoms in this class were chiefly reproductions, but not so good as those already mentioned.

Pompones.—These small, but very charming kinds were all placed in open classes, the chief exhibits, however, coming from the trade. We should like to see some exhibitors, not only with these kinds, but with the singles also, showing more taste in displaying the bunches as well as in securing freshness for a longer period, as with the singles especially many of the flowers were drooping early on the first day of the show. In both sections Mr. Turner, who was first in four classes, owed something to the charming way in which he had put up his flowers, although they were none the less the best of their kind. The Pompones, set up in bunches consisting of about six blooms each, made a telling show; the best were Garnet, Northlight, Gem, and Isabel, scarlets; Favourite, Professor Sargent, and Prince of Lilliputs, crimsons; and of fancy and pale colours, Little Eva, Titania, Louis Rodani, Little Arthur, Lady Blanche, and white Aster were all excellent. Mr. Cannell, Messrs. Rawlings Bros., Messrs. Keynes and Co., and Messrs. Paul and Sons all showed strongly in the Pompones section.

Single kinds.—The stands of these exhibited by Mr. Turner in both classes were specially noticeable from the fact that the bunches were set up somewhat fan-shaped and regular, so as to display the form and rich colouring of each flower most effectively. Generally the newer kinds show some notable increase in size over the earlier forms, and very decided improvements in form, substance, and richness of colouring. The star-shaped flowers, therefore, admired a year or two since will soon become things of the past. Most striking in this section were Firefly, Foxhall, Huntsman, and Coccinea, scarlet hues; Yellow Gem, Lutea, and Canary Bird, yellows; The Baron, magenta-claret; Alba, white; Bronze Queen, heavy flesh tint; Mauve Queen and Pink Queen, very charming indeed; Gracilis perfecta, scarlet; Beauty of Cambridge, deep scarlet. These latter three sorts were shown by Mr. Ware.

Pot plants.—These arranged down the centre of the table were, as has been stated, not effective, and hardly did the bedding, single, and Pompones sections justice. Had the plants staged represented all that could be got out of Dahlias in pots, it would be folly to offer prizes for them. We must hope to see them far better done another year.

The amateurs' classes were all well filled and made a fine show; of course the flowers shown were reproductions of those exhibited by the trade growers, but some meed of praise is specially due to that veteran amateur grower, Mr. H. Glasscock, Bishops Stortford, whose twenty-four blooms were superb and well worthy his ancient reputation. It was specially interesting to note that so many amateurs still favour the show and fancy Dahlias, and it is evident that Dahlia exhibitions will stimulate these and many others into new life and increased exertion.

The premier show flower was Herbert Turner, from Mr. Turner's stand, of forty-eight blooms. It is a soft white, the petals set with great regularity and of fine form. It is not otherwise a specially striking flower. The premier fancy bloom was Flora Wyatt, found in the stand of twelve blooms shown by Mr. Walker, of Thame. It is a flower of great substance and singularly perfect form, colour orange flaked red.

Certificates were awarded to Messrs. Keynes & Co. for seedlings Hope, deep rosy lilac; Senator, rosy cream; and Condor, reddish cinnamon, very striking; to Messrs. Harkness & Sons, Bedale, for Earl Ravensworth, pale rosy puce; and Beauty of the Grove, shown by Mr. Harris, Orpington, Kent, a pretty rosy lilac flower, was commended. Of Pompones, certificates were awarded to Mr. Turner

for Isabel, scarlet; Mabel, mauve; Favourite, crimson; and Little Duchess, purple-tipped claret, all lovely little flowers. The Messrs. Keynes also had certificates awarded for singles—Acquisition, rosy crimson, edged with scarlet; and Evening Star, deep crimson. The absence of any official return or list on this occasion rendered it most difficult to obtain a complete report of this part of the proceedings.

Of miscellaneous exhibits, Mr. H. Cannell had an immense bank of flowers, consisting of Dahlias, Petunias, Verbenas, &c., and very noticeable the white Cactus Dahlia, a charming kind. Mr. T. S. Ware showed a very large collection of single Dahlias; Messrs. Kelway & Sons, 100 spikes of Gladioli, all truly superb, many really magnificent. Messrs. W. Paul & Sons and Messrs. Paul & Sons had large collections of cut Roses, fresh if small; and Mr. J. Laing exhibited Begonias in plants and cut blooms in great variety.

ROYAL HORTICULTURAL.

SEPTEMBER 13.

ON this occasion the exhibits were very few, as were also the visitors, a circumstance no doubt owing to the occurrence in the same week of the great show at Edinburgh.

First-class certificates were awarded to the following new plants:—

DAHLIA CHRISTINE.—A single kind, with broad, well-formed petals of a deep rose colour suffused with purple. Mr. Ware, Hale Farm Nurseries, Tottenham.

DAHLIA WHITE STAR.—A white-flowered single kind, having finely-shaped, recurved petals. Mr. Ware.

DAHLIA RUBY KING.—A single kind, having finely-formed, rich rosy purple blossoms. Messrs. Hooper & Co., Covent Garden.

DAHLIA JOHN HENSHAW.—A fine, double, globular flower having well-formed, shell-shaped petals of a rich crimson colour suffused with brilliant purple. Messrs. Rawlings & Sons.

VANDA HOOKERI.—A slender-growing plant, bearing large, well-formed flowers having white, purple tinted petals and a claret spotted lip.

Messrs. Carter and Co. exhibited a well grown collection of Lilies of the speciosum type; also some plants of Hyacinthus candicans well grown in pots. For these a vote of thanks was accorded. A fine display of single Dahlias came from Mr. Ware, among which were many new and brilliantly coloured kinds; also some attractive striped flowers. Messrs. Cannell and Sons, Swanley, showed a box of fancy Dahlias, fine both in form and colour; also a semi-double kind, similar to Juarez, but having white flowers. Messrs. Hooper and Co., Covent Garden, also contributed a good display of single and double Dahlias, amongst which single White Queen was especially good; also the brilliant coloured semi-double Juarez. The same firm also showed a box of excellent Pentstemons, and a basket of small plants of a new bedding plant called Gynura aurantiaca. It has rich velvety purple stems and purple veined leaves. Mr. Roberts, of Gunnersbury, has grown it to perfection this year, and is well pleased with it. Mr. G. Duffield, Winchmore Hill, sent a box of seedling perpetual Carnations well varied in colour and good in form, showing what can be got from a packet of carefully selected seed. Messrs. Lee and Sons, Hammersmith, showed a basket of plants of a variegated Laurustinus called L. marginata aurea, which is likely to become a popular plant. It is excellent for vases or window-boxes. Several variegated kinds of Cupressus were also shown by the same firm. A fine group of Tea and other Roses was exhibited by Messrs. Paul and Sons, Waltham Cross, in which the white Niphetos was especially fine. The same firm also showed two hundred and fifty dishes of Apples and a similar quantity of Pears, thus affording a good opportunity for selection. Mr. Laxton showed a very large Runner Bean called Girtford Giant and a fine dish of Beauty of Hebron Potato. Messrs. Lane and Son, Berkhamsted, exhibited

nine dishes of Nuts in excellent condition; and Mr. George, Putney, showed excellent examples of Beurré d'Amanlis Pear. A group of well grown Gesneras from Chiswick, and a few blooms of Anemone japonica completed the exhibition.

INTERNATIONAL HORTICULTURAL SHOW EDINBURGH.

SEPTEMBER 14 AND 15.

THE show which was held in Edinburgh on Wednesday and Thursday may unhesitatingly be pronounced the finest and most extensive gathering of horticultural produce that has ever been assembled north of the Tweed. The exhibition was held in the Waverley Market, than which no better place exists for such a purpose, inasmuch as it is in the centre of the town and adjoining the great central railway station. This hall covers an area of well-nigh 2 acres, so that there was ample space for accommodating such a vast concourse of people and exhibits.

The exhibition, taken as a whole, was of an imposing character, and the arrangement of the exhibits left little to be desired. Long and somewhat narrow tables ran longitudinally through the centre of the hall, leaving wide passages for visitors. On these tables were arranged the various groups of plants, interspersed with gigantic Palms and Tree Ferns mounted on pedestals, which broke up the otherwise monotonous flatness. The long lines of tables devoted to the fruit competition extended nearly the whole length of the building, and thus arranged the exhibits had a most imposing effect. At one extremity of the hall was a bold group of plants, while at the other were all the hardy fruits, which in themselves made a fine feature, and under the projecting galleries were the vegetables and minor exhibits, which did not mar the general harmony of the whole. Taking everything into consideration, the improvised stages, the inevitable hurry and bustle, and the enormous quantities of exhibits to be arranged, labelled, &c., the committee are to be congratulated upon a highly successful result. The judges, some thirty in number, began their duties at six o'clock, and among other notable horticulturists from the south we observed the Rev. Canon Hole.

The schedule was divided into eight sections, arranged so as to give opportunities to every class of cultivators, and these sections were subdivided into 175 classes, and an adequate idea may be formed of the exhibition when it is mentioned that there were but two or three classes unrepresented. Exhibitors came from all parts of the country, from Land's End to John o' Groats, also a few from Ireland, but foreign competitors were only conspicuous by their absence, although we fully expected to see some of the produce of the Channel Islands orchards. The show, as regards the fruit, may be said to have been a thoroughly representative one, but the competition for plants was almost entirely confined to the north, not even florists' flowers, which are grown so admirably in the south, being forthcoming. The show fully exemplified the high state of horticulture in Scotland, and fitly maintained the high reputation of Scotchmen as gardeners, and particularly fruit growers. Everything was done with promptitude as regards the preparations; as an instance of which we might mention that at six o'clock on Tuesday morning the market was held in the hall as usual, but no sooner was it cleared than Messrs. Moncur and Mackenzie with their staging and table entirely altered its appearance, and by nine o'clock at night everything was quite ready for the judges.

Plants.—Taken as a whole, the plants were not what one would have expected to see at such an important show, and, as we before remarked, it bore quite a national character, very few coming from south of the border. Of course the present is not the season to see what can be done in the north in the cultivation of plants, but, judging from what was here exhibited, they are not grown so finely in the south; indeed, as regards many of

the exhibits here, we have never seen their equal anywhere. As with the fruit, so with the plants, the schedule was framed so as to invite all comers. In section five, some fifty classes were open to gardeners and amateurs only, while the nurserymen had twenty classes to themselves. The finest productions were shown by amateurs as regards specimens, though at least one among the Edinburgh nurserymen showed what fine growth may be acquired among stove plants in nurseries.

Stove and greenhouse plants were not numerous, there being only a few groups, but these contained some wonderfully fine plants. The best ten, from the Earl of Zetland's garden, contained a magnificent plant of *Gleichenia rupestris*, the finest we have seen; a grand plant of *Cycas revoluta*, *Stephanotis floribunda*, *Phæacoma prolifera*, *Allamanda nobilis*, and some huge *Crotons*, exceedingly highly coloured. In the other collection the following were perhaps the most noteworthy: *Davallia Mooreana*, fully 10 ft. through and in perfection of health; *Statice profusa*, a globe of bloom; *Eucharis amazonica*, about 5 ft. across, and with a perfect thicket of spikes; *Cyanophyllum magnificum*, a truly magnificent specimen with leaves 2 ft. long and 15 in. wide; *Gleichenia dicarpa*, a grand specimen. There were also admirable specimens of *Areca lutescens*, *Ixora Williamsi*.

There was a class for the finest single specimen, and about a score of plants competed for the three prizes. The best was a magnificent plant of *Pancratium fragrans*, from Sir H. Stewart's garden. It measured about 6 ft. through, and carried eight huge umbels of its deliciously scented white blooms. The second best was a huge conically trained *Lapageria rosea*, about 8 ft. high, and hung with flowers, and a smaller example of it took the third prize. A grand *Hydrangea Hortensia* and a well-flowered *Clerodendron Balfouri*, a fine *Statice Holfordi* were also shown in the single specimen class. Heaths were shown fairly well for the season, but none were very remarkable, all being of the big orthodox globes.

Crotons and Dracænas made an important feature in the show, the former being particularly noteworthy for their large size and rich colouring of the foliage, and the first collections in the respective classes were simply perfection. The most prominent were *Weismanni*, *majesticus*, *Queen Victoria*, *Andreanus*, *angustifolius*, *Disraeli*, all unequalled in their way, and may be taken as a representative selection of the hosts of varieties cultivated. *Dracænas* were remarkable, not so much for large size as their luxuriant growth and high colour of their foliage; but there were no special novelty among them, the majority of them being those that have been sent out from London nurseries within the past few years, and therefore well known.

Pelargoniums.—It was too much to expect a good display of these in September, but nevertheless there were some creditable productions, though poor compared with what the habitual visitor to the metropolitan shows usually sees in summer. There were a good few of the zonal type, which lent their bright colours to enliven the duller hues of the fine foliaged plants.

Lilies.—There was nothing remarkable about these, for there was a lack of variety, only *L. speciosum* and *auratum* being shown, and it would have been a relief to have associated them with some of the fine Tiger varieties, which ought to have been represented. Some of the *auratum* were of fine growth, good *bona fide* specimens carrying well developed flowers on tall stout stems, but the growers do not appear to have the finest varieties of it.

Fuchsias, shown by amateurs, were a credit to them, especially the first prize sets, the plants being huge specimens hung with flowers and in the rudest vigour. Summer flowering *Chrysanthemums* seem to have got a firm hold on the tastes of the Edinburgh folk, for one sees them everywhere, and the classes devoted for half dozens of them were represented by some admirable specimens, large and beautifully flowered.

Ferns were a great feature of the show; indeed without them the exhibition would have been shorn of one of its greatest attractions. Mr. Neill Fraser's Ferns were the admiration of everyone, and certainly no such collection has been seen at an exhibition for many years. The best six consisted of *Goniophlebium subauriculatum* (Basket Fern), about 200 fronds, 8 ft. to 12 ft. long, swung from market gallery; *Goniophlebium sporadocarpum*, with fronds 4 ft. long, plant about 6 ft. across; *Pteris serrulata cristata* major, about 200 fronds, 4 ft. long, plant between 6 ft. or 7 ft. across in a tub; *Nephrolepis tuberosa compacta*, plant in a 10-in. pot; *Lygodium scandens*, trained as a pyramid 6 ft. high, 3½ ft. through; and *Pteris scaberula*, a large plant 5 ft. across in a tub. Some few hardy Ferns were shown, and creditable examples of *Todea superba* and other Filmy Ferns. The class for *Adiantums* was well filled, though none of the plants were very remarkable for size. Some of the Tree Ferns dispersed throughout the show call for a passing note. A grand plant of *Cyathea dealbata*, from the Earl of Zetland's garden, made a bold figure in the centre, and an equally fine plant of the rare *C. Burkei*, shown by Messrs. Dicksons & Co., was likewise very remarkable, both taking the first prizes in their respective classes. There were several other fine Tree Ferns in the show which reared their stately heads up in a most picturesque manner. Some remarkable plants of *Gleichenia* showed how fine these difficult Ferns can be grown in Scotland. Palms call for no special mention, all being of the general type, though their value for giving the rest of the show an imposing aspect was clearly seen. Huge *Latania* and *Areca* rose majestically above the tables, while along the centre benches *Seaforthias* and similar big Palms lent delightful greenery, and did their best to hide the columns of the hall, which obtruded themselves rather conspicuously.

Orchids.—Amongst fine Orchids the first place must be given to a remarkable plant of *Renanthera coccinea*, grown by Mr. David Paton, about 4 ft. in height, with three leading growths; it bore four large branched spikes, one of which bore at least 100 of its Indian-red cinnamon-barred flowers. Mr. Paul had six well-grown Orchids, to which a first award was made—*Cattleya Harrisoni*, *Odontoglossum grande*, and *Miltonia spectabilis* being remarkably well grown. A specimen of *Odontoglossum Pescatorei* in Mr. Donald's group bore three large branched spikes. Mr. Walker staged *Cattleya exoniensis* and a well-bloomed *Oncidium macranthum*, bearing many flowers on a flexuose spike. *Odontoglossum Alexandræ*, *Pescatorei*, and *grande* were especially well represented, and a clean and healthy plant of *Cattleya Dowiana* from Dr. Paterson attracted attention; its buff petals are contrasted with a frilled lip of crimson velvet, veined with gold. Mr. Douglas had a vigorous plant of *Cattleya gigas* in good condition, its flowers being rich in colour, and large in size. The white spots on the rich purple lip light up this flower in a pleasing way. Mr. Donald exhibited a healthy plant of the rare *Cypripedium concolor*, having soft yellow flowers profusely dotted with purple; in habit this closely resembles the now much better known *C. nævium*. Mr. Paterson, of Milbank, sent a showy pair of the Cape Disa, in good condition, bearing 14 flowers on 8 spikes. Mr. Smith, of Stirling, sent a vigorous plant of *Odontoglossum Pescatorei*, bearing a dense branched spike of pure white, purple blotched flowers. This was one of the most distinct and effective of all the forms of *O. Pescatorei* exhibited. A vigorous plant of *Cypripedium selligerum* bearing six fine flowers on two spikes; *C. Stonei*, *C. Lowi*, *C. Sedeni*, and *C. Dayanum* were also included, along with *Masdevallia Veitchi* and *Odontoglossum Alexandræ*, the two last named being especially fine varieties. A choice collection of eight Orchids came from Messrs. Ireland & Thomson, the most attractive of which was *Vanda cœrulea*, with a strong spike of fourteen flowers. Of all Orchids this is one of the most distinct and charming, bearing large flowers of a delicate lilac

blue, netted and shaded in the most exquisite way. *Phalenopsis amabilis*, with eight flowers, and good plants of *Cypripedium Lowi* and *Vanda tricolor* were also included in this group.

Cut flowers.—There is no question but that northern cultivators have quite mastered the art of growing hardy florists' flowers, for it would be difficult to have them finer than they showed here, with the exception of a few. Gladioli were simply magnificent, and it would have made even Mr. Kelway look to his laurels to have seen some of the spikes here, especially the thirty spikes from Gourrock, which were massive in flower and spike, and represented the finest of varieties. There were about a dozen collections shown amongst nurserymen and amateurs, and it was merely a matter of a toss up which was the finest betwixt most of them. The next best things among cut flowers were the Dahlias, than which we have rarely seen finer, especially the larger show varieties, which were as lumpy and symmetrical as even the most ardent florist could desire. They were numerous, too, at least the double varieties, but there were none of the popular singles in the competing groups, and were it not for a grand and numerous collection sent down from Tottenham by Mr. Ware, this superb flower would have been unrepresented. Hollyhocks were likewise splendid, and it seems difficult to imagine that Scotch growers have had to contend with the disease which has been so rife in southern gardens. Rarely has the Hollyhock been shown better, but the north men had it all to themselves, there being not one exhibitor from beyond the border. Roses, considering the late season and the Scotch climate, were very fair, not at all like July blooms, but certainly they were very creditable, and it surely reflects on southern cultivators that they do not get together a Rose show in autumn, so as to bring forward the late kinds. If space permitted we should have liked to have given a list of the varieties shown on this occasion. Pentstemons and Phloxes, which have their true home in Scotch nurseries, were, as may be supposed, shown admirably by Messrs. Downie and Laird, and Dicksons and Co., as well as by amateurs. China Asters were good, but not numerous; likewise the miscellaneous collections of cut blooms, particularly the annuals and hardy perennials.

Groups of plants arranged for effect on an area of 20 ft. by 5 ft. were shown somewhat numerously, but, as is usually the case with this class of exhibits, they were a bone of contention both among the judges and exhibitors and outsiders. There were four nurserymen's tables, all containing fine lots of plants, but the limited space and a mere flat table were not calculated to show them off to the best advantage. The judges awarded equal first prizes to Messrs. Ireland and Thomson, of Edinburgh, and Messrs. Clarke, of Carlisle, while the third was taken by the Liverpool Horticultural Company. The details of these groups are given elsewhere, so that there is no need of repeating it. There were four amateurs' collections, also all highly arranged with the ordinary run of stove and greenhouse plants, and in their case also the judges awarded equal first prizes, so close were the best two in point of merit.

Among the plants exhibited in separate groups, but especially remarkable for their individual interest, were the following: Mr. Joseph Souza sent a splendid specimen of the fragrant *Pancratium speciosum* bearing nine or ten great trusses of its pure white flowers, and in the first prize group of ten stove and greenhouse plants was an equally fine *Eucharis amazonica* bearing many scapes of its pure white blossoms. Mr. Neill Fraser sent one of the most attractive plants in the whole exhibition, a wonderful plant of *Goniophlebium subauriculatum*. This was suspended, as has already been stated, from the girders of the balcony, the only practical way of "staging" it, and was much admired. We overheard one lady remark that it was "a perfect Niagara of Fern leaves," which remark struck us as being singularly expressive of its fresh green cascade-like

beauty. Its longest fronds drooped 8 ft. or 10 ft. below the basket in which it was grown.

Pitcher plants were well represented. Mr. B. S. Williams staged numerous examples of the newer hybrid kinds of *Nepenthes*, bearing a profusion of their mottled urns, and from the Royal Botanical Gardens, Mr. Sadler sent a very interesting miscellaneous collection, including *Sarracenias*, *Darlingtonia*, *Drosera*, *Drosophyllum lusitanicum* (a Portuguese plant, interesting as having revolute veneration), and *Venus Fly-trap* (*Dionaea muscipula*) in quantity together with some of the *Droseras* from Australia and the Cape of Good Hope. Dr. Paterson sent a form of *Sarracenia Chelsoni*, with pitchers of an intense blood-red colour. As thus seen, well grown with highly coloured pitchers, this is one of the best of all the *Sarracenias* at present in cultivation.

Scarborough Lilies (*Vallota purpurea*) were among the finest features in the show, and they admirably showed what grand plants they are when grown to such perfection as were the specimens here, all being about a yard through, and carrying many trusses of bloom on the stems, some two or more feet high. There was a class for the best specimen, which was a remarkable plant. The other three were so fine that extra prizes were awarded to them also.

New plants.—The only collection of a dozen plants was shown by the enterprising young firm of Ireland & Thomson, Craigleith Nursery. The dozen included *Nepenthes Mastersiana*, *N. Williamsi*, *Croton Archibaldi* and *C. Holdsworthi*, *Weismanni superba*, *Anthurium Andreanum*, *A. Veitchi*, *A. Warocqueanum*, *Dracena Wilsoni*, *Adiantum Victoriae*, *Marcgraavia paradoxa*, all of which have been put in commerce recently. This firm also showed the finest collections of *Crotons*, *Dracenas*, and *Ferns* in the nurserymen's class, and the only collection of *Begonias* which were large and really fine.

Table plants.—There was nothing novel in the artistic arrangements; the two furnished tables, though attractive, were thoroughly conventional, and the crowds of table plants which were shown, both by amateurs and nurserymen, were of the usual stamp, not even those who took the leading prizes showing anything out of the common—*Dracenas*, *Crotons*, *Aralias*, and *Pandanus* were eternally repeated throughout. There were some pretty bouquets of the ordinary patterns.

Conifers, which are the one great feature of most all the Edinburgh nurseries, asserted themselves everywhere, the Lawson Company being the largest exhibitors, and the six they showed for the first prize in the class were the perfection of thrifty young plants, *Abies polita*, *Sciadopitys verticillata*, *Picea Veitchi*, and *Retinosporas* being the most noticeable. Messrs. Ireland & Thomson showed the next best six, which were likewise very fine, but did not include such rare kinds.

Fruit.—Owing to the season the fruit was, of course, the main feature of the show; indeed, prominence was given to the fruit in every way, as the bulk of the £1000 in prizes was offered in that division, and no fewer than ninety-two classes were devoted to it. There were three sections of the schedule devoted to fruit; the first contained thirty-four classes exclusively for Pine-apples and Grapes, while the second section was reserved for exhibitors not competing in the first section, a capital arrangement, as it gave all a chance. The third division included general kinds of fruit, including the collections, which latter were particularly good, though not so numerous as we expected.

Grapes.—Every care appears to have been taken in framing the schedule for these, so as to give opportunity for every class of cultivator. There were classes for large growers with any amount of means to produce Grapes, and even the amateur with his one house could compete in some of the classes. There were classes for collections and some for particular sorts, and even some for the finest flavoured Grapes, and those with the finest bloom upon them. As we give a complete list of awards elsewhere, we need only say that the

prize-takers showed produce of the highest possible perfection, and the names of Messrs. McIndoe, Wallis, Elphinstone, Roberts, Hunter, McKelvie, as may be seen, are the most prominent among the prize-takers in the first section; while in the second division Messrs. Witherspoon, McLeure, Jeffrey, McLeod, are to the front. The heaviest bunch of Grapes of the Trebbiano variety weighed 10 lb. 4 oz. There were ten exhibitors of six sorts, two bunches of each, the best from Mr. McIndoe, being a wonderfully fine lot, including monster Barbarossa and Trebbiano, fine Black Hamburg, Gros Colmar, Golden Champion, and Mrs. Pince's Black Muscat. Some huge Trebbianos were in the second. From other exhibitors came splendid Alicantes, Muscats, Gros Colmars, Abercainrey Seedling, Buckland Sweetwater, Madresfield Court in the highest state of perfection, and there was scarcely a bad bunch among them. The next class for six was also fine, the best collection, from Broxmouth, containing some fine bunches of Buckland Sweetwater, Muscat of Alexandria, Gros Colmar, Mrs. Pearson, Black Alicante, and Barbarossa. The next best six, from Mr. Kirk, were excellent, especially his Duke of Buccleuch and Alnwick Seedling. The third contained a huge bunch of Raisin de Calabre, and some highly coloured Bucklands, Black Prince, Gros Colmar; nine collections were shown in this class. There were fine sets of four bunches, the best, from Shipley Hall, containing a fine bunch of Gros Colmar and Madresfield Court and Golden Queen. In the second were excellent Golden Queens and Muscat of Alexandria, and in the third, from Tullamore, there were huge bunches of Barbarossa and Alicantes, and a highly finished bunch of Alexandrian Muscats.

Lady Downes were numerous shown, there being a dozen single bunches, and the fruit from Shipley Hall showed this fine Grape to perfection. The raiser of Alnwick Seedling, Mr. Bell, showed the finest of five bunches, and his bunch was certainly wonderfully fine, large in berry and bunch, and the berries as black as sloes. There were but three bunches of Gros Maroc shown, but the best, from Mr. Wallis, was perfection. Among sixteen bunches of Muscat of Alexandria, Mr. Day showed a superb bunch for the first prize, not large in bunch, but with fine and highly coloured berries. The second best, from Broxmouth, was also fine. Mrs. Pearson and Golden Champion were shown well, but only a few bunches of each. There were a dozen black bunches shown for test of flavour, the judges selecting Madresfield Court, from Mr. McIndoe, as the best; and the next best Black Hamburg, Madresfield Court, Muscat Hamburg, were also shown in this class. Among eleven bunches of white Grapes shown for flavour, the first prize was given to Mr. Roberts for Duchess of Buccleuch, and the same variety also took the second. It was shown by two other exhibitors. Muscat of Alexandria, Trentham Hall, were also shown. There were a dozen bunches shown for the best bloom; Mr. Wallis had a superb example of Gros Colmar for first; Gosford Black was second. Every bunch shown in this class was very fine for high finish.

Collections of Grapes formed the main feature of the fruit exhibition, and collectively the display was one of the finest we have ever seen in Edinburgh. The first prize collection of twelve sorts from Mr. McIndoe was perfect in all points. His Grapes were splendid both as regards the size of bunch and berry and fine bloom. The Rothschild and Black Prince Pines in this collection were handsome fruits. The second award we thought a mistake, and this was the general opinion of many good judges. Third position would have been the proper position for it, and the third should have taken the second place, as Mr. Austen's Grapes were extremely fine, and his Melons, Figs, and other small fruits were very superior. In the collections exclusive of Pines, Mr. Hunter had an easy win, his Grapes in all cases being particularly good. Collections exclusive of Grapes and Pines were numerous, and much fine fruit was in them, but through the ab-

sence of the excluded dishes they failed to create so much interest as those on the other side of the table. Grapes were shown in strong force, both their numbers and quality making an array such as is seldom seen equalled and certainly never surpassed. For twelve bunches, six sorts, Mr. McIndoe, as has been observed, had large, shapely bunches well finished in all respects. His varieties were Golden Champion, Mrs. Pince, Trebbiano, Barbarossa, Gros Colmar, and Black Hamburg. We never saw Barbarossa shown in such fine condition as this exhibitor had it in the various classes here. In the twelve Mr. Hunter was a very close second, his Muscat of Alexandria, Golden Champion, and Gros Colmar being superb. Mr. Kirk, Castle Douglas, was third with fine uniform bunches, but they were deficient in size when placed against the preceding. Mr. Loudon, The Quint, Chirk, had the finest coloured Muscat of Alexandria Grapes in the show in his unnoticed collection of twelve sorts. In the class for six bunches, Mr. Hunter gained the first position, and amongst a fine lot here Mrs. Pearson was very conspicuous. The smaller Grape classes consisted of two bunches of all the best known Grapes, and single bunches of the same, but, with a few exceptions, the quality was hardly so good throughout these lots as in the larger numbers; Barbarossas, Gros Colmars, Black Hamburgs, and Muscats of Alexandria were the most numerous. Golden Champion was shown in splendid condition from many parts. The berries, as a rule, were very large in size, and all were spotless in colour. For the finest flavoured Grape, Madresfield Court, as we have said, was placed first as a black sort, and Duchess of Buccleuch was placed first and second as the best flavoured white variety. Pearson's Golden Queen and Alnwick Seedling were shown in splendid order by many exhibitors.

Pine-apples were disappointing, being few in numbers and of not very high quality on the whole. There was, however, a curious production shown among the pot plants, and that was a plant of the Smooth Cayenne variety bearing two fruits, one of the Prickly, and the other of the Smooth Cayenne variety.

Peaches, Nectarines, &c., were not so numerous or fine as we expected; indeed, we were very much disappointed with both; some of the Nectarines were scarcely presentable at an exhibition table. Among the dozen of Peaches the three first sorts were Princess of Wales, Walburton Admirable, and Noblesse, and among the half-dozen Lord Palmerston, Noblesse, and Royal George. A dozen dishes of twelve were shown, and nine of half-dozen. The best dozen Nectarines were of Lord Napier, but even these were not ripe, though fine. Apricots were shown, but they were not remarkable. Plums were numerous, and on the whole of fine quality, and it was interesting to observe how the exhibitors chose for the most part the same varieties, Transparent Gage, Victoria, Coe's Golden Drop, Belgian Purple being numerous shown. Figs were excellent and fairly numerous, but all of the old-established varieties, except Osborn's Prolific, which was shown well.

Melons.—Out of about thirty red-fleshed fruits the judges selected Bloxholm Hall for first and second, and Christian's Favourite for third. A similar number of green-fleshed sorts was shown; Best of All first, Colston Bassett second, and Trentham Hybrid third.

Vines in pots.—Though these were numerous, Messrs. Lane's grand examples, which they sent from their nurseries, were matchless, being perfectly hung with fine bunches of good size and high finish.

Fruit trees in pots made a poor show; indeed, there was scarcely a decent bush shown.

Hardy fruits were remarkably fine and extremely numerous, each class being represented by some dozens of exhibitors, and with respect to Apples it is difficult to imagine that Apples were so poor this year as general

report has stated, for here were some as fine as could possibly be produced in the most favourable seasons. It was interesting to see how prominent a few varieties were. In no case was there a collection without Lord Suffield, and it was generally supplemented by Echlinville Seedling and Stirling Castle, a proof of their worth. Throughout the whole of the collections of Apples and Pears there was fair average quantity, though in many cases neither Pears nor Apples were ripe. There was only one exhibition in the class open to fruit merchants. This was an extensive and excellent one, consisting of as many fine fruits as could be crammed on a table 10 ft. by 5 ft. Currants and Gooseberries were excellent, having regard to the season, and in capital preservation, but all appeared to be from northern gardens.

The Veitch Memorial.—It was a foregone conclusion that the winner of one of the first prizes would win the prize and medal offered by the Veitch Memorial Trustees, and that for Black Grapes worthily fell to Mr. McIndoe, who we might term the champion exhibitor of the show. The two bunches were huge examples of Barbarossa, both about 15 in. long, wide shouldered, and finely tapering, big in berry, and well coloured. Mr. McIndoe likewise took the prize offered for the best collection of fruit, it being the same as he won, the first prize in Class 50. The prize and medal for the best two bunches of white Grapes were taken by Mr. Day, Garliestown, who showed two superb examples of Muscat of Alexandria, which were perfect in every respect, large and well formed bunches, big berries, and of a rich amber tint.

Miscellaneous collections of plants.—Messrs. Dicksons and Co., Waterloo Place, showed from their Pilgrim Park Nurseries a very extensive group arranged in quite an unconventional style and with excellent taste. It consisted of a pair of huge specimens of Cyathea Burkei, around the bases of which were clustered a group of Lilium speciosum, seen in such a position to great advantage. A grand central plant was Rhododendron longifolium, a Sikkim species, while small plants of Phormium Veitchi, Araucaria excelsa, and various Dracenas stood out prominently from a dense carpet of flowering plants, chiefly consisting of Primulas, Hydrangeas, Heaths, and Lobelias. The margin consisted of Isolepis gracilis, alternating with a new white Lobelia. The *tout ensemble* of this group was very fine, and it worthily occupied a prominent position at the extremity of the hall.

Messrs. Ireland and Thomson sent from their Craigleith Nursery a rich and varied selection of plants, including many new and rare ones, and some not hitherto exhibited. The most uncommon plant was an Amaranthus, probably tricolor, a most beautiful leaved plant. It is of erect growth, the slender stems being furnished with a few leaves of a deep hued purple tipped with green. The most beautiful part is the crown of leaves terminating the stem. These are of two colours, a glowing carmine-crimson, tipped with golden-yellow, colours which contrasted beautifully with the deep green and purple leaves of the stem. The flowers, as in other species, are green and inconspicuous, and are crowded close to the stem. It is apparently of annual growth, and of easy culture. Crotons in this collection were wonderfully fine, particularly some two or three new ones. Thomson's is a very fine variety with broad, partially-lobed leaves of a very deep yellow, broadly edged with green, and suffused with crimson. Archibaldi, another new sort, is in the way of Wiesmanni, but much brighter. Other well-grown and handsome Crotons were Etna, Princess of Wales, Interruptus aureus, a better plant than angustifolius, to which it bears a resemblance, but is more yellow. Some fine Pitcher plants were shown, notably a grand example of N. Hookeri, well hung with pitchers, and N. Henryi, one of the new American seedlings, with a profusion of brightly-coloured pitchers. Dracenas of various kinds, Palms, Anthuriums, including a good plant of A. Andreanum with a dozen spathes, Lilies, a grand plant of

Cyanophyllum magnificum, and numerous Orchids were among the more noteworthy of this tastefully-arranged and effective group. We must not omit to mention two grand specimens of Reidia glaucescens, fully 4 ft. high, and literally covered with its tiny flowers.

The only exhibitor among nurserymen of plants from London was Mr. B. S. Williams, who had a remarkably fine collection, as many as could possibly be got on a table some 50 ft. in length by 6 ft. in breadth. It was a well varied selection, consisting of fine foliated plants interspersed abundantly with flowering plants, the whole very effectively arranged. In it were the fine new Pitcher plants now being distributed from this nursery, such as superba, Henryana, Lawrenceana, Dormaniana, Outrami, atosanguinea, and coccinea, all hung with highly coloured pitchers, so different from the older kinds which pitcher so sparsely. Some fine autumn Orchids were also noticeable, and among them were Lælia elegans, prasiata, Cattleya crispa, guttata, and others. Among new plants were Impatiens Sultani, Bouvardia Dazzler, Croton Mrs. Dorman, Adiantum Victoria, Celogyne Massangeana, and Capsicum Little Gem. Insectivorous plants, such as Sarracenia, Cephalotes, Drosera, Darlingtonias, scattered along the margins, all of which added much interest to the group. A group of plants from the Royal Botanic Garden was of exceptional interest, as it contained plants quite out of the ordinary run, and skilfully cultivated. Insectivorous plants were particularly fine, and a huge plant of Darlingtonia was crowded with pitchers, some upwards of 2 ft. high, and the whole group afforded ample evidence that good culture may be carried out even in a botanical garden.

Messrs. Methven's group from their Warriston nursery was a remarkably bright and attractive one, and quite distinct from the rest; it was composed almost entirely of flowering plants, such as decorative Pelargoniums, large and profusely flowered for the season; a background of tall Palms, and a foreground of Cyclamens, Heaths, Caladium argyrites, Bouvardias, and Rose Little Pet, a veritable little gem for autumn flowering.

Mrs. Gurney Pease sent from her garden at Woodside, Darlington, an extremely pretty group of plants arranged by her gardener (Mr. McIntyre) with good taste. It consisted chiefly of Palms, Crotons, Dracenas, Coleuses, Aralias, and other graceful and high coloured foliated plants, intermixed with Lilium auratum, Orchids, and flowering plants of Amaryllis reticulata, a beautiful plant not often seen.

Messrs. Downie and Laird had a group of admirably grown plants, the most conspicuous of which were huge Coleuses, Crotons, and Dracenas, while towering above them were tall Palms, whose elegant leaves gave an air of lightness to the whole. Belladonna Lilies also enlivened the group, and plants of a mixed character formed an edging, the whole making an attractive show.

The Liverpool Horticultural Company made a fine display, consisting chiefly of Crotons, and certainly they were exceptionally fine, well grown, and splendidly coloured. Rarely have we seen finer examples of C. Warreni, Princess of Wales, Baron Rothschild, Hawkeri, Mortii, angustifolius, and many others; Dracenas, too, were of exceptional merit, and the group was put up with taste. It was not at all formal, and there was just enough flower to enliven it.

Messrs. Dicksons & Son's group, from the nurseries, Inverleith Row, was a bright one, Caladiums and other fine-foliated plants being its chief feature. It also contained a grand specimen of Vallota purpurea, bearing no fewer than nine flower-spikes, showing well the true character of this favourite autumn flower.

Messrs. Clark's group, from their nurseries at Carlisle, had quite a distinct look about it, there being a dense carpet of Maiden-hair Ferns beset with tall Palms, Dracenas, and Crotons, the whole interspersed with Scabrobo and other Lilies, the whole producing an excellent effect.

Mr. Paul, Gilmore Place, had in his group some fine flowering plants of that grand Orchid, *Odontoglossum grande*, also *Cattleya labiata* and speciosissima, *Miltonia Moreliana*, *Odontoglossum Skinneri*, *Cymbidium Mastersi*, *Cypripedium stelligerum*, *Dendrobium formosum giganteum*, and *Saccolabium Blumei*, all among the finest of autumn flowering Orchids.

Mr. Wright, of Ravenswood, Edinburgh, sent an excellent collection, and his gardener (Mr. Reid) arranged it admirably. Amongst well grown fine foliaged plants which it contained were copiously intermixed *Vallotas*, *Cockcombs*, *Roses*, *Heaths*, &c., and the margin was skilfully concealed by graceful trailers.

The Lawson Nursery Company were large exhibitors of their great *specialité*, ornamental Conifers, and thrifty young pyramids of the finest Conifers in cultivation drew forth many admirers. Their plants occupied an extensive area in two of the corners of the hall, and formed an appropriate background for the showier exhibits.

Messrs. Cunningham & Fraser sent from their nursery at Comely Bank, a small, but uncommonly fine selection of ornamental Conifers and Hollies, all large and well developed specimens; in fact the pick of one of the finest of Scotch nurseries for Hollies and Conifers.

A similar display came from Messrs. Little and Ballantyne, Carlisle, numbering about a score of specimens, all the cream of ornamental Conifers, and ranging from 3 ft. to 6 ft. in height, perfect specimens in every way. A numerous collection of hardy alpine plants was sent by Mr. Potts, Fettes Mount, Lasswade, the finest collection we have yet seen exhibited, including, we imagine, almost every species of *Sempervivum* and *Sedum* in cultivation, all well grown plants, and legibly and tolerably accurately labelled.

In looking through the exhibition some singular examples of variation among individuals of the same species were to be seen, not only among the Orchids where such variety is now expected to be the rule, but also among what are generally supposed to be less variable plants. A small flowered *Lapageria rosea* had flowers of a rosy salmon colour, quite distinct from all we ever saw before; then there were several forms of the typical rosy crimson variety, and a splendid specimen of the true *L. rosea superba*, with its bold bell-shaped flowers, mottled with white inside. Amongst the few plants of British Maiden-hair Fern (*Adiantum Capillus-veneris*) exhibited great variety was noticeable, a plant from Mr. Taylor's collection being one of the most remarkable we have ever seen. Its largest fronds were 2 ft. in length, the pinnae broad and frilled at the margin in a way suggestive of *A. farleyense*. It is a Continental form named *A. C. v. Maritzianum*. Messrs. Ireland & Thomson had in their groups of decorative plants by far the finest specimen of the new *Anthurium Andreanum* in the show. It was in vigorous health, and bore in all fifteen spathes in variable stages of development, the largest being very bright and effective as seen among delicate Ferns, Palms, and other fresh green foliage.

Miscellaneous collections of fruit.—A magnificent collection of Apples and Pears was exhibited by Messrs. Veitch & Sons, Chelsea. No fewer than 165 dishes of Apples were shown, representing as many sorts; all of them were gathered in the Southfield Nursery, and chiefly from small trees on the English Paradise stock. Amongst them were some exceptionally fine fruits, especially in the Codlin class, Lord Suffield being particularly prominent. Some fifty sorts of Pears were shown, and these, though not so remarkable for large size, were nevertheless a very fine collection, from which one might make a selection of the best varieties. Scarcely inferior to Messrs. Veitch's collection were the collections of Apples and Pears, numbering about 100 dishes, from Messrs. Cheal & Sons, Crawley, Sussex. Particular interest attached to this exhibit, as the fruits were all gathered from cordon-trained trees, a system which Messrs. Cheal carry out more ex-

tensively than any one we know. The remarkably fine examples shown on this occasion were sufficient evidence of the advantage of this plan of culture, and we were assured that the trees are literally borne down with fruit this year. Notwithstanding the unfavourable season for Apples, of Lord Suffield and Hawthornden there were some of the finest fruits ever exhibited in even the most prolific years. From the Royal Horticultural Society's Garden, Chiswick, Mr. Barron sent a remarkably fine selection of Apples and Pears, numbering some thirty sorts of each, all legibly and accurately named, and each a fine example of its kind. The importance of such a collection as this can scarcely be overrated.

PROPAGATING.

Seed sowing.—Spring is the generally recognised seed time, but still each month of the year gives us something to do in that way. In the case of imported seeds, I find from long experience that if they are sown as soon as received they often germinate readily, while if kept for a time they absolutely refuse to do so. Such being the case, it is evident that there is less risk of failure by sowing at once, even if it be in the depth of winter, when the young seedlings will require very careful attention till spring sets in. In the case of seeds received during the winter, my practice is to sow one half at once and reserve the other half till a more suitable season, that is if there be sufficient to divide in this way; the latest sown if they germinate make more vigorous plants than the others. Some of the tropical Leguminosae are very hard and stubborn subjects to deal with; so much so, that it is best to soak them in warm water for a few days before sowing just to soften the outside covering. Many cut or file them for the same purpose, but soaking is best. Place them in small pans filled with water set on the hot-water pipes where a regular temperature is maintained, and take care to keep the pans always full of water, as if the seeds get dry after being once excited the germ will perish. Sow as soon as there is the least sign of life, keep them moderately moist, and, if possible, give them a little bottom-heat till they appear above ground.

Palm seeds now largely imported should always be sown as soon as they arrive, for some of them quickly lose their vitality. Although to outward appearance perfectly sound, it will sometimes be found on cutting them open that the embryo is somewhat shrivelled; when such is the case, but few plants need be looked for. Sow them in pans or boxes of loamy soil, adding at the same time a little sand to keep it open, and cover the seed to about its own depth. As soon as the young plants are up they should be potted off singly, as stout vigorous roots are quickly produced, and when allowed to become long and matted it is difficult to get them into pots without injury. In potting them off use the same soil as that for sowing, and do not bury them too deep, a reliable guide in this respect being to leave the still attached seed just on a level with the soil.

In the case of minute seeds cover very lightly if at all, and place a pane of glass over the pot till germination takes place, when it must be at once removed. Such as *Heaths*, *Epacris*, *Melaleuca*, *Leptospermum*, and the many minute seeded Australian or Cape shrubs prefer a soil composed principally of sandy peat, and, whether sown in pots or pans, good drainage is essential. Care should be taken not to sow too thickly, or it will be necessary to prick them off when so small that they can only be handled with difficulty; besides, when crowded, mildew is apt to set in, and it is very difficult indeed to eradicate it when once established. All pulpy seeds, even if the flesh is still adhering when received, should be cleaned before sowing.

In the case of unknown seeds, do not throw them away until satisfied from examination that they are dead, as some kinds will lie a long time, and at last grow. I have frequently noticed after turning out a potful of seeds that had laid so long

as to be thought dead, that when replaced in fresh soil they at once started to grow. The age of seeds, no doubt, has a great deal to do with the time during which they lie in the ground. A good illustration of this is found in the case of seeds of *Primula japonica*; they germinate at once if sown fresh, but if kept will lie for years after sowing without coming up. The watering-pot requires careful using in the case of fine seeds, or they will be all washed towards one side of the pot. When there is any fear of such happening, the pot, when dry, should be placed in a couple of inches of water for a little time, when the moisture will percolate through the whole of the soil, and wet it thoroughly without disturbing the smallest particle, either of soil or seed on the surface. T.

Good Violas.—Amongst Violas that we have yet tried we find Sovereign to be the best yellow (rich golden), and it is very dwarf in habit. It is suitable alike for edgings, lines, and massing. Of whites, *Vestal* is [one of the purest, and, like Sovereign, dwarf, but more erect in growth. Both are free bloomers, and young plants put out early in spring have been quite a mass of flower during the whole season; in short, they are almost continuous in their flowering if occasionally looked over, and if all seed-pods are kept picked off. For free-flowering properties, however, nothing beats a purple which we have under the name of *Eglintoni*. This I have failed to find in any trade catalogue, but it answers as nearly as possible to the descriptions given of *Mulberry*. It is rather a tall grower. Two corresponding beds planted with this in the spring of last year have been blooming almost without intermission; they bore such a crop of flowers in May and June this year, that I had not the heart to do away with them for the sake of change, and they are only getting rather rusty-looking now. Anyone desirous of having these three colours of Violas will find the sorts named to give satisfaction.—J. S.

Red spider.—Will someone inform me how to kill red spider in a greenhouse where Vines and plants are grown together?—A. B.

Bermuda Grass.—For years I have had an idea that if I had reliable connection with any planter or seed dealer on any of the Bermuda Islands I might be enabled to import seeds of the Bermuda Grass (*Cynodon dactylon*), but knowing no one there, and having failed to get any information on the subject in this city, I take the liberty to ask some of your readers to put me in possession of a planter's or seed firm's address, so that I may correspond with them direct.—R. MAITRE, 976, Magazine Street, New Orleans. [*Cynodon dactylon* is said to be an inhabitant of our southern coasts.]

(Dora B.).—Try Messrs. Barr & Son, King Street, Covent Garden.

Names of plants.—*A. D.*—1, *Solanum nigrum*; 2, *Glyceria aquatica*; 3, *Triticum repens*; 4, *Agrostis* sp.; 5, *Bromus sterilis*. Specimens not good.—*W. N.*—*Polygonum Sieboldi*.—*A. H.*—Either a Willow or a Poplar, but impossible to say which from down alone.—*A. J. H.*—1, *Veronica decussata*; 2, *Polygonum fagopyrum*; 3, shrivelled past identification; 4, *Saxifraga sarmentosa*; 5, *Sedum Sieboldi variegatum*; 6, *Aconitum Napellus*.—*F. E. R.*—1, *Savin* (*Juniperus sabina*). The word *Savin* in rural districts is often changed to *Saffron*; 2, *Koeleria paniculata*.—*Z. R.*—1, *Asplenium viviparum*; 2, *Pteris serrulata*; 3, *Pteris serrulata cristata*.—*S. W. C.*—*Viburnum Opulus*; Crane's-bill next week.—*H. G.*—The large frond is *Lastrea spinulosa*; the other two seedling forms of the Male Fern, *Lastrea Filix-mas*.—*A. C.*—*Saccolabium Harrisoni*, a very fine spike; *Pelargonium* not uncommon.

Names of fruits.—*J. C. T.*—It looks somewhat like the *Alicante*, but a bunch is necessary in order to be certain.

COMMUNICATIONS RECEIVED.

W. G. S.—E. D.—N. P. & B. Company.—B. F.—P. M.—A. D.—W. M. B.—A. H.—C. P.—W. R.—W. E. G.—D. T. F.—G. J.—E. H.—J. J. & Sons.—F. W. B.—W. G.—W. W.—W. B.—S. D.—W. E. G.—W. G.—W. G. S.—G. B.—W. P.—G. H. F.—R. C.—R. P.—M.—J. G. A.—D. W. W.—W. J. M.—J. D.—C. F.—G. B.—G. J.—D. D.—R. G.—W. W.—S. R.—R.—W.—R. G.—B. & Son.—W. S.—apt. S.—J. C.—B. R.—S.—W. G.—J. S. & Sons. E. D. H.—R. W. N.—T.

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

SUBSTITUTES FOR BLACK WALNUT.

BLACK WALNUT has disappeared in two-thirds of the States of the Union in which it was once plentiful. First, Ohio and Indiana were stripped, then Kentucky and Tennessee cleaned up, and the enormous advance in the price of this wood during the past three years attests its scarcity, while parties of men who are going through the States whose trees are gone, pulling up stumps to be used for veneers, show how difficult it has proved to be to find a substitute for this wood, with its even grain, dark finish, and freedom from warping. Cherry stained black has been tried, but no stain lasts, and it is worth noticing that Bouille, the greatest master of cabinet work that ever lived, whose desks sell now for thousands of dollars apiece, utterly refused to work in Cherry, and preferred to deal patiently but for all time with the great difficulties of ebony. Until the young Walnut groves, which are being planted in all directions, begin to furnish a supply, however, some substitute must be found, and one is offered, it is claimed, in the Blue Gum tree of the south. Its trunk is often hollow, but its branches afford boards of suitable size, and once stained this timber is said to work well. Another substitute, whose first extensive and careful mention is in the English legation reports, is suggested in "straw lumber." A report just published on the subject by the British Government says that this is unquestionably admirably adapted for joiner work, and can be sold at one-half the price of Walnut. The supply of this material, made by pressing straw in moulds with cement, is practically inexhaustible. A ton of straw will make 1000 ft. of boards; therefore the Wheat fields of the west appear likely to solve the timber as well as the food problem.

The above extract, copied from the *Chicago Times* of Aug. 27, shows conclusively the demand, value, and scarcity of Black Walnut timber in the States. The Americans, however, who, as is their wont, have a keen eye to business, are alive to the want, and have already set to work to plant the tree extensively with a view to meet the continuous and increasing demand, and doubtless at the same time with the idea of a good investment with a quick and profitable return for capital laid out in planting. It appears that no other timber has been found as yet to be a substitute for this Walnut. The above I think is strong evidence that the Black Walnut ought to be planted in this country freely as a tree for future commerce. I quite agree with Mr. Falconer (p. 244) that it must have good and stiffish soil in which to grow well and to a large size quickly. A dry, light, poor soil is quite unsuited to the Walnut. Wherever Apple and other fruit trees abound and prosper there the Walnut may be planted with a tolerable certainty of success. I notice in the "Timber Trades' Journal" that Black Walnut is quoted as high as 6s. per foot. It is unfortunate that this tree has been overlooked as a valuable and useful timber tree; the consequence is there are but few young trees to be had from nurseries. I am at the present time prepared to buy a

quantity of good plants, but so far I have only been able to secure about fifty, although I have written to the principal nurserymen in this country for a supply. Cannot our American cousins supply the trade with a stock? To show there is a demand becoming general I have had several letters inquiring where plants can be had, but I have been unable to refer the parties to anyone who has them for sale.

GEORGE BERRY.

Longleat.

CACTI ON WALLS.

IN looking over the gardens of Major Wood, at Alverstoke, near Gosport, I was pleased to see the Cactus used with excellent effect as a wall plant. The wall in question, a 15-ft. one, was completely clothed from base to summit with a dense mass of shoots of *Cereus speciosissimus*, the gorgeous old Cactus of our greenhouses, which even as a pot plant makes a brilliant display. Only think, therefore, of its covering a wall surface of about 25 ft. by 15 ft. with its gorgeous blossoms! I was assured that in the height of the flowering season there could not be fewer than 600 blossoms all expanded at one time. I may mention that the house in question is a cool one used for Palms, of which it contained some excellent specimens. In addition to flowers this *Cereus* also bears annually a crop of edible fruit. Not the least advantage in cultivating Cacti is the fact that they are exceptionally clean and not liable to encourage insect pests, usually the bane of creepers of the ordinary run. I may also mention that hardly any plant will grow in so small a quantity of soil as Cacti will; and as to quality, they will thrive in any loose material, even if half composed of old mortar and lime rubbish, pounded brick-bats, or other refuse. As to pruning and training, they require but little. Once or twice a year, armed with a pair of stout gloves, go over them, breaking out any decayed pieces, and regulating the young growth, but the less training they get the better. As regards watering and other culture of a routine character, I may add that the Cactus is one of the most accommodating plants we have; if neglected for weeks, it will grow on heedless either of good or bad treatment, and the fluctuations of temperature that would be fatal to many plants do not appear to effect this kind of Cactus. Plenty of root moisture during the growing season, and kept dry when resting, are the main points requiring attention. In cases in which a display of flowers is desired in winter as well as in summer, graft on it the different varieties of *Epiphyllum truncatum*. Small pieces of ripened wood, if merely slipped into a notch made with a sharp knife and secured with wooden pegs, will be found to quickly unite and grow into large bunches, lasting for many years, and as they naturally droop down the flowers have an excellent effect when elevated well up above the observer. The *Pereskia* stock is, perhaps, the best, but I have grown large bushes very quickly on the *Cereus speciosissimus*, and can confidently recommend any lover of rich and varied colouring to give the plan a trial. I feel sure they will acknowledge that this *Cereus*, if not an orthodox climber, is at least well able to hold its place with the best in the list.

Seafield, Gosport.

J. GROOM.

Rare Daffodils.—Anxious to make our collection of Daffodils as complete as possible, there are yet one or two kinds which I am most anxious

to obtain. Of these one is the dainty little *N. minimus*, which I have asked for again and again at nurseries devoted to rare bulbous plants, but so far without success. The late Mr. Williams, of Ormskirk, had promised to send it to me, but the great reaper came too soon. *N. cernuus* fl.-pl. is another kind—a double white or sulphur-tinted Daffodil—which soon dies out in most gardens, but which I am hopeful may do well with us on a sunny, dry, sandy border where *N. moschatus* and *N. Bulbocodium* do well permanently. There are two double varieties of *N. cernuus*, viz., *flore-pleno* and *bicinctus*, either of which I shall be glad to hear of if they are really in stock at any of the nurseries.—F. W. B.

SPRING FLOWERS.

Saponaria calabrica.—This makes a charming bed when widely edged with *Silene pendula compacta alba*. We sow the seed about the second week in August in lines in the kitchen garden. In dry seasons we are careful to give it water when it requires it, for after being sown it is important that there should be no loss of time in getting it to grow. About the third week in October the summer bedders are taken up, and the beds are then prepared for the reception of the spring stock. The surface is made quite fine by means of a rake, and a dry day is selected for the planting. The young plants require to be lifted out of the seed bed with as many roots as possible, and at once transplanted to their winter quarters, where they are placed 4 in. apart each way. As we use this Soapwort in large beds, we have an edging 2 ft. wide of the white *Silene*, a combination which after the middle of April is very striking. It is bright and cheerful without being gaudy, as both plants present a distinct mass of colour. The *Silene* is sown at the same time as the *Saponaria*, and treated in the same way; a few plants are left standing in the seed bed to make good any losses that may occur during the winter.

The pink *Silene pendula compacta* we sow at the same time as the white kind, and treat it in the same way. This and the white variety may be used with good effect in various ways; in a round bed the two colours look well in alternate rings, or the centre may be filled with the pink variety, and the white used as an edging round it. Where variety is an object, either colour may be employed as an edging to beds of Pansies or Violas. I saw a very pretty bed last spring that had in the centre a mass of yellow Pansies, then a broad band of the pink *Silene*, and then an outer band of the white variety.

Pansy Magpie.—This Pansy is particularly valuable for early flowering, and there is a quaintness about its colouring which is rather remarkable. We plant it in contrast with white or yellow Pansies, and the effect is excellent. I find that the simplest way of raising a stock is to bring a number of old plants to the reserve garden when taken up in the end of May; by planting them in good soil in a somewhat shady place, and cutting off all flowers and loose growth, they soon break out into young growth. Early in August some fine sandy soil is placed round the stems as a kind of earthing, and in a few weeks they strike out young roots into the new soil. When wanted for transplanting in October we simply dig up the old plants and pull them to pieces, almost every piece making a plant. We manage a good many of our Violas in the same way. At the same time I certainly must say I like plants raised from cuttings best.

Violas.—These commence to flower with us early in April, and we use them largely. The variety named Waverley is our standard plant. It is a good grower, and produces large, well formed flowers in abundance. Holyrood is much darker in colour, and therefore valuable for variety. Vestal is our favourite white kind, and for yellow we use Cliveden Yellow Pansy. For bedding purposes I consider there is no other yellow Viola or Pansy to equal it; it is the earliest to flower, and

continues to produce its blossoms in large numbers for a long time. Moore's Gold Prince is a useful early flowering variety; its blossoms are large and of good substance.

Golden Thyme.—This makes a nice bit of quiet colouring if planted in the first place thickly. It is particularly pleasing as an edging to beds of Forget-me-nots, dark-flowered Violas, and Polyanthus. To get strong plants suitable for planting in the autumn, cuttings should be put in early in the summer, and grown on in the open ground.

Aubrietias.—There is no plant we use more valuable for spring bedding than the Aubrietia; it only requires planting in fairly large masses to make it effective. We generally plant it in the centres of large round beds in a circle 6 ft. over, and put a broad band of red or white Daisies round it. So arranged with the centre of the bed somewhat raised it makes a grand display. I only use two varieties, *A. deltoidea* and *A. Campbelli*. The first, the earliest to flower, has light mauve-coloured blossoms. It is a strong grower and has a rather loose habit. *A. Campbelli* is quite distinct from it; it has a much more compact habit, and the colour of the flowers is considerably darker than those of *A. deltoidea*, and it is a fortnight later in coming into bloom. To be effective it must be planted sufficiently thick to cover every inch of the soil, as it does not grow enough during the winter to cover much space. We frequently have *A. deltoidea* quite bright and gay with flowers early in the month of February. Aubrietias are not the easiest plants we have to propagate by means of cuttings, but we increase our stock in a very simple manner. Some time in the month of October I take up a dozen or two of old plants and pull them to pieces, taking care that every piece has a root; the pieces are then planted out 1 ft. apart each way in the reserve border, and there they remain for one year. At the end of that time, with no further trouble than to keep them free from weeds, they make very large plants 1 ft. across, which, when taken to the flower beds, soon fill up a large space.

Daisies.—I do not know what may be the experience of others, but I find that Daisies are as difficult as any to manage for spring gardening but I think this is easily explained; they do not like to be so frequently moved about as this style of gardening necessitates. I find they will bear to be moved once a year, and will rejoice in the change if it is done at the proper time, but they do not like transplanting at the end of May after being exhausted by a flowering season. However, in spring gardening the second move cannot be avoided, and the only way to keep them alive during the early summer months is to treat them kindly. As soon as they are taken from the flower beds plant them in a shady place, and keep them well supplied with water in dry weather. If they can be kept alive until the month of August, they will be safe. About the middle of that month they should be taken up and divided and replanted again; every piece that has a root will make a plant, and be in good condition for bedding out in October.

J. C. C.

WHAT IS A FANCY DAHLIA?

THERE is no doubt that many visitors to the recent Dahlia show at the Crystal Palace asked themselves the question, What constitutes the difference between a show and a fancy Dahlia? They saw on the exhibition cards "24 Dahlias, show varieties," and a little further on "24 Dahlias, fancy varieties," and they could not help noticing there was an appreciable difference in the markings of many of the flowers; but why such distinctions as "fancy" and "show" varieties should be made did not appear clear to them. They are simply terms of convenience, made necessary or, shall we say, expedient when it was found by the Dahlia raisers of some years ago that certain seedlings betrayed a tendency to depart from the ordinary type of the Dahlia in those days. It is a fact well known to all raisers of seedling flowers that Nature cannot be bound down to operate in

harmony with certain distinctly drawn hard and fast lines, but will break out into altogether new types that occasionally cut across preconceived notions. In some such way the first types of the fancy Dahlias were produced, and a distinct class formed. In later times we have come to be intimate with fancy Pansies, fancy Auriculas, fancy Polyanthus, and other flowers; and this is made expedient, because seedling flowers show marked differences in character and marking, and while too good to be thrown away, cannot yet find a place in the established order of things.

Some years ago the late Mr. John Sladden, in one of the earlier volumes of "Gossip of the Garden," attempted, and with a good measure of success, to define "what constitutes a fancy Dahlia." He said that "to the composition of a fancy Dahlia two or more colours are essential. If the variegation is in the form of stripes or flakes, as in the Carnation, this arrangement of colours, whether the light or the dark preponderate, is in itself sufficient to constitute the subdivision distinguished as striped fancy Dahlias; but if the variegation consists in the edges or tips of the florets being different from the general or ground colour, then the relative position of the colours determines whether the individual is a fancy flower or otherwise. Thus a white, yellow, or any pale variety, edged, tipped, or laced with a dark colour, after the manner of the Picotee, is denominated simply an edged, tipped, or laced Dahlia," and comes under the denomination of a "show" flower. Such flowers as Ethel Britton, Goldfinder, when not a self-yellow; Henry Walton, John Bennett, Lady Gladys Herbert, Mr. Harris, Miss Cannell, Royal Queen, and others are all cases in point, and will be found in catalogues under the name of "show Dahlias." "But when this disposition of colours is reversed, i.e., when the florets of a dark flower are tipped, &c., with a light colour, the variety so marked is a tipped fancy Dahlia." These distinctions are easily understood by Dahlia raisers and cultivators; but those who are not so intimately acquainted with the Dahlia may think them arbitrary, unnecessary, and indefensible, as many in times past have declared them to be.

The following is a good selection of striped fancy Dahlias, viz.: Annie Pritchard, white, striped with lilac and rose; Carnation, clear white, heavily flaked with dark rosy purple; Chang, yellow, striped and mottled with scarlet; Chorister, fawn colour, striped with crimson and rose; Frederick Smith, deep lilac, striped with purple; Gaiety, yellow, striped with red; George Barnes, lilac, striped with crimson; Flora Wyatt, orange, striped with red; Henry Glasscock, buff, striped with crimson; James O'Brien, yellow, with crimson and reddish rose stripes; Rev. J. B. M. Camm, yellow, flaked with red; and Sam Bartlett, blush, striped with crimson. The following are the best tipped fancy flowers, viz.: Fanny Sturt, red, tipped with white; Jessie McIntosh, red, distinctly tipped with white; Lady Antrobus, red, tipped with pure white; Laura Haslam, pale yellow, tipped with white; Miss Browning, clear yellow, tipped with white; Miss Rodwell, rosy purple, tipped with white; Mrs. Saunders, deep yellow, tipped with white; Peacock, dark purple-maroon, distinctly tipped with white; and Prospero, maroon, tipped with white.

There are a few flowers that are both striped and tipped, and of these we can give three conspicuous and charming examples, viz.: Magician, deep yellow, distinctly tipped and striped with scarlet; Summertide, chocolate ground, tipped and striped with white; and Wizard, fawn, striped with maroon, and generally tipped with white. These three are exceedingly pretty.

It is a characteristic of some of the fancy flowers to sport to a self form, and in this character they are no longer fancy Dahlias, and cannot be shown as such; but they sometimes make remarkably good show flowers, and can be placed in a stand of these. Flora Wyatt and Henry Glasscock may be named as varieties that are very apt to sport to a self form, and very fine self flowers they make. Sometimes flowers will come one half self

coloured and one half fancy, and then they are of but little value for exhibition. If a plant of a fancy variety throws wholly self flowers, it should on no account be used for propagating purposes; and such a plant is not so used by our large growers of Dahlias. Generally speaking, the fancy Dahlias lack the depth of substance, finely formed petals, and handsome outline of the show varieties. A few are exceptions to this general rule, and there has been a marked improvement both in the form and substance of the fancy flowers of late. They are exceedingly pretty as border varieties, their peculiar markings rendering them more effective than the self-coloured varieties. R. DEAN.

PERIWINKLES UNDER TREES.

THE Periwinkle, an evergreen plant, will grow in almost any position, whether it be in open borders, in beds, or under the shade of trees, where a carpet of green foliage is often desirable. Different species of plants have been employed to form carpets under trees, and especially under Firs, such as the different varieties of Ivy, Butcher's Broom (*Ruscus aculeatus*), which grows freely in shade upon dry, loamy soils, but if wet and heavy, it seldom succeeds satisfactorily, often assuming a sickly appearance and soon dying. Barberries of different varieties are sometimes planted; but when well established, they require careful pruning to keep them close and compact, otherwise an unsightly cover is the result. If closely planted they will soon produce a good effect. I have, however, found nothing to equal the evergreen varieties of Periwinkle for covering shaded ground. They seem to grow freely in any soil or in any situation; moreover, besides forming a close carpet of green foliage, their flowers are always a welcome sight in the early months of the year whether planted in one distinct colour or several varieties in one clump in the flower garden. When planting the Periwinkles, some hardy bulbs may be put in at the same time; they will grow through their green carpet, and will flower freely year after year. Clumps of Periwinkles and bulbs may be planted in in the shrubberies, where they will be very effective. Some of the different sorts of Periwinkle may also be used for planting upon unsightly slopes or terraces where Grass does not grow freely, for it is always pleasanter to look upon a green surface than upon a dry parched one, or upon bare earth.

Planting under trees.—There is sometimes a difficulty in planting under trees, owing to the quantities of roots that crop up often close to the surface. The best method to adopt, and one which is sure to give satisfaction, is as follows: Loosen the surface with a fork, and place 9 in. deep of loamy soil over the whole space intended to be planted. The plants may then be put in from 6 in. to 9 in. apart, according to their size, watering them several times until they get well established. They will soon grow and cover the ground, and will always have a good appearance. They generally flower freely during the early summer months.

Forming permanent beds.—After the plants get established, beds of Periwinkles are effective at all seasons of the year. They may either be in the flower garden, or in any desirable place where beds are required. Sometimes a corner may be found for a bed in the American garden. The soil in the first instance ought to be trenched from 2 ft. to 2½ ft. in depth, burying in as the work proceeds plenty of rotten manure

leaf mould, which will suit both the Periwinkles and any bulbs which it may be thought desirable to plant in the beds. Before planting dig in also more manure as a surface dressing; then rake fine, when the beds will be ready to plant. The best time for planting both Periwinkles and bulbs is the last two weeks in October and the first week in November. Place a rough edging of burrs or flints round the edge of the bed, 9 in. from the grass, leaving small spaces between the burrs; commence planting the Periwinkles inside the burrs, 9 in. apart, training the shoots over the burrs, and continue planting 9 in. apart until the bed is finished. Where bulbs are to be used they should be planted at the same time. Those which will be found to be most effective for such beds, and which will continue in flower for the longest period, are Crocuses, Snowdrops, Scillas, Dog's-tooth Violets, dwarf-growing Tulips, or any other dwarf-growing bulbs which may be thought desirable. These should be planted near the edge. A variety of different bulbs may be planted in the centre, such as Narcissi, Hyacinths, strong-growing Tulips, Jonquils, and Gladioli *branchleyensis* (brilliant scarlet), and a good autumn flowering variety. *G. cardinalis* (scarlet, with white tips) is a good summer-blooming kind, and *G. gandavensis* (scarlet, with yellow throat), an autumn flowering variety. Lilies of different colours and other bulbs, selected to suit the taste of the planter, may also be used.

Propagation is effected by means of shoots taken from old plants either early in summer or ripened wood in the autumn. The summer shoots may be pricked into sandy soil in pots and placed in a cool frame, or pricked out under hand-lights, keeping them well shaded for a time until they root, when they may be potted singly, or pricked out into a piece of prepared ground. Thus treated, they will be ready to plant in their permanent positions in the autumn. Cuttings made of the ripe wood will be ready to plant out early in summer, and strong plants may also be obtained by dividing the old stools, an operation which can be performed either in spring or autumn. Early in spring the old shoots should be thinned out, which will induce the plants to throw up young ones, and the latter flower better than old wood. The flowers, too, will be found useful in a cut state for filling small vases, and they may be used with good effect for dinner table decoration intermixed with some of the young green shoots, will have the effect of giving the vases a finished appearance.

Varieties.—The following are the names of some of the sorts which are found to grow and flower most freely here, viz., the large pale blue, a strong grower and free flowerer, and a desirable sort to plant under large trees; double flowered dark blue, a dwarf-growing variety, and a free flowerer; single-flowered dark blue, a strong grower and free flowerer; double white, a medium grower and one which produces plenty of fine double flowers; single white, a strong grower useful for edgings and for mixing with the blue sorts; double purple, a strong grower and a free flowerer, one of the most desirable sorts to grow; and single purple, a strong grower and free flowerer. The variegated-leaved varieties make effective groups in herbaceous borders or as edgings for beds planted with green-leaved varieties. They are also effective when planted upon rockwork, or on mounds of any kind.

Branchley Common.

WM. CHRISTISON.

A FEW CHOICE PLANTS.

THERE are so many hardy plants of such general excellence and undoubted value in cultivation that one need not apologise for alluding to them now and then in THE GARDEN. Among them are some which, like the curly-haired little girl so playfully alluded to by Longfellow, when good, "are very, very good;" but when they are bad, they "are horrid," and to this class belongs that erratic bit of crimson blossomed tracery known as

Tropæolum speciosum.—Last year I saw it at Ravensdale Park, co. Down, where it has taken possession of a long border, and covers the stems of Lilies and herbaceous plants with its wreaths of green leaves and fiery-tinted flowers in a way that I cannot hope to describe. To see it thus climbing and wandering up shrubs, and lighting up the cool grey walls with its flaming blossoms in a luxuriant state, is a sight not easily to be forgotten. I have since seen it covering hedges after having been dug up and flung out of a cottager's garden as a ruthless weed, just as one might treat the common white Bindweed; and as I dug up a few roots to bring home, the cottager in question kindly informed me that if "I once got that dreadful creeper into my garden the devil himself wadna get it out again," a prediction I hoped from the bottom of my heart might come true. A northern exposure seems to suit this plant best, and yet only a few days ago I saw it growing well in full sunshine in co. Wicklow, draping railway fences, walls, and wire netting, and also covering a large Wistaria with its elegant growth and wreaths of crimson flowers, its berries, of a rich claret-purple colour, being scarcely less brilliant and attractive. A rubbishy plant in some places barely growing and never, or very rarely flowering, in others it is the one attraction of the place in late summer and autumn. Where well grown no other *Tropæolum* comes near it in beauty, an assertion which I can make firmly and decisively, knowing a little of the well-grown and well-placed beauty of other kinds. To those who have planted roots of it on the north side of a wall and have failed, my advice is to obtain seeds and sow them as soon as ripe in a similar aspect. Of Daisy flowers for autumn there are one or two well worth better culture than they as a rule receive. Well-grown plants of

Chrysanthemum lacustre are now very ornamental, the blooms individually being larger and of more substance than those of the wild Ox-eye, and the plant is also more erect and robust in port. To have really fine flowers, however, a little good and timely culture is necessary. It is one of those things which becomes a little confused and weedy if left to become well established, but if the old clumps are broken up in March or April into small pieces each having two or three shoots, and these are replanted in well enriched soil, the result is far more satisfactory, so much so, that without prior knowledge one might reasonably doubt that such improved blooms were simply the result of cultivation. There are a good many other hardy plants which never succeed so well nor yield such fine flowers as when they are broken up and replanted every spring in this way. Of such are *Phloxes* of the tall or herbaceous section, perennial *Sunflowers*, *Senecio pulcher*, *Pyrethrum serotinum*, and many other good things in that way.

Senecio pulcher is, when well grown, a really fine plant, but as it seems especially at home on our deep sandy alluvial soil, where it gets much moisture, I can imagine it does not succeed so well on hot, dry, or brashy soils where moisture is less abundant. Treated as a biennial it succeeds best here. We dig up some of its thick white quill-like roots in November, and cut them up into 1 in. long pieces which we dibble into a pan or box of sandy loam rather thickly. Placing the box near the light on a shelf in a warm greenhouse, these roots soon produce buds and leaves, and by May or even earlier are nice little plants fit for the open borders. They bloom splendidly the second year, forming stout plants over 2 ft. in height, with their masses of golden eyed purple

stars looking full up at the autumnal sunshine. Nearly all the *Anemones*, especially the beautiful white variety of *A. japonica*, may be propagated from root cuttings in this way. Among especially good things I include those large Himalayan Poppies, commonly known as

Meconopsis Wallichii and **M. nepalensis.**—Even if they never flowered, they would be well worth culture as hardy, fine-leaved plants for the open borders. Last winter they were admired by all who saw them here, forming as they did rosettes of fresh green hairy leaves nearly 2 ft. in diameter. To see them sparkling in the morning sunshine, or during misty weather, when every hair bears a dewdrop of moisture, is a great treat, reminding one of the similar beauty of filmy Ferns under the same circumstances as to moisture. *M. nepalensis* bore spikes of lemon-yellow bell-shaped flowers, fully 4 ft. in height, while *M. Wallichii* exceeded 6 ft., and its delicate blue blossoms expanded afresh every morning for several months during the summer time.

Amongst Lilies there are many "good things" worthy of note, but all—even the common white kinds—are erratic, and do not always succeed well alike. One year you have them grand, and your friends are all surprised, but the next year they fail in your own garden, and your friends surprise you in return. *L. Szovitzianum*, when well grown, is a 6-ft. high spire of soft golden bells, very beautiful to see. So also is *L. testaceum*, which here grows nearly 8 ft. high, bearing a dozen of its salmon-buff flowers on the tops of its leafy wands. *L. chalcedonicum* is here most brilliant and permanently successful, even more so than the best form of the old Tiger Lily, which also does well. Of *L. auratum* we have many—some good varieties, many strong and healthy, and others which are not so. I shall not even think of giving up its culture, however, and from some experiments made during the last three seasons, I am convinced that *L. auratum* likes full sunshine in our climate, provided its roots are associated with those of some other plants the top growth of which reaches about half way up those of the Lily stems, and so shades them from the sun, preventing undue surface drying of the soil at the same time. I still adhere to my dogma that to succeed in Lily growing, we must grow our own bulbs from home-ripened seeds, a plan of culture which is actually being carried out far more generally than is by many supposed. Of all the beautiful things in Lilies is that wonderful black Martagon (*L. Martagon Catani*) which, at Glasnevin, bears thirty flowers on stout stems nearly 8 ft. in height. Wherever this plant, or the white variety of *L. Martagon*, succeeds really well, there are few "good things" more attractive in their way. I still say that positive information is more to the point than is the negative in plant culture, and however timidly the critic may nibble at the cheese of "good things," I appeal rather to those who grow good plants in their gardens to tell us of them frankly, and of the conditions of soil and exposure under which they find them succeed best. As I said at the opening of this paper, what is a good plant under certain conditions may be the merest "rubbish" under other phases of culture, and what most amateurs prefer to know is the best kind of culture and arrangement for what are the most generally beautiful of plants.

F. W. B.

Hardiness of white Stocks.—The greater preponderance of white over other colours in winter Stocks seen during the past few years would seem to indicate that the white kinds are harder than the others. Whether that be so or not, as a rule at least I know that the white Brompton is harder than the scarlet variety. Another very hardy kind is the branching White Queen Stock. That, however, is perhaps not saying much, because during winters not remarkably severe all the three Queen stocks—white, scarlet, and purple—stand well. Just now I have coming into bloom, at a curiously unseasonable time for Stocks, a large number of the white Cape. It is a

variety not much known, and as now standing resembles plants of the scarlet Brompton, though not so large. The leaves are broad, rounded, and woolly. The present bloom comes on side shoots all low down, and so far every plant is producing double flowers. These are pure white, and as double as the flowers of a good Balsam. I should think were this kind to be sown and planted out very early in spring, it would make a valuable autumn blooming variety. In addition to the Brompton, Cape, and Queen Stocks, there is a beautiful white form of the intermediate that needs the protection of a frame for the winter. Seed sown in August will give strong plants to winter in small pots, and these turned out early in April grow to a good size, and bloom all through the summer. The other best white Stocks are of summer growth, the Pyramidal and Ten-week both sweet and beautiful. There are few flowers of which we tire so little as Stocks. Their sweetness renders them ever acceptable; and as border decorative flowers, they are too beautiful ever to be put aside. A grand spike of the double white or scarlet Brompton commands universal admiration; and in the case of these, at least, none will say that they prefer single flowers.—A. D.

"BROCKHURST'S" NOTES ON HARDY PLANTS.

HAVING had the pleasure of contributing notes at regular intervals during the whole of the present year, will you allow me a little space for explanation to many readers. My notes merely profess to be the observations of an amateur florist written down on the spot every two or three weeks, and of practical rather than botanical interest. The object was similar to that which induced Mr. H. A. Bright to pen his delightful "Year in a Lancashire Garden." I had a copy of that volume interleaved, and the notes I sent to THE GARDEN will be found of like scope, but they are written entirely about hardy plants in a Lancashire garden. A few weeks ago "Delta" found me in error about *Francoa ramosa*, and the discussion thus raised has been continued in other gardening papers until Mr. Rolfe, of the Kew herbarium, settled the nomenclature of the *Francoas* for the future. We are now to call the first variety *F. appendiculata*—this has pink petals often with a darker blotch near the base; No. 2 is to be *F. sonchifolia*, also pink flowered; and No. 3 is to be *F. ramosa*, the white flowered variety. In my last communication I spoke of *Hypericum urale* (it should have been "*uralum*") and *H. nepalense*, and my friend Mr. Gumbleton writes me that he holds these two to be one and the same plant, and that I must have got under the name *uralum* that usually sold as *patalum*, but which is certainly not the plant described as *patalum* by Thunberg and figured under that name in his rare work, "*Icones plantarum rariorum japonicarum*." Will some competent botanist give us a paper on the *Hypericums*, with illustrations from authentic portraits of the types, as here is a class of interesting plants the names of which are in confusion? In each of the instances just quoted the mistake was not mine, as I used the names which were supplied to me with the plants. These errors, however, lead to discussion, and I have to thank many friends who have written to me in the course of these notes, showing that they have been of some interest and I hope value. One object I have had in view is that of furnishing the names of really good hardy plants for borders and rockeries, and I hope no rubbish has been thus recommended.

Brockhurst, Didsbury. WM. BROCKBANK.

Passiflora cœrulea at Eastbourne.—The blue Passion flower trained against a southern wall has this year flowered finely here with me, and I have also noticed it do so in favourable positions in Dublin and London—notably in Trinity College Botanic Gardens; but the first place in which I have seen it bearing quantities of fruit was at that delightful marine resort, Eastbourne, on the southern coast of Sussex, a few days ago. The effect of the combined festoons of flowers

and softly tinged, bright yellow, egg-shaped fruits was altogether more striking than with foliage and flowers alone. Rather strangely, this beautiful creeper seemed scarce in the neighbouring town of Brighton.—W. J. M., *Clonmel*.

PLANTS IN FLOWER.

HYPERICUM URALUM.—Next to *H. oblongifolium* with respect to showiness we should place this species; some admirable flowering sprays of it brought by Mr. Stevens show its true character. It is dwarfer than *H. oblongifolium*, more slender in growth, and, moreover, bears more flowers in each cluster. The blossoms, which are cup-like, are not so large, but the yellow is quite as bright and clear. For the margin of a select shrubbery or a rockery it has but few rivals among autumn flowering shrubs.

SPIRÆA PANICULATA GRANDIFLORA.—A beautiful autumn-flowering *Spiræa* bearing this name has been brought to us by Mr. Stevens, of Byfleet. It somewhat resembles *S. Douglasi*, but the flowers are crowded into shorter and broader clusters; the colour is a lovely deep rose-pink, and the feathery appearance the protruding stamens give to the flowers adds to their attractiveness. It is doubly valuable, as it flowers at a season when the majority, if not all, of the other kinds are long past.

GORTERIA ACAULIS, now in flower in the Edinburgh Botanic Garden, is rather a handsome plant, partaking somewhat of the character of an *Arctotis*. From a cushion of root leaves it sends up numerous flower-heads on stalks about 1 ft. high. The flower-heads are about the size of those of the common *Gazania ringens*, but not of such a fine yellow. It is a plant worth seeking for on account of its distinct style of growth and its long and continuous autumn bloom. It is, we presume, a hardy perennial, but on this point we cannot risk an opinion.

FRENCH MARIGOLDS from Mr. Cuthbertson, of the Public Park Nursery, Rothesay, are the most perfect that have been sent to us. Each bloom measures some 2½ in. across, is perfectly circular, and the broad florets overlapping each other form a compact rosette. The colour is a bright glowing yellow, each floret being broadly edged with chocolate-red. Mr. Cuthbertson's show of these and other florist's flowers at Edinburgh the other day was much admired. The Rothesay climate most certainly favours the growth of the French Marigold.

LINARIA TRIORNITHOPHORA is one of the handsomest of the many kinds of Toad-flax, yet it is not common in gardens. It grows about 12 ft. high, and has rigid branches spreading in a candelabrum-like way, each being terminated by a dense cluster of large blossoms with long projecting spurs. The colour is a bright lilac-purple reticulated with dark veins, while the centre is bright yellow. It is only of biennial duration, but well worthy of a little trouble being bestowed in raising it from seed in spring, and planting it out in autumn or the succeeding spring. Some fine flowering specimens of it come to us from Messrs. Paul's hardy plant nursery at Broxbourne.

SENECIO SPECIOSUS has been a great ornament to my garden for the past two months. I, therefore, venture to send a couple of spikes, by no means the best on the plant, as the others are going to seed. The seed was sown in February of this year, and from the charming colour of the blossoms and delicate silver downy stems, I consider this Groundsel a charming plant. It is a profuse bloomer and has fifteen other spikes. Everyone who sees it picks it out and says, "What is that?" But please note that I only say *I consider* it charming; others may not care for it, and I do not want to join those who lay down the law that what they do not like or cannot grow well is therefore, *ipse facto*, rubbish!—STUART WORTLEY. [The flowers sent belong to the true *S. speciosus*, not the species that has been distributed under that name within the last

few years, which is *S. concolor*. The true *S. speciosus* is brighter in colour, and the stems and branches are invariably covered with a dense, silky-white down, whereas in the other kind there is little or none. *S. speciosus* is really a pretty plant, and one which, as Colonel Wortley says, should not be ignored. It is, however, tender, and will only thrive in the open from early summer till autumn; as it can be raised so readily from seeds, however, its hardness or otherwise is not of much importance.]

BOMAREA CONFERTA.—A beautiful flowering specimen of this new *Bomarea* has been sent to us by Messrs. Shuttleworth and Carder from their nurseries at Park Road, Clapham. Its clusters of blossoms, each consisting of about a score, terminate in long slender leafy branches, which are gracefully pendent. The flowers, about 2 in. long, are red, suffused with orange, while the anthers are blue, and the interior is spotted with black. This is the finest specimen we have seen, and it is another proof of the value of the plant for embellishing the roof of a greenhouse or conservatory, purposes for which, owing to its habit of growth, it is well adapted. It thrives at Clapham in a cool, airy house, and is said to be a free flowerer.

CALCEOLARIA SULPHUREA SPLENDENS is one of the handsomest varieties we have seen of its class, and at the Edinburgh show it formed one of the chief attractions of the admirable display made by Mr. Robertson Munro. It is quite distinct from any other with which we are acquainted, having broad basal leaves borne in a tuft, from which arise the flower-stems about 9 in. high; they are widely branched, and bear a profusion of rich yellow flowers not large, but very showy. It is said to be perfectly hardy near Edinburgh; and if so elsewhere, it is certainly a plant that should become widely known. Has any one else tested its hardness?

GLADIOLUS BLOOMS.—Though I have frequently referred to the hybrids of *gandavensis* in commendatory terms in THE GARDEN, I should like still to say a few words in their favour. My first blooms of named English varieties opened this day two months. I enclose a dozen taken promiscuously from the borders this morning (September 19). They are all Langport seedlings, with one exception, and about a dozen are yet to open. The French-raised I find shorter lived. I have had nothing to compare in vivid brilliancy with those for the time mentioned. What is finer than a spike with twenty-two fine blooms on it?—W. J. M., *Clonmel*. [Very fine blooms, brilliant in colour, large, and of good form and substance.]

ASTER FORMOSUS, said to be a variety of *A. longifolius*, must always be included among the select few amongst Michaelmas Daisies that every body would like to grow. It is dwarf in stature, only growing about a couple of feet high, very bushy, and extremely floriferous, the flowers, though small, being of a delicate mauve-pink. There are two or three forms of it, and the best one should be sought for when in flower. This best one is a shade or so deeper in colour, and correlative with the tone of colour is a neat habit of growth and abundance of bloom. We have just received a fine specimen of this form from Mr. Stevens, who grows it admirably in his Byfleet garden.

SOLLYA LINEARIS.—Among greenhouse plants in flower at this season it would be difficult to find a prettier one than this old-fashioned Australian shrub; it is a veritable little gem, a plant that should be grown by everybody who has a greenhouse. It has numerous wiry branches furnished with narrow leaves, and each little twig bears a profusion of drooping small bell-shaped blossoms, the bluest of blues, very clear and bright, and particularly charming at this season when blues in the greenhouse are so scarce. It is an admirable plant for training to an upright pillar or a rafter, and even in a small state it flowers profusely, and is very serviceable. A few days ago we saw numerous small plants of it in Messrs. Dicksons and Co.'s nursery at Pilrig Park, Edinburgh.

MATRICARIA INODORA FL.-PL. has not only in the south proved a most useful plant for supplying a continuous crop of flowers for cutting, but we find about Edinburgh that it is even more popular for this purpose than about London. In the Pilrig Park Nursery there is now one of the finest displays of it we have ever seen, and Messrs. Dicksons and Co. find it a never-failing source as regards cut blooms, so greatly in demand throughout the year and particularly at the present time. This bed is of considerable extent, and occupies a warm, sunny position. The plants, which are about 2 ft. high, are furnished with a profusion of snow-white blossoms, which, nestling amidst the feathery foliage, have a pretty appearance, and one great advantage belonging to them is their being devoid of the disagreeable odour that characterises most composite plants of a similar character.

STANSFIELD'S NURSERIES, TODMORDEN.

WHERE is the Fern lover who has not heard of Todmorden, the northern home of Ferns? And who would not be delighted to spend a few hours there? Few can imagine the wondrous freaks and caprices of Nature as seen in the Todmorden Nurseries. I had often heard of and wished to see them, but had never had an opportunity of doing so until the other day. And a most delightful day it was; the weather had cleared up; the sun "put on his best face," while his warmth was tempered by the balmy breeze that ever blew; and a ride of about an hour by the Lancashire and Yorkshire Railway through a somewhat smoky, but highly picturesque, country brought me to my destination. The hills forming the Lancashire border, and consisting almost entirely of the millstone grit, deserve more than a passing notice, but for the present I must not dwell upon the beauty of the neighbourhood beyond Todmorden. Of Todmorden itself, as the birthplace of so many eminent botanists and geologists, not to say poets, I had formed great expectations; nor was I disappointed. On every side were green hills towering away to the clouds, terrace upon terrace, with here and there some gloriously wooded gorge or plashing waterfall. At the foot of one of these green hills, and at a few minutes' walk from the railway station, are the nurseries, which in themselves are quite characteristic of the neighbourhood. At first sight there is nothing to indicate the treat in store for one. We see, only a short distance off, a lot of quantities of glasshouses, sunken in the earth—long, low, span-roofed houses; but in another moment, having entered the first of these and without further notice, we are head over ears in Ferns—Ferns to the right of us, Ferns to the left of us, Ferns in front of us, Ferns everywhere, of all shapes and shades, possible and impossible.

Although the elder Mr. Abraham Stansfield, and also three out of his four sons, died some years ago, yet the pleasant business of Fern growing appears to be carried on by the surviving son, Mr. Abraham Stansfield (who has also a large nursery business at Kersal, Manchester), fully as extensively and with quite as much enthusiasm as in former years. And when we remember that Mr. Stansfield is the compiler of Stansfield's Fern Catalogue, so well known twenty years ago, and the writer of "Cultural Notes on Ferns," as well as of sundry other books and *brochures* on cognate subjects, we need not wonder that the Todmorden Nursery should still be famous for its old speciality. All the ferneries here being built on the clay, the first element required for successful Fern culture—humidity—is supplied by

Nature herself; and we passed through house after house in which the plants showed that luxuriant green which a constantly moist atmosphere can alone produce.

From these nurseries, as is well known, first came that beautiful variety of the Lady Fern, still to our minds unsurpassed for noble habit and graceful frondage, viz.: *Athyrium Filix-femina plumosum*, and also the closely-allied, but smaller and more delicately-divided form, *todeoides*. And I was glad to observe that sufficient numbers of both of these exquisite varieties are here held in reserve. The beautiful form *Grantii*, too, was here; not the variety commonly sold under that name, but the original form found by Mrs. Grant herself, with fronds about 1 ft. long, and densely overlapping crispy pinnules; also that magnificent variety, the very *ne plus ultra*, we should think, of the crested forms, *acrocladon*. Altogether, about a hundred distinct varieties of the Lady Fern are grown at Todmorden, and nearly half that number of the Hard Fern, the British *Blechnum* having been a special study of the late Mr. A. Stansfield. And what shall we say, what can we say, of house after house filled with every conceivable form of the Hart's-tongue Fern, Male Fern, Buckler Fern, Mountain Fern, and Shield Fern? Among forms of the last named I observed literally any quantity of the beautiful variety *Baylia*, once so much sought after, and which many still consider the handsomest of the non-crested section. Of varieties of Mountain Fern, we noticed the rare *interrupta* and the new *congesta* in considerable quantity, the latter being very pretty. I will pass over varieties of Spleenwort, remarking only, by the way, a finely crested form of the black Maiden-hair Spleenwort named *grandiceps*, to linger for a moment in a house seemingly about half filled with *Polypodium vulgare* var. *elegantissimum*, the beauty of which as seen in the mass defies description. This exquisite form, which at a little distance off might be mistaken for the Killarney Fern, and which is certainly by far the most beautiful of all the varieties of British *Polypody*, was gathered in Cornwall, and was first put into commerce by Messrs. Stansfield, who never sent out anything more beautiful if we omit the famous but unfortunate *Scolopendrium Stansfieldi*.

Of exotic Ferns there is here a vast quantity and variety, from the tiniest North American *Cheilanthes* to the gigantic Tree Ferns of Australia and New Zealand. In one house the *Gleichenias*, those beautiful denizens of the Australian continent which are so often "killed with kindness" in private collections, appeared thoroughly at home side by side with *Woodwardias* from the Azores and western isles. The latter presented such a variety of magnificent and unique forms as I have never before met with; among them I may name *Browni*, *Burgessiana*, and *polydactyla*. Among the rarer Tree Ferns I noticed scores of the beautiful West Indian *Lomaria L'Herminieri*, which with its young fronds of the deepest crimson made a charming spectacle. Near to these were the rare *Lonchitis pubescens* and a splendidly crested form of *Lomaria gibba*. Under the shade of gigantic *Alsophilas* and *Dicksonias* were numerous glass frames thickly filled with *Todeas* and other filmy Ferns; and among these I was delighted to come across an old favourite of mine in quantity, the curious *Drosera dichotoma* of North America.

Of the collection of greenhouse, hardy herbaceous, and alpine plants, I can only just note that

I saw here what is not very common now-a-days, viz., a fine lot of Cacti, such as *Cereus Jenkinsoni*. On leaving I could not but ask myself the question, how is it that while so much rockwork and so-called "rock gardens" are being erected in different parts of the country we do not see more of these beautiful forms of Nature planted in them? In the meantime, even to look at the vast variety of beautiful plants gathered together by the Messrs. Stansfield is a treat to be remembered, and for myself I shall always look back upon my visit to this "Northern Home of Ferns" as one of the most delightful days I ever spent in any nursery.

D. J. NORTHWOOD.

PROPAGATING.

Ivies.—Though these are for the most part readily propagated by means of cuttings, yet among the more delicate sorts there are some that do not strike root very freely in that way, and on that account are generally grafted on the common Ivy. This mode of propagation has one disadvantage, and that is suckers are produced somewhat freely at times, and as the stock is as a rule completely buried they are difficult to eradicate. In putting in cuttings of delicate kinds they should always have the shelter of a frame, and where that can be accorded them there is no better time than the present for carrying out the operation. The best way is to make up a bed of sandy soil in the frame; take out a little of the original soil, put a layer of drainage in the bottom, then about 6 in. of suitably prepared compost over that, and press all firmly down. Into the bed thus prepared the cuttings may be dibbled when they will require but little attention till rooted; indeed cuttings of many shrubs strike well under similar conditions. If put into pots they should be 6-in. ones, and they should be well drained and filled with light sandy soil. Do not crowd the cuttings too much, as in that case some of the variegated forms are liable to decay. Common Ivies are generally propagated by cutting the stem into lengths of 1 ft. or more, and inserting them deeply and firmly in the open ground. They should be put in so that only the top two or three buds are visible, as in that case they are better enabled to withstand drying winds. Such work is generally done in the winter, the cuttings being tied up into bundles and laid in till favourable weather occurs in which to plant them. When put in frames or in pots much smaller cuttings may be employed, a depth of 2 in. or 3 in. being sufficient, an advantage when there is but one, and that perhaps a weak plant, to take from. In the case of choice kinds clinging to a wall, remove the adhering portion with one clean cut, otherwise decay will sometimes commence there, and if carefully done, no harm need occur to the bark in consequence; indeed, from the cut portion true roots will often be produced and strike into the soil, which would not happen if the aerial ones remained undisturbed. Grafting may be performed all through the spring, summer, and early autumn months if the stocks are established in small pots. Side grafting is preferred, and the stock should only have its straggling shoots shortened, the top being cut away by degrees after a union has taken place. Graft as low as possible, so that when planted out the point of union may be covered with the soil.

Hibiscus syriacus.—This useful flowering shrub and its varieties are generally propagated by grafting on the typical form, the stocks employed being either young plants (grafted just at the collar), or pieces of the root with as many fibres attached to them as possible. They may, moreover, be struck from cuttings put in during the autumn in a sheltered situation out of doors, or the young shoots will root in summer if kept close and treated as soft-wooded subjects usually are.

Choisya ternata.—The best time to propagate this fine evergreen shrub is as soon as the

new growth is completed, and before it becomes hard and woody. Unless more vigorous than usual, each shoot will be convenient as regards length for a cutting, and if taken off at its base, put in sandy soil and kept close, it will soon root. On no account must cuttings of this plant be allowed to flag, as if that happens, many of them will refuse to root. If the plants are indoors they start into growth early in spring, in which case the cuttings must be put in the propagating house, but if outside, the growth will not be finished before the beginning of June, and then they will root in a cold frame kept close and shaded. Cuttings from indoor plants are to be preferred, as not only do they strike quicker than those taken from plants in the open ground, but being put in earlier they consequently become better established before winter. In the close heat of an ordinary propagating house a sharp outlook must be kept for thrips, as they are very fond of establishing themselves on the young leaves of this plant, and are difficult to eradicate. T.

KITCHEN GARDEN.

WHITE BEAUTY OF HEBRON.

BEAUTY OF HEBRON has now proved itself to be a most valuable early market Potato; in produce it is quite equal to the Early Rose, whilst in colour, shape, and precocity it is decidedly an advance on that variety. A crop of Beauty of Hebron grown this season between Scarlet Runners produced more than double the quantity, whilst the price made in the market was only one-fourth less than Myatt's Prolific Ashleaf grown under similar circumstances, and the value of Beauty of Hebron may now be enhanced, as this excellent variety has given off here a white or rather colourless sport, which in all other respects possesses the good qualities of its parent; and as the difference in value in the market between a white and coloured Potato is considerably in favour of the white variety, the white Beauty of Hebron will probably be an acquisition, as coloured Potatoes are not required or in vogue with the public and useless except when white varieties cannot be had. It is time for our principal raisers to turn their attention to the production of colourless sorts, but so long as the authorities and judges at our exhibitions give so much encouragement to coloured varieties, which certainly ornament the exhibition table, it is hardly to be expected they will go out of fashion, although for quality and power of resisting disease, and since the introduction of Magnum Bonum and others of its type, and production also, no coloured Potatoes are equal in these respects to our best colourless sorts. I see that sports from Potatoes are practically excluded from the International Potato show, seedlings only, as new varieties, being recognised as worthy of being certificated, but as several of the best new American sorts are said to be sports from Early Rose, and it is not unlikely that some English varieties also have a similar origin, it can hardly have been the intention to exclude such novelties, which are frequently more distinct than some seedlings.

Bedford.

T. LAXTON.

Tomatoes.—When in Boston the other day I stepped into Horticultural Hall to see what was on exhibition there. Good specimens of Boston Market, Canada Victor, Emery, General Grant, and Acme Tomatoes were exhibited. At one time the Boston Market was a highly esteemed Tomato, and although a good one still, it is being gradually superseded by other favourites. Canada Victor is very early and good, but of somewhat ungainly form. General Grant is early, very good, and a general favourite; but Acme, except for its peculiar colour, is reckoned to be one of the very best of Tomatoes. Emery is a well-formed red Tomato, said to be good and desirable. Mr. Winter, of Mansfield, Mass., who makes a specialty of forcing early Tomatoes for market, tells me that he has found that the Canada Victor does not "force" well; Acme "forces" splendidly, but the

public object to it because of its colour—they prefer a bright red Tomato. For many years he confined himself entirely to the Early Essex, and by careful selection of seed and propagation by cuttings he continued to hold an exceptional strain of this variety. It forces well, bears well, ripens well, and sells well. But Mr. Winter tells me that Livingston's Perfection—a somewhat new Tomato—is the best variety he knows of, either for outdoor use or for forcing; he grows it and is satisfied of its superiority. I am fond of Tomatoes, and grow a good patch of them every year. Last year my crop consisted entirely of the Early Essex; it was early, of excellent quality, and bore heavily. I was well pleased with it. This year my crop is all of Livingston's Perfection, and it promises well.—*Rural New Yorker*. [We wish the writer of these remarks would tell us something as to the right flavoured Tomatoes. Some of the kinds are not nearly so good as the old common red in this the most important point of all.]

TREES AND SHRUBS.

ZENOBIA SPECIOSA.

THIS is one of the many North American plants belonging to the Ericaceæ commonly met with in gardens, and, like most of its class, very floriferous. It is a deciduous shrub, which grows about 3 ft. or 4 ft. in height, and bears pure white bell-shaped Lily of the Valley-like flowers in great profusion during the summer months. As often seen, however, it has a stunted and unhappy appearance, owing to being planted in too dry a situation. In its native country it inhabits swampy districts; therefore it does best with us in damp, shaded parts of the American garden, conditions under which the Clethras and others of its more immediate allies succeed. A very distinct variety of this Zenobia is that called *Z. s. pulverulenta*, a plant covered all over with a white meal, and its flowers are larger and opener than those of the typical form. The Zenobias form pretty objects for conservatory decoration when forced into flower in the spring; the pure white blossoms have a very chaste appearance, and the distinct hue of the variety *pulverulenta* shows up conspicuously amongst its green-leaved associates. Like the rest of the Ericaceæ, the roots of the Zenobias form a dense, compact mass, and therefore the plants can be taken up from the open ground and potted without injury. So readily, indeed, are all of this class removed at any time except when making their growth, and so well do they open their blossoms in a warm house, that many of them are largely used for spring decoration indoors. Among those commonly so employed mention may be made of the Rhododendron, Azalea, Kalmia, and Andromeda, while for this purpose the Zenobia, although well adapted, is seldom seen. The annexed illustration gives a good idea of the appearance of this plant, which is also known as *Andromeda speciosa*; indeed, under that generic head are generally included, besides the Zenobia, *Lyonia*, *Leucothoe*, *Cassandra*, and *Pieris*, all of which greatly resemble one another. Of these the most noteworthy are *Andromeda polifolia* (the Wild Rosemary), a native of Britain, Northern Europe, and North America. It is a shrub which grows about 1 ft. high, and which produces pale red bell-shaped flowers in terminal bunches during the summer months. Of this there are several varieties, all of which, like the species, prefer a moist, peaty soil. *A. (Cassandra) calyculata* is an evergreen shrub which grows about 2 ft. in height; its branches arch over in a very graceful manner, and in April or May the upper portions of the shoots become thickly studded with white bell-shaped flowers. The leaves are small, oblong in shape, and underneath very rusty. *A. (Lyonia) paniculata* forms an upright deciduous shrub 4 ft. or 5 ft. in height; its flowers are small and produced in great profusion on the ends of the shoots, which are there nearly destitute of leaves. Of the *Leucothoes*, the best known and the most handsome is *L. (Andromeda) floribunda*, the beautiful pure white flowers of which, whether on the plant

or in a cut state in water, last in perfection a very long time. *Pieris (Andromeda) formosa* is a strong growing shrub with thick, dark coloured, oval shaped leaves, and spikes of white flowers slightly tinged with green. It is very handsome when in good condition, but, being a native of Nepal, it is liable to be injured, except in the west of England, during severe winters.

ALPHA.

REMARKABLE LARCHES.

The Dunkeld Larches are generally considered the oldest, noblest, and most interesting in Great Britain. The two oldest and largest, variously stated as planted in 1736 and 1738, according to different accounts, are growing in the old flower garden (now pleasure ground) near the venerable cathedral, and though, from their extreme height, the top branches periodically show signs of decay, they yet again and again revive, and at the present day are so healthy and growing, that to all appearances they may outlive the youngest person. The largest in 1831 was estimated to contain 350 cubic ft. of timber, and now it is estimated to contain altogether of measurable timber about 480 cubic ft., and the other tree about 50 ft. less. In 1831 the largest one, at 4 ft. from the ground, girthed 12 ft., and the other at the same height girthed 11 ft. In 1867, at the same height, I measured the largest tree, and found it girth 16 ft. at 3 ft. from the ground, and on measuring it the other day I found the largest one 22½ ft. at 1 ft. from the ground, 17½ ft. at 2 ft. from the ground, and 16 ft. 3 in. at 3 ft. from the ground—extreme height, 100 ft. Girth of the other tree, 13½ ft. at 5 ft. from the ground, and about the same height and equally healthy. Mr. William Blackadder, surveyor, Glamis, Forfarshire, in 1831, says: "A few years ago, having been requested to measure one of the large Larch trees at Dunkeld, the following amongst other observations were taken: An observation was taken for the diameter at the mark level of the eye (being 5 ft. above the ground) for the satisfaction of the party who was present, which was found to be 3° 40', and made the circumference 12 ft. 3 in. It was tried by the tape line, and found to be 12½ ft. At 18 in. above the ground the tree measured 16 ft. round, but this was occasioned by inequalities, and the angle at 4° 30' for the measurement at the base was taken a little above that point. As there was some measurable timber above the point assumed for the observation, although of a coarse description, this celebrated tree in round numbers may then have been said to contain 400 cubical ft. by customary measurement. In spring, 1831, when this measurement was made, the tree was ninety-five years old, having been planted in 1736, and had on an average acquired 4½ cubic ft. of timber. There is another Larch tree within a few feet of it of nearly the same dimensions." Besides the two parent Larches thus described, there are others, though neither so old nor large, yet of great interest as splendid specimens of timber trees. On the south bank of the river, about a mile above the bridge, and within a few feet of the water's edge, stands as fine a timber tree as the eye could well look upon. It stands on low ground, which makes it look smaller and not so tall as it really is when close beside it. When I saw it fourteen years ago, it was estimated at 115 ft. in height, 14 ft. in girth 4 ft. from the ground, 109 years old, and containing 230 cubic ft. of timber. Though not of a fast-growing nature, yet it must now be considerably larger. At New House Park, that part of the grounds where the famous Larches grew, of which the *Athole* frigate was built in 1818, there stands to-day as fine a Larch tree as can be seen in this or any other country, and is doubtless one of the same class and age of tree as those cut on that occasion. It is computed at 120 ft. in height, perfectly straight, gently tapering, and symmetrical in every part. At 1 ft. from the ground it girths 13 ft. 10 in., and 5 ft. from the ground 11 ft. 2 in., containing at least 300 cubic ft. of as fine timber as ever grew.

Of the eleven Larches at Blair, six only now remain. They are by no means either so large or so handsome as those at Dunkeld of the same age, but are equally healthy, and, in the writer's opinion, will continue to grow when those at Dunkeld have ceased. In 1867 they girthed respectively, at 3 ft. from the ground, 12 ft. 9 in., 11 ft. 6½ in., 10 ft. 10 in., 10 ft. 8 in., 10 ft., and 10 ft. 8 in.; the average contents of the whole, about 180 cubic ft. of measurable timber. One reason, and probably the

of them was cut down many years ago, but for what purpose is unknown, and a growing Lime tree was planted to mark the site. The stool or root part (about 3 ft.) of the other one is fresh, and indicates having been a noble tree. It girths 15 ft. 3 in. round above the swell of the roots, and 2 ft. 9 in. diameter where cut off, exclusive of bark and sapwood, both of which are quite wasted away. No. 1, the largest of the four, girths 26½ ft. above the surface of the ground, at 3 ft. up 17 ft. 6½ in. in girth, and at 5 ft. up 17 ft.

result of having stood in the fence where the garden existed. The timber is of better quality than No. 1, the branches being smaller. It is of the light-coloured flowering variety, bears sound seed, and is making wood rapidly. No. 3 is next in size, measures 14 ft. 10 in. at base, and 11 ft. 6 in. above the swell of the roots. This is also a great tree and the wood of fair quality. It is of the light-flowering variety, bears sound seed, and contains about 270 cubic ft. of timber. No. 4 is the smallest of the four; it girths 12 ft. 5½ in. at base, and 9 ft. 10½ in. at 3 ft. above ground. It is about 100 ft. high, and contains nearly 200 cubic ft. of timber, and being somewhat deficient in branches, the timber consequently is of finer quality. It is of the dark-coloured flowering variety, bearing cones and seed of sound quality. They are all between 93 ft. and 103 ft. in height, in excellent health, and making wood rapidly. They stand upon a dry soil, the ground gently sloping on what once was the side of a garden or shrubbery fence, exposed to the south and east, and sheltered from the north and west by rising ground and timber trees. Though now 143 years old or thereby, they show no signs of decay, and to all appearance may continue growing to 200 years or upwards.

The Monymusk Larches.—Two miles north-west of Monymusk, on the north bank of the river Don, lies Paradise, a most delightful spot. It lies on a plateau at the foot of a high hill, which protects it from the west, and on the north and east it is sheltered by the great mountain Benachie, 2½ miles distant. It stretches along the bank of the river about 220 yards in length, and 75 yards or thereby in breadth. Several of the Larch and other trees have been carefully and repeatedly measured, and have letters upon them which preserves their identity. An accurate measurement of the height of all the trees is at present impracticable, other trees intercepting the view with their spreading branches, but it may be accepted that their heights vary from 95 ft. to 102 ft., and contents from 175 to 416 cubic feet. The grove consists of twenty-seven Larches in all, twelve Norway Spruce, one Silver Fir, one Weymouth Pine, one Scotch Pine, and various minor growths. It may be noted that the three largest trees B, C, E are still as healthy and vigorous as the smaller ones, as their increase of growth and outward appearance indicates. Taking the girth at 20 ft. from the ground, for example, B increased between 1841 and 1850 7 in. in girth, and made 24 ft. 10 in. 6" cubic contents of wood; and also between 1850 and 1881, 12 in. in girth and 96 ft. 10 in. 6" cube of wood. C increased in the same period of ten years 8 in. in girth, and made 65 ft. 7 in. 6" cube of timber, and between 1850 and 1881, 1 ft. 5 in. in girth, and 147 ft. 1 in. 4" cube of timber. E likewise increased in the same periods 5 in., and made 41 ft. 6' 8" cube of timber, and 12 in. of girth, and 84 ft. 11 in. 8" cube of timber. The tree marked C is decidedly the noblest and best grown of the group, and although it girths less at the base than some others, it yet carries its thickness to a greater height than any of them, and is, indeed, as near a perfect tree as can be seen in this or any other land, whether in point of value or nobleness of growth. There is also one tree on the margin of the flower garden at Monymusk deserving special attention. It is of the same age as those at Dunkeld, Monzie Castle, and Glenlyon are said to be, and though inferior in size to any of them, is yet a fine specimen. It grew originally along with other two in flower-pots in the dining-room, and, as tradition says, the Garden Larch, as it is termed, grew in a pot till too high, when it was planted in the line of a Beech hedge of the flower garden, where the soil is thin and poor and considerably exposed. Under these disadvantages its side branches have been much confined by the hedge and other trees, which caused it to grow up comparatively tall and bare of branches. It is 70 ft. high, 18 ft. to the lower branches, girth at base 9 ft., and at 6 ft. from the ground 7 ft. 5 in., and contains 120 cubic ft. of evidently hard, close-grained



Spray of *Zenobia speciosa* (natural size). Drawn in the Coombe Wood Nursery in June last.

principal one, why the Larches at Blair are smaller and less handsome than those at Dunkeld is in consequence of the severe exposure, having all several times lost their tops, and from time to time had large limbs ruthlessly broken off by storm and tempest. They are also much bent and crooked, showing unmistakable signs of adversity, contest, and struggle. There are many other trees about Blair, in Athole, and Dunkeld well worthy of description, whose ages vary from 120 to 130 years, and contain upwards of 200 cubic ft. of the very best quality of timber.

The Monzie Larches.—The Larches at Monzie Castle, though originally six, are now only four. They are said to have been planted in 1736 or 1738, and brought or sent by Mr. Menzies, of Glenlyon, who brought the Dunkeld ones. One

1 in. It stands 103 ft. high, and contains about 380 cubic ft. of timber, including bark. The tree is clothed with branches to near the ground, some of which are over 45 ft. in length, twisted and curved fantastically, and are suspended on forked poles to keep them from injury. On the south side the branches hang over the carriage drive and dip in the waters of an ornamental lake. This is truly a magnificent tree, picturesque, bold, rugged, irregular, majestic, and grand. It is the pink flowering variety, the seeds quite sound and of vigorous growth, and this season has made wood freely. No. 2, the second largest tree, girths 21 ft. 4 in. at base, 12 ft. 10½ in. above the swell of the roots, and 12 ft. 6 in. at 5 ft. up, and contains about 300 cubic ft. On the south side at the base there is a remarkable protuberance, the

timber of fine quality. The tree, though now 143 years old, is still quite healthy and growing. The other two trees, its original companions, were blown down by a gale in 1829.

Other remarkable Larches.—At Darnaway, in Morayshire, are some notable Larches, of which the Scottish Arboricultural excursion party, in August last, took notice of. Two trees, planted in 1790, are over 100 ft. in height; one of them measures 8 ft. 9½ in. at 1 ft. from the ground, and 7 ft. at 5 ft. up, and contains 102 cubic feet of timber. The other girths 9 ft. 9½ in. at 1 ft. up, and 8 ft. 6½ in. at 5 ft. from the ground, with 190 cubic feet of timber. At St. John's Mead there is also a magnificent Larch, already historical; it is over 100 ft. high, girths 12 ft. 2 in. at 1 ft. up, and 9 ft. 4 in. 5 ft. up, and contains 240 cubic feet of timber. Others also of large dimensions, and 120 ft. in height, are here to be met with, all sound trees, healthy, and of excellent quality of timber. At Altyre, in Morayshire, there are, besides the very extensive area of splendid Larch and Fir plantations, some notable Larch trees, which, from the time I saw them, fourteen years ago, have made great progress in growth. The following are the measurements of three of them taken the other day: No. 1, 108 ft. high, symmetrical trunk, 85 ft. in height, girth 14 ft. 5 in. at 1 ft. from the ground, 12 ft. 4 in. at 2 ft. from the ground, and 11 ft. 5 in. at 5 ft. from the ground, containing nearly 200 cubic ft. of timber. No. 2 girths 9 ft. 3 in. at 1 ft. from the ground, 7 ft. 9 in. at 5 ft. from the ground, and contains 138 cubic ft. of timber. No. 3 girths 11 ft. 6 in. at 1 ft. from the ground, 8 ft. 10 in. at 5 ft. from the ground, with a trunk 75 ft. in height, containing 140 cubic ft. of timber. At Balnagowan, in Ross-shire, there are some very fine specimens of Larch; not a few of them stand over 100 ft. in height, and contain over 150 cubic ft. of timber, quite sound and healthy, and well worth seeing. At Belladrum, in Inverness-shire, there are several fine trees; two which I measured last October girthed respectively 15 ft. above the swell of the roots, and 11 ft. 5 in. about 3 ft. above ground. They are both in excellent health, and likely to survive to a great age. Several fine Larches are growing in a glen at Cullen House, Banffshire, planted about 1767. They contain from 100 to 160 cubic ft. of timber, are in excellent health, and now increasing at the rate of from 2 to 4 cubic ft. annually. They are inland from the Moray Firth from one to three miles, and are sheltered from the sea and other exposures by rising grounds. The soil is a light, dry, gravelly loam, resting in some places upon clay, and in others upon sandy gravel and water-worn stones. The trees are well clothed with branches, having always had ample room. The following eight trees are growing in a mixed plantation of 56 acres, within the grounds of Glamis Castle, and measure as follows:—

No.	Girth at 5 Feet from the Ground.		Height of Tree.	Age.	Cubical Contents.
	Ft.	In.	Feet.		
1	11	7	85	110	250
2	10	5	90	110	250
3	10	0	105	110	222
4	10	0	98	110	229
5	9	2	106	110	200
6	8	6	110	110	213
7	8	9	94	110	190
8	8	6	95	110	175

With the gale of 28th December, 1879, one tree at the same place and same age as the above was blown down. It girthed at 5 ft. from the ground 12 ft. 6 in., height 107 ft., and contained 320 cubic ft. of timber. After the root was cut off, by request a slice was cut from it and sent to Sir Robert Christison for the museum of the Botanic Gardens, Edinburgh. Sir Robert's remarks were, that had the tree been allowed to grow to the same age and at the same rate as hitherto, it would have far surpassed in size the famed old Dunkeld Larches. Mr. J. Stewart,

Inveraray, says the following ten trees are growing on the estate of Inveraray, and measure as follows:—

No.	Girth at 5 Feet from the Ground.		Height.	Altitude.	Cubical Contents.	Aspect.
	Ft.	In.	Feet.	Feet.	Feet.	
1	10	9	120	500	220	S. East.
2	10	9	90	300	200	N. East.
3	10	4	110	100	200	N. East.
4	10	3	110	100	200	N. East.
5	10	1	120	500	200	S. East.
6	10	2	110	60	190	S. East.
7	9	10	110	60	180	S. East.
8	9	6	110	60	180	S. East.
9	9	4	100	100	180	N. East.
10	9	5	100	100	180	N. East.

There is one very fine Larch tree growing on the estate of Arniston which is said to be the second largest in Scotland, and also that the proprietor was offered £26 for it by a shipbuilder in Leith more than forty years ago. Mr. J. Robertson, Minto House, Roxburghshire, says: "We have some splendid Larches on this estate, and the oldest, I am told, in Scotland, except those at Dunkeld, of which the following are examples:—

No.	Height.	Girth at 5 Feet from the Ground.		Exposure.
		Ft.	In.	
1	75	9	4	S. East.
2	72	11	0	S. East.
3	80	9	6	S. East.
4	105	7	10	S. East.

At Abercainey, in Perthshire, there are several old and very fine Larches; two in particular deserve special notice. The largest of the two is indeed a splendid tree; it is 80 ft. in height, and at 3 ft. from the ground girths 13 ft. 6 in., and at 5 ft. it girths 11 ft. 9 ft. By a measurement of Mr. Murray in 1860 it girthed 11 ft. 5 in. at 3 ft. from the ground, and in 1876 12 ft. 8 in. at the same height. There has thus been an increase in the girth of 2 ft. 1 in. during twenty years, and 10 in. within the preceding five years. The smaller tree of the two girths 11 ft. 10 in. at 1 ft. from the ground, and 9 ft. 11 in. at 5 ft., and gives a corresponding increase upon former measurements. They comprehend respectively 170 and 130 cubic feet of timber. They are both of vigorous growth, and manifest no signs of decay or disease, and though their age is not correctly known, they are believed to have been planted towards the end of the last century. Mr. J. Forgan (overseer) says: "At Bouskeid, in Perthshire, there are some excellent Larches of various descriptions, but one in particular planted by Dr. Stewart upwards of 100 years ago, deserves special notice. It was planted along with three others, but all except itself have been cut down. This, though by no means the largest, is certainly one of the handsomest and most symmetrical trees to be found anywhere, as all admit who have seen it. At 1 ft. from the ground it girths 12 ft., at 4 ft. it girths 9 ft., and at 12 ft. from the ground 8 ft. 9 in.; it is 97 ft. in height, and contains 189 cubic feet of timber. Several other Larches on the estate are considerably over 100 ft. in height, and perfect as timber trees, but cannot be compared with it in form and symmetry. A tree at Glenlyon, nine miles from Aberfeldy, was said to be one of the first planted in Scotland, but now that it has been cut, and the years' growths counted, it is found that the tree had been planted about 1760, and not 1738, as generally alleged. The reason for cutting it was in consequence of its having died suddenly and unaccountably two years ago, probably a result of the unfavourable season of 1879. The wood of the tree when cut down was found to be perfectly sound in every respect, with the exception, as may be supposed, of the liber and the few layers of sapwood. At 7 ft. from the ground it girthed 12 ft., and at 14 ft. nearly the same; it measured 90 ft. in length, and the trunk alone

contained 315 cubic ft. of timber, and the limbs some of which were large enough to make railway sleepers, contained an additional 40 cubic feet. It is of further interest to note respecting the growth of the tree: measuring from the pith or centre towards the circumference on one side, it was 2 ft. 1 in., and comprehended 120 rings or growths, forty of which nearest the centre varied from 1 in. to ⅝ inch thick, and the other eighty growths from ¼ to 1-16th of an inch. The other side measured from the centre 2 ft. 11 in., and of course comprehended the same number of rings, but of different thicknesses, the inner eighty of which varied from 1 in. to ¼ inch, and the other forty outer ones from ½ in. to ¼ in. and the bark was about equal on all sides, namely, about 2 in. thick. The price obtained for the tree was only 10d. per cubic foot, which is fully accounted for from the difficulty of removing and nine miles of cartage. There are two Larch trees of considerable note growing on the historical battlefield of Killiecrankie, near the spot, and probably designed to mark the place where Dundee fell. They are not so large or so well grown as others that have been or might be mentioned, but are yet of sufficient interest to merit attention, both on their own account, and specially that of the place where they are growing. One of them at 4 ft. from the ground girths 10 ft., and the other 10 ft. 2 in. They vary in height from 105 ft. to 115 ft., and contain an average of 250 cubic ft. of timber; they have evidently attained something near maturity, and already begin to show signs of decay in the branches." At Taymouth Castle there are several very superior and handsome trees, some of which on the memorable night of the Tay Bridge disaster (28th December, 1879) were unfortunately blown down, and were found to measure from 100 ft. to 120 ft. in length, perfectly sound, clean, and well grown. To these as many more might be added, and yet not exhaust the list of remarkable Larches throughout the country, but it is thought sufficient have already been mentioned to show the various stages of perfection at which the tree has arrived or may yet attain in this country.—MICHEL, on "The Larch."

THE ASH AND ITS VARIETIES.

THE common Ash (*Fraxinus excelsior*) and several of the North American kinds rank high as timber-producing trees, their wood, owing to its elasticity, being much sought after where strength and toughness are wanted. Apart, however, from their value in this respect, the different forms afford plenty of scope to the planter, some being large, noble looking trees, others comparatively small, and a few singularly grotesque. The recognised varieties of the common Ash are many, some of the most distinct being the weeping kind (*pendula*) so often employed for forming arbours; of this there is also a golden form (*pendula aurea*), the bark of which is bright yellow, but in other respects, except being of somewhat weaker growth, it resembles the common weeping Ash. Another kind (*F. excelsior heterophylla*), of which we append an illustration, is remarkable on account of the absence of leaflets, and instead one large, simple, deeply serrated leaf. It forms a tree nearly as vigorous as the common kind, and is often known by the name of the one-leaved Ash (*monophylla*), certainly a better name than *heterophylla*, the leaves being seldom variable. Of this there is a form in which the leaf is deeply slashed instead of serrated. The Cockscomb Ash (*F. excelsior cristata*) has often a large proportion of the shoots curiously fasciated, especially at the points, where they spread out in a Cockscomb-like manner. This is but a slow-growing tree, and frequently some of the branches die off without any apparent reason. A dwarf, bushy kind, *F. excelsior globosa*, assumes the shape of a small round bush, and when grafted standard high has a mop-like appearance. Other varieties in addition to those just mentioned are, *crispa*, a dwarf form with very deep green and much curled leaves often encircling the stem; the gold and silver

variegated, neither of which are very effective when exposed to wind and sun; aurea and jaspidea, with bark yellow and striped; angustifolia, a kind in which the ordinary leaflets are reduced to mere filaments; and verrucosa, a variety with rough and verrucose bark.

The small-leaved Ash (*parvifolia*), a European species, is less in all its parts than the common kind. It forms a low, much-branched tree, and one that from its spreading, yet twiggy, head is very distinct and pretty. Under the name of *xanthophylla* is sometimes found a very neat little Ash, which seems to be a variety of *parvifolia*. It is of bushy growth, densely twiggy, and the whole leaf, which is only about 2 in. long, is very deep green.

The Lentiscus-leaved Ash (*F. lentiscifolia*) need not be confounded with any of the preceding, be-



Fraxinus excelsior heterophylla.

ing altogether very different. It is a medium-sized tree of somewhat upright habit, the leaflets narrow, and the leaves themselves thinly arranged on the branches, so that it has a lighter appearance than the others. There is also a pendulous variety of it, fully as weeping as the ordinary kind, and one that forms a good companion thereto.

The different sorts of American Ash very much resemble each other, and, roughly speaking, they may be all said to be free, vigorous kinds, with fewer and more spreading branches than the common one, and bearing larger leaves. Another distinction, though less decided, is the paler hue of most of them, especially in foliage. *F. americana*, the white Ash of the United States, may be taken as the type of most of the American kinds, and one that shows prominently the distinctive characteristics just mentioned. It possesses a wide geographical distribution, and, like most plants extensively distributed, varies a good deal according to locality. A few of the most distinct varieties, or, as contended by some separate species, are the Elder-leaved or black Ash (*F. sambucifolia*), the leaves of which, instead of being entire or nearly so, are serrated, and altogether bear a general resemblance to those of the Elder. The green Ash (*F. juglandifolia* or *viridis*), so called from the colour of the young shoots, is the most distinctive and ornamental of its section, the leaves when growing freely being almost as large as those of some of the *Caryas*. The Carolina Ash (*F. caroliniana*) in general appearance resembles a smaller form of the above except that the leaves are rather more erect. In *F. pubescens* the leaflets are somewhat tomentose beneath and quite entire, while in *F. rufa* they are deeply serrated. Both kinds are less vigorous and more spreading in habit than the ordinary American Ash. There is also a variegated variety (*F. aucubefolia*), the leaves of which are irregularly

blotched with gold, and as the colour is not affected by sunshine, and as the variegation does not exist to such an extent as to impair the constitution of the tree, it is useful for planting by way of contrast to other and more sober-hued kinds. The blue Ash of Michigan (*F. quadrangulata*, or *tetragona*, as it is sometimes called) is a bold, regular-growing tree, remarkable on account of the tetragonal arrangement of the branches, and also from the fact that along the young shoots extend four raised lines, which, being opposite each other, give the shoots the appearance of being nearly square. As they get older this squareness becomes very much less prominent, until in three or four years it disappears altogether. The older bark is also quite distinct from that of the others; it cracks and splits in a manner totally different from any of them.

The genus *Fraxinus* is represented in Japan by *F. longicuspis*, which, judging by young trees of it in England, is much like a free-growing form of the common Ash, but of a paler hue; in Turkestan, by *F. potimophila*, a small, dark-looking kind; and in Manchuria by *F. mandchurica*, the foliage of which is large and bold in character. Where seeds are produced the various kinds of Ash are readily propagated in that way; but as regards the different varieties, it is necessary to graft or bud them on the common kind. Grafting is generally performed, as in the case of fruit trees, in spring when the trees are still dormant, and budding about July.

ALPHA.

Araucaria seeds.—There is nothing peculiar in the growth of these seeds or in the management and rearing of the young plants. The seeds may be planted in various ways, but the usual plan is to prick them into boxes containing loam and leaf mould for two-thirds of their length, the narrow end downwards. A cool frame brings them briskly away, and their large size enables every

bear cones in this country. Here cones have been produced and seedlings successfully raised.

A. D. WEBSTER.

Penrhyn, North Wales.



Fraxinus americana caroliniana.

Blue Hydrangeas.—The change of colour in the Hydrangea is generally attributed to the presence of oxide of iron in the soil. When I was in Ireland twelve years ago I saw magnificent bushes of Hydrangeas along the valley of the Blackwater and at Killarney entirely covered with trusses of richly-coloured blue flowers. There was in the soil a large quantity of oxide of iron, and in the marshy parts about Killarney the oxide would ooze from the soil when pressed with the foot, and also tincture the streams. But is this the cause of the blue colour in the Hydrangea under all circumstances? I ask this question because a neighbour of mine has in his garden a large bush



Fraxinus excelsior.

step in the development of the young seedlings to be easily studied. They should be planted in March. It is not uncommon for the *Araucaria* to of the common Hydrangea that has flowered profusely, and two of the trusses are of a deep blue tint, while the others are pink. How is this to be

accounted for? These two-coloured trusses are almost in the middle of the plant, and they contrast strikingly with the pink flowers.—R. D.

The western Chinquapin.—Knowing you are an admirer of trees and shrubs, we send you a specimen of *Castanea chrysophylla* to show the fruit and bloom for next year's fruit. This appears different from the other Chestnuts, which bloom and fruit the same season.—H. LANE & SON, *Gt. Berkhamsted*. [A sturdy specimen of one of the most interesting of evergreen trees, which unfortunately our climate is not genial enough to make quite happy, though it seems hardy in a variety of gardens, but the growth is slow. It is really nearly allied to the Oaks, and may be said to be intermediate between them and the Chestnuts. We have seen it in the form of a fine tall tree in its native country, though it is often only a low one or a shrub, as it mostly is with us. The accepted name is now *Castanopsis chrysophylla*, but it is generally known as *Castanea chrysophylla*.—ED.]

ROSE GARDEN.

ROSES OF RECENT YEARS.

Now that the planting season is drawing near, it may be interesting to know how many of those Roses which were represented as being full of promise have maintained the high standard of good show Roses. Starting back from 1877, I find that Rosy Morn, May Quennell, A. K. Williams, Madame Gabriel Luizet, Mrs. Laxton, Dean of Windsor, Louis Doré, and later on Harrison Weir, Countess of Rosebery, Duchess of Bedford, Charles Darwin, Jean Lillivere, Julius Finger, Madame Ducher, Ferdinand Chaffolte, have for the most part pleased us, and are, as time goes on, improving. A. K. Williams and Gabriel Luizet, "the belle of the queen's court," are too well known for me to attempt to add further to the lustre which surrounds them. Mrs. Laxton is a beautiful, well-shaped Rose, something like that well-known variety E. Y. Teas. Dean of Windsor has been among our best reds this year. Louis Doré is a beautiful bright Rose of large size, well formed, and perhaps one of the best of its class, improving as the autumn sets in in freshness and colour. Harrison Weir, Duchess of Bedford, and Charles Darwin are A 1 among the darks. Duchess of Bedford I am inclined to place beside A. K. Williams, to which for brightness of colour and fine well built centre it is indeed superior. The robust growth and hardy constitution of Countess of Rosebery is a great recommendation, and its glorious foliage is a great advance on that of the old form of Madame Caillat, a Rose, however, worthy of being in all collections. Madame Ducher, a dwarf growing variety of the Duchesse de Morny type, has a more cheery, bright colour and shell-like petals—a Rose, indeed, which I feel sure must be sought after. Julius Finger represented as equal to Captain Christy, has as yet failed to be so; it is, however, a better grower and freer bloomer, but too impatient of wet. In a dry, hot season I venture to predict good things of it. Jean Lillivere, a beautiful cupped form of the Prince Camille de Rohan type, has almost smooth wood, and has been this and last year one of our best darks.

Of Roses of more recent introduction it is almost premature to speak. Mrs. Jowitt, a fine grower and a good late Rose, may be called Duc de Rohan. Dr. Hogg on maidens is a shy bloomer; perhaps better on cut-backs. Duke of Teck, a very bright form of the Duke of Edinburgh type, is likely to be first class. Madame Isaac Perrière, of Bourbon notoriety, has splendid foliage, and flowers large and finely cupped, equal in size to Paul Neyron. This must, I think, rank amongst the best Roses of last year. Pride of Waltham, a strong growing Eugénie Verdier, has petals of more substance, and is a very promising pink Rose. Mrs. Harry Turner, captivating in colour, but in form as yet not so good as we should wish.

Glory of Cheshunt and Brightness of Cheshunt are fine Roses for decorative purposes; they are robust growers, and striking in colour. Master-piece ought to be what its name implies. I hear it is good from cut-backs. I have only bloomed it as yet on maidens; the buds are large and full, but I must confess, although a good shaped flower, it is dull in colour. Earl of Beaconsfield (Christy), a wretched grower, flower unique, and had the plant a better constitution it might rank among the best. Marquis of Salisbury is one of our best autumn blooming Roses for exhibition purposes. Lady Sheffield is desirable in colour, beautifully imbricated, a moderate grower, and likely to prove good. Helen Paul is sent to us by our neighbours the French as being the finest white ever introduced. We have so far had two blooms, but, judging from these, I fear it will be thin. I think it, however, fair to say that Roses cannot be properly proved in our variable climate in less than three or four seasons, and it may be that some I have omitted, and some I have named and not spoken of in high terms, may in their proper season prove better than we have found them here; if so, no one will be better pleased than myself.

Beeton, Notts.

W. H. FRETtingham.

GRAFTED ROSES.

REFERRING to grafted Roses in spring, Mr. Fish gave the same advice to intending grafters that *Punch* gave to persons about to marry, viz., "don't," and with probably about the same result. This came into my mind the other day when cutting a bouquet of nice fresh blossoms from my spring grafted plants put out after being hardened off towards the end of May. Some of the plants have made shoots 3 ft. long, and I have no doubt all are now on their own roots. In some respects budding may be better than grafting. There is less mutilation, and the budded plants ought to have the advantage, but I do not think budded plants, unless budded in the autumn previous, would have given the results I have obtained from grafted ones, not once, but many times. I have grafted a few dozens every spring for a considerable number of years with about the same results, viz., 90 per cent. of strong healthy plants; the stocks cost nothing, as we dig up the Briers from the hedges, cut the roots into pieces that will go into 4-in. pots, graft and pot them at once, and plunge them in a mild hotbed, afterwards keeping them close and shaded. Budded plants, I know, ought to be very much longer lived than grafted ones, but this is a difficult matter to decide in the case of a soil fairly suitable for Roses. To test the matter thoroughly one ought to try the plants in a difficult situation. Speaking from my own experience, however, I am not yet prepared to admit that budded plants are better or longer lived than root-grafted ones. But if they are, even then I should graft as I now do in spring, as I do not think the same result could be obtained in the same time from buds.

E. HOBDAy.

The Bible Flower Mission.—Allow me just a short space to bring before the notice of your readers the merits of this institution, and doubtless there are some of them who have already responded to its call for more flowers, but there are possibly others who are not aware of the existence of such a mission. I, therefore, wish to say that its business is to receive gifts of flowers from those who reside in the country and distribute them gratuitously amongst the various hospitals and infirmaries in the neighbourhood of London. The fact that it is so usefully employed is, I think, sufficient to claim for it the sympathy and kind help of all who have flowers to distribute. We send a basketful of them once a week or once a fortnight as we can spare them. Our basket holds about fifty bunches, each containing about twelve sprays of flowers and a bit of green, to which is attached a text card. A special rate for carriage

is arranged with the railway company. We can send the number of bunches just specified a distance of 150 miles for the sum of 8d. The same basket is returned in a few days carriage paid. To all who may feel disposed to help such a laudable cause, I may remark that all presents of flowers should be, sent carriage paid, addressed to the Mission, 110, Cannon Street, London.—J. C. C.

GARDEN FLORA.

PLATE CCCLV.

CATTELEYA CITRINA.

THIS *Cattleya* is one of the most anomalous of all the species belonging to the genus—a fitting companion for *Lælia majalis*, the "Mayflower" of its native land. It is found in the province of Oaxaca, in Mexico, and has naturally the singular habit of depending from the undersides of branches to which it clings by means of its thick white roots. In cultivation it is generally found to succeed best in a similar position on a block of bare wood, but it also grows well in pans suspended near the roof of a cool, airy house. Some plants which I tied to charred blocks of Pine wood a year ago have now quite firmly lashed their roots around the blocks, and have growths double the size of those made previously. When growing it likes abundant supplies of water at the root, slight shade, and plenty of air at all times. Strong growths produce two flowered spikes, and the great waxy lemon-coloured blossoms endure fresh and perfect for a month or even longer. Although this plant grows best in a cool, airy house, it is well to give it a warmer temperature soon after the flower-spikes show themselves, as in this way the blossoms become larger, and are not so apt to turn yellow and fall off in the bud stage, as frequently happens if left to open in cool quarters. The natural habit of growth and flower is admirably shown in the accompanying plate, which represents a fine variety, kindly sent to THE GARDEN office by Sir William Marriott, Down House, Blandford, Dorset. When this plant is well grown in quantity it proves very effective, an additional charm being the grateful perfume which the flowers emit, and which resembles that of a combination of freshly-cut lemon and new honey. Although this interesting plant is now tolerably common, really well grown specimens of it, thoroughly established, are somewhat difficult to find. It is one of those Orchids which grow and bloom well for a year or two after importation, and then begins to make weedy growth, eventually dwindling away or lingering on in a flowerless state year after year. This seems to be the case especially when grown in heat. The plant is, however, altogether so distinct and beautiful, that, like *Lælia majalis*, it deserves the special attention needful in order to grow and flower it in a permanent manner.

F. W. B.

Anemone japonica and its varieties.—

I have several large plants of the white variety now in bloom in a forecourt garden, and very finely too, and passers-by stop and wonder what they are; they are attracted by the snowy purity and size as well as the numbers of the blossoms. It is one of those plants that should be in every garden, large or small. But in our deserved admiration of the white variety, let us not forget the claims of *A. japonica* and its pretty pale coloured variety called *hybrida*. If the flowers of *A. japonica* are not quite so perfect in form as those of the others, this is compensated for by their



depth of colour, and it is very striking and effective in association with the others. The variety *hybrida* is also exceedingly pretty: it is in every respect except colour the counterpart of the white form; the colour is a soft rosy pink. There is no difficulty in cultivating these fine hardy Japanese Anemones. They are true perennials, and they have a wonderful capacity for propagating themselves, as the roots put forth plenty of suckers and every small piece will grow into a plant. But in proportion as the soil in which the plants are growing is a fertile one, or otherwise, will be the size and plenteousness of the flowers. At the time of planting, some manure should be dug into the soil; and in the autumn or early spring, a mulching of manure and decaying leaves will be found of great advantage. During hot and drying weather, some water should also be given to keep the plants healthy and growing freely.—R. D.

FRUIT GARDEN.

AUTUMNAL GROWTH ON FRUIT TREES.

THIS is without doubt unfavourable to fertility. The trees continue making more wood instead of maturing that already made, and experience proves that such late wood is food for frost rather than a basis of strength, or as aids to the fertility of the trees. With heavy rains falling, and so far genial conditions of growth, the difficulty is to check autumnal growths to a sufficient extent and in time, so as to enable them to withstand cold and mature their fruit buds and wood before winter. Practically, there are but two modes of doing this; one is to shed off the rainfall from the borders, so that the roots get less water as the season declines; and the other is to so check the absorbing powers of the roots by disturbance or pruning, as to prevent them absorbing any excess of water. The supply of water to the roots may be limited in various ways. Thorough drainage, for example, so essential for the successful culture of most of our superior fruits, ensures such a rapid removal of the water, as to limit the danger arising from vigorous absorption to the lowest limits. Sloping borders, once far more common than they are now, powerfully hastened the removal, and so limited the supply of water for the roots. This form of border also absorbed far more heat than a level one, and was consequently warmer as well as drier than others with little or no pitch from back to front. No doubt such borders needed careful mulching and watering in dry seasons, but in wet summers and late autumns these borders were most useful in checking growth, and so hastening the ripening of the wood.

Covering borders.—The next step, a somewhat troublesome one, is to render the surface impervious by coverings of some sort. The cheapest in the end are probably those of corrugated iron in handy lengths, such as those that have been so successfully in use at Trentham for so many years for the shedding of the water off the roots of the late Vines. Wooden shutters, sheets of zinc, and roof tiles have also been successfully used for similar purposes. One of the cheapest substances for shedding off autumnal rains is common asphalt, such as is used for roofing purposes. Thin layers of concrete of various sorts have also been employed with good effect, provided the surface of the border is hard and smooth and has a fair pitch. As the concrete is nearly waterproof, but little water will pass through to the roots. The bulk of the water supply being thus cut off, growth is speedily checked to such an extent as to render it possible for the wood made to ripen before the end of the season. No doubt these expedients cost a good deal, either in money, or labour, or both; but should they contribute towards ensuring a good crop of fruit the succeeding season, the produce will amply pay for the cost. In these years of scarcity and uncertainty of crops of superior fruits it seems at times to be almost forgotten that trees ought to be made to yield an annual crop if possible, and that no labour or expense can be considered extravagant which ends in such re-

sults. If worth cultivating at all, they should have all care that skill can suggest or capital provide. And after all the shedding of heavy and cold autumnal rains from the roots of fruit trees may be accomplished with more ease and less cost than many suppose. But those who may shrink from the expense and trouble of such methods of hastening and heightening the fertility of fruit trees may adopt our second method, viz, root disturbance or pruning.

Root pruning deals directly with the roots, and prevents them by force from drinking up too much water. By root disturbance is meant the lifting of the roots rather than cutting or pruning any of them. It may extend through all the different phases from the lifting of one or more strong roots to the lifting and replanting of the entire tree. For many trees, especially those of stone fruits, this partial or entire lifting or replanting is to be preferred to root pruning. Carefully done, the roots suffer but little if at all from the operation; whereas root pruning often produces gum, canker, crops of suckers, and other evils. Root disturbance results in a temporary suspension of the absorbing functions of the roots, and this is really all that is needed often to deliver the leaves and young wood from a plethora of sap that overmatches their elaborating powers. Check or reduce this full volume by root disturbance, and the remainder is the more easily consolidated or transformed into ripe wood or fully developed nut-brown flower-buds. Root pruning effects the same purpose through a surgical operation more or less severe, according to the amount or vigour of top growth. This may prove a shorter cut to fertility than either of the other modes. It requires, however, greater judgment and more caution, or the adage, the more haste the less speed, is likely to be verified in the painful experience of sanguine pomologists. Few useful aids to fertility have been more abused than root pruning. It has often been carried so far as to result in weakness and a species of semi-paralysis during the life of the tree. Carefully and tentatively performed, it is, however, one of the surest and safest means of checking over-luxuriance and laying a sure and certain basis for permanent fertility. Root pruning not only reduces the number, but improves the character of the roots left; the overgrown, sterile root is exchanged for the many fibrous fertile ones. The position of the roots may also be changed for the better by judicious pruning. Not only may their character, but place be thereby greatly improved. Deep long roots may be removed, and surface-skimming ones be produced in their stead. The place of roots may influence fertility almost as much as their character. The time to root prune also exercises a powerful influence upon its effects. For the purpose of counteracting as far as possible, or prudent, the effects of autumnal rains, root pruning should be performed any time after August. In cases of very vigorous growth a few roots might be cut back even in July. These early reductions of roots tell at once, and largely determine the ripening of the wood of the current year. Nor is this only the chief advantage of early root pruning. The roots benefit the most setting about it early. Their wounds heal before winter, and the new and improved roots have time to grow sufficiently strong to escape injury and destruction from winter frosts, so that before the opening buds of the following spring make active demands on the trees, the roots are capable of providing them with food of the highest quality and in sufficient quantity to feed the fruit and perpetuate the fertility of the tree. D. T. FISH.

When to plant Vines.—Whether should I plant Vines in an inside border a fortnight hence or wait till spring? I have the Vines, good canes and rather forward. If not till spring, why not? Autumn is the usual time to plant deciduous trees, particularly fruit trees, yet we are gravely told we may plant Vines up till the end of July. Would planting now in any way interfere with the ripening of the wood? and would it be advis-

able or not to induce them to make more roots this season? D. A. SCOTT. [Get your canes well ripened, and defer planting until the end of February or beginning of March.—W. C.]

APPLES FOR EXPORT.

WE learn that the Apple crop will be very poor in England this year, and not over-abundant on the Continent of Europe. A short Apple crop in England means a demand for American fruit to the profit, if not of our orchardists, at least of our shippers. In former years American Apples have met with a ready sale at paying prices in England, but within the last two or three years the trade has been less profitable. It is the old story over again, that good fruit in good condition brings good prices. Two years ago, taking advantage of the unusual scarcity in England, parties sent over large quantities of Apples without regard to their quality or condition. As a consequence, this fruit in Covent Garden, as it would have been in Washington Market, was left on the dealer's hands. Hundreds of barrels did not bring the cost of the freight, and American Apples fell into disfavour. The same course, if followed this year, will meet with a similar result. Only the best fruit, packed in the best manner, will pay in England, as at home. The English received their first impressions of American Apples from the Newtown Pippin, which several years ago was the only kind sent there, and was in demand however large their own crop of fruit might be. But this variety is now far from abundant, and others have been forwarded of late years. The Baldwin, Greening, Spitzenberg, Northern Spy, King of Tompkins Co., &c., have sold well when good of their kind. The rascally practice of "topping" has injured the reputation of our fruit, so at present it is not bought by the appearance of the top layer, but the contents of the barrel are poured out for the inspection of the purchaser. Properly managed, the export of Apples might be very profitable, and we hope that some method may be devised by which a share of the profits may reach the grower of the fruit.—*American Agriculturist*.

Stewing Pears.—The Pear crop here, as in most other localities I have visited this year, is one of the best of the season; for although quite defoliated by the violent gale in April and saturated with saline spray, yet the fruits held bravely on, and some excellent crops are now approaching maturity, while Apples are almost a blank. I may mention *Bellissime d'Hiver* as exceedingly fine and heavily cropped. Although culinary Pears were but coldly looked on a few years ago, I find that they are gradually becoming as popular as they deserve to be, and late in winter and early in spring a good supply of them is a great boon. In addition to the kind just mentioned there is also that grand old Pear, Uvedale's St. Germain, the fruits of which grow to an enormous size; and by way of contrast to this may be named the *Catillac*. This last, though a very strong grower, commences to bear at an early age. *Verulam* is another fine Pear belonging to the same class. When cooked it is bright pink, a colour for which it is prized. Many of the best dessert Pears that fail to ripen are also used for cooking purposes, but they have not the tender flesh when cooked that the true culinary varieties have. As the planting season is now drawing near, those who have not yet made provision for a supply of culinary Pears should do so, and the sorts just named are the best for the purpose.—JAMES GROOM, Gosport.

Fruiting Pines in small pots.—I have no doubt that many an observer of Pine culture will agree with me that the size of the pot in which the plants are grown and the size of the fruit produced are in many cases very disproportionate; it is not so much quantity of soil as quantity of roots that gives the best results. A few days ago I had an excellent example of what can be produced from pots not larger than what good succession plants are usually grown in, viz,

8½-in. ones. Several plants of the Queen variety kept in this size from want of space perfected fruit weighing 3 lb. each. Nothing extraordinary that, many may say. Well, I have seen hundreds of plants in 10-in. pots with fruits very little larger, but I mention the case to show that even where space is limited good Pines may be grown. Cultivators, I know, like to do everything well, but doing the best one can under the circumstances is generally the wisest plan; and that Pines may be grown in smaller pots and in less space than is usually allowed them, I feel convinced after seeing the specimens just referred to. There are many gardens in which Pines of home growth are still looked on as essential for the dessert, and in these any reduction in pot or pit space without reducing the size of the fruit would be a positive gain.—J. G.

Duke of Buccleuch Grape.—"J. C. C." states (p. 221) that this Grape is a complete failure. I am not prepared to speak as to the failure or success of the Duke of Buccleuch Grape in a general way, but I can speak of a very decided success in culture near where I write. At The Firs, near Great Ayton, in Cleveland, there are in a vinery two Vines of the Duke Grape in the highest state of health and fruitfulness. For four years I have observed the fine size and colour of this Grape, and I can safely say that it is in every way superior to any I have seen shown by its raiser, Mr. Wm. Thomson. The Vines at The Firs are planted with Hamburgs. The vinery is a good style of house, well heated and well ventilated, and the border is made of the natural earth and what appears to be crushed bones. The gardener in charge of the Vines in question, George Brown, is what may be termed one of Nature's gardeners. I may safely state that he never read a line of a book on the culture of the Vine, but his love of the subject and untiring care have produced results that merit the highest commendation, and his employer, the late Mr. Alfred Kitching, took great pride in distributing his noble-looking Grapes—especially the Duke of Buccleuch—among his Grape-growing friends in various parts of the country.—CHAS. McDONALD, *Garden House, Stokesley.*

THE BEST PEARS.

Beurre de l'Assomption.

DESCRIPTION OF THE TREE.—Wood, very strong. Branches, numerous, erect, or lightly spread out, somewhat long, thick, flexible, generally swollen at the ends, reddish brown, speckled with dirty white dots, having their bases slightly prominent. Eyes, medium, conical, sharp, springing away from the wood, and frequently forming a spur, but those belonging to the lower portion of the branch are usually flattened and sunk in the bark. Leaves, large, roundish, oval, flat or turned over, deeply indented at the edges, and borne on a stiff, long stalk. Fertility remarkable.

CULTURE.—This tree, which is very vigorous, grafts well on the Quince stock, and forms fine thick, regular pyramids.

DESCRIPTION OF THE FRUIT.—Size, very large. Shape, generally varies between the long turbinate somewhat blunt form and the oblong cylindrical swelling out somewhat at the base, and slightly constricted towards the top. Stalk, short, pretty thick, rarely bowed, inserted obliquely in a narrow cavity, surrounded with well marked gibbosities. Eye, large, well formed, well opened, very slightly sunk and smooth at the edges. Skin, lemon yellow, speckled, streaked with red, marbled coarsely, and spotted towards the eye and stalk. Flesh, white, fine grained, melting, slightly hard near the pips. Juice, abundant, slightly acid, sweet, of a wine-like flavour, and slightly but delicately scented. Season, from the end of July to the end of August. Quality, first class.

HISTORY.—This Pear has been raised quite recently, and was grown as a seedling by one of our most competent amateurs, M. Ruillé de Beauchamp. He raised it on his estate at La Goupillière, in the commune of Pont St. Martin, near Nantes.

The following particulars concerning the origin of this variety have been sent to us by M. Ruillé de Beauchamp himself, in October, 1865: "The parent tree of the Beurré de l'Assomption was grafted, but, fancying that it might produce a new variety, I made two grafts with a cutting, one on a Quince stock, which grew against a wall, and the other on a pyramid, the head of which had withered away. The latter graft gave me a few Pears in 1863, and seventy-five Pears in 1864. The graft is now (1865) five years old. Having made certain of the excellent quality of the fruit, I made an incision in the stock and produced a fresh growth, which has now the appearance of a pyramid several years old."

REMARKS.—This Pear was first exhibited in 1864 before the Arboricultural Committee of the Paris Central Society of Horticulture, and was thus described by M. Michelin, the assistant secretary of the committee: "An early Pear, the name of which, Beurré de l'Assomption, sufficiently indicates its season, was found to be very good. If the fruit of the second year is as satisfactory as the first, this Pear will find a good place in the coming show" ("Journal of the Central Society of Horticulture," 1865). The grower of this variety has informed us that it has gained a medal. It fully deserves this distinction, for its fruit has lost nothing either in excellence or earliness as it has grown older. From this it follows that no other early Pear can beat the Beurré de l'Assomption either in size or in quality.

Beurre Bosc.—*Syns.*—Paradis d'Automne, Beurré d'Apremont, Cannelle, Carafon de Bosc, or Bosc's Flaschenbirne.

DESCRIPTION OF THE TREE.—Wood, pretty solid. Branches, few in number, spreading, thick, short, geniculated, greyish red-brown, speckled with light yellow, and having the little warts pretty prominent. Eyes, medium size, conical, blackish grey, not attached to the bark. Leaves, large, oval, pointed, slightly toothed or indented; stalk thick and short. Fertility, remarkable.

CULTURE.—This somewhat weak Pear cannot be grafted on a free stock. It is a slow grower, but after the third year it forms well-shaped pyramids.

DESCRIPTION OF THE FRUIT.—Size, large. Shape, very much elongated, gibbose, slightly blunt, curved over near the top, somewhat pentagonal and swollen at the base. Stalk, long, pretty thick, curved, forming a boss at the point of junction, obliquely inserted in a slight cavity. Eye, small, half shut or closed entirely, but slightly sunk, wrinkled on the edges. Skin, ochreous or greyish yellow, speckled with dirty white and tinged generally with light fawn colour. Flesh, extremely white, fine grained, rather brittle, juicy, without pips. Juice, exceedingly abundant, sweet, vinous, refreshing, with an odour of great delicacy peculiar to itself. Season, towards the middle of October to the end of November. Quality, first-class.

HISTORY.—M. Eugène Forney gives the history of the raising of the Beurré Bosc in the following terms, which fully establish the origin of this Pear: M. Madiot, director of the gardens belonging to the department of the Rhône, sent a number of unnamed grafts of this variety to the Jardin des Plantes in Paris, stating that they were taken from a very old tree that had never been grafted, which he had discovered at Apremont, a small village in the Haute Saône. About the year 1835 these grafts yielded some fruit, which was pronounced excellent, so the new variety was named after M. Bosc, a former director of the gardens and a well-known pomologist, who, during the troubles of 1793 had saved from destruction the old collection of fruit trees as well as of the Vines at the Luxembourg. To these particulars, which are almost as complete as need be, we may add a few words. In the month of October the director of the seminary at Vesoul sent me a very handsome Pear, the original tree belonging to which, he informed me in a note, he had discovered in the forests of Apremont, the whole district calling the fruit by that name. This fruit was no other than the Beurré Bosc, but we took good care not to rebaptise it, as it has been so long

known by the name given to it by M. Madiot. It has borne this name since 1835, and is known by it in all the markets and by all horticulturists.

REMARKS.—In Belgium a Pear tree is grown under the double name of Beurré Bosc and Calabasse Bosc, but it has no relation to the variety now described. It was raised by M. Van Mons, ripens at the end of September, and is of only second-rate quality. The two must not therefore be confounded.

Beurre Capiaumont.—*Syns.*—Beurré Aurore, B. Capiemont, B. Capiomont, Aurore Pear, Capiaumont Pear, De la Glacière Pear.

DESCRIPTION OF THE TREE.—Wood, moderately strong. Branches, numerous, generally erect or slightly spreading, thick, pretty long, much elbowed, tawny, reddish-brown, spotted with large grey lenticular markings generally close together, the little warts being pretty prominent. Eyes, bulky, ovoid, covered with down, separated from the bark, and with the scales badly united. Leaves, large, abundant, oval, elongated, deeply toothed or indented, twisted, and supported by a short thick stalk provided with long stipules. Fertility, remarkable.

CULTURE.—Pretty hardy. This Pear will graft on any stock. It grows very quickly and soon assumes a handsome form, being strong and full of leaf.

DESCRIPTION OF THE FRUIT.—Size, pretty large. Shape, very much bulging especially towards the eye, but diminishing greatly in its dimensions near the summit, which is slightly blunted and mammelliform. Stalk, short, moderately strong, arched, generally inserted level with the skin, obliquely, and out of the axis of the fruit. Eye, medium, open, regular, almost level with the surface. Skin, thick, rough, light, ochreous yellow, speckled and spotted with tawny yellow, and marked with the same colour round the stalk. It is generally covered with a delicate rosy tint on the side next the sun. Flesh, white, with greenish filaments, fine, half melting, watery, a little gritty about the core. Juice, abundant, sweet, aromatic, slightly sharp, but very delicate. Season, from the end of September to the end of October. Quality, first-rate for the table or for preserving.

HISTORY.—For a long time it was thought that the Beurré Capiaumont was a distinct fruit from the Beurré Aurore, but now-a-days pomologists are agreed that they are one and the same variety. In Anjou, where this variety has been grown since 1831 under the wrong name of the Beurré Aurore, which was no doubt given to it on account of the blush of rosy red which the sun sometimes throws over it, every one now agrees that this so-called Beurré Aurore is synonymous with the Beurré Capiaumont, according to the characters laid down by MM. Prévost, Bivort, Decaisne, Eugène Forney, &c. It was introduced into France from Belgium in 1827, according to the last named writer, who gives the following account of its origin: "This Pear was raised from seed by M. Capiaumont, a pharmacist of Mons, in Belgium, and made its first appearance in 1787. I have established the proper way of writing the name of this Pear by referring to the autograph signature of the producer."

REMARKS.—The Germans hold this Pear in great esteem, and pretend that it is an offshoot of the Grey Beurré. We find this statement in the "Deutsches Obstcabinett," published in 1860 under the direction of Dr. Langenthal; it is, however, only worth quoting as a note lacking the necessary authenticity, for the learned author does not say whence he derives his information. It is not every soil that suits this Pear. It should have a soil of the highest quality. Even in the same district we get excellent and only moderately good crops almost side by side. M. Gagnaire, jun., of Bergerac, in the Dordogne, has proved this incontestably. The Beurré Capiaumont, he tells us, is to be found in perfection at Bergerac, whilst at a distance of only fifteen miles from this town it is only fit for cooking.

Beurre Clairgeau.—*Syns.*—Clairgeau Pear, Nantes Clairgeau Pear.

DESCRIPTION OF THE TREE.—Wood, strong. Branches, generally pretty numerous, regularly erect, stout, short, very much geniculated, of a light yellowish-brown, the lenticular markings elongated, broad, and close to each other; warts not very prominent. Eyes, extremely bulky, pointed, conical, having the appearance of spurs with their necks swollen and badly jointed. Leaves, slightly tough, yellowish green, generally tinged with pale red, oval, finely indented, borne on a stiff, very thick stalk of medium length. Fertility, remarkable.

CULTURE.—Being moderately hardy, this Pear will graft on the Quince or a free stock. Being very precocious, it begins by making a large tree, the fruit increasing, however, but little in size the year following. It forms handsome pyramids which are rather short.

DESCRIPTION OF THE FRUIT.—Size, considerable. Shape, turbinate and very long, gibbose slightly obtuse, and often a little twisted. Stalk, very short, straight, pretty strong, swollen at the upper part, obliquely inserted in the skin, and sometimes out of the line of the axis of the fruit in a little depression surrounded by a boundary generally more or less cut up. Eye, medium, round, open, scarcely sunk at all. Skin, greyish yellow, speckled with green and brown, spotted with fawn colour round the stalk, and tinged with vermilion on the side next the sun. Flesh, extremely white, fine grained and melting, only slightly gritty. Juice, abundant, slightly acid, vinous, with a delicate and agreeable aroma peculiar to this kind of Pear. Quality, first-class.

HISTORY.—The original seedling of this tree was first obtained at Nantes, and was sold to the Belgians, who, so to speak, became its true foster parents. The following are the most authentic particulars which we have been able to collect with regard to its origin: The Beurré Clairgeau was raised from seeds sown by accident somewhere about 1838 by Pierre Clairgeau, a gardener of Nantes. The first description of this Pear was published in 1848, the fruit itself being exhibited at the exhibition of the Horticultural Society of the Loire-Inférieure in the same year by Pierre Clairgeau, who thought it was a hybrid between a Beurré and a Duchesse d'Angoulême. The original parent tree of the Beurré Clairgeau formed in 1831 part of the collection of M. de Jonghe, the well-known Brussels pomologist, who bought it for 18 francs, and planted it in his garden at St. Gille.

REMARKS.—Everything about this tree is more or less variable—shape, size, time of ripening, and quality. It is generally a first-class fruit, although poor specimens are frequently met with. This Pear frequently weighs from 1 lb. to 1½ lb., the Paris Society of Horticulture having awarded a medal to one which weighed 2 lb. 3 oz. It rarely begins to ripen before the month of October, and it still more rarely continues to yield fruit after the beginning of January.

Beurre de Rance.—*Synonyms.*—Gastelier Pear, Beurré d'Hiver, Beurré Hardenpont de Printemps, Beurré Rance, Bon Chrétien de Rance, Beurré de Noirchain, Beurré de Rans, Beimont Pear, Beymont Pear, Beurré Bon Chrétien, Beurré de Pentecote, Hardenpont de Printemps, De Rance Pear, Beurré du Rbin, Jenart Pear.

DESCRIPTION OF THE TREE.—Wood, weak. Branches, few, spread out or bent downwards, pretty thin, long, not elbowed, slightly greyish and greenish, light brown, with very small and scattered lenticular markings, and the callosities hardly perceptible. Eyes, medium, ovoid, downy, and buried in the bark. Leaves, generally elliptical, acuminate, with the edges deeply indented; the stalk of average length, thick, and provided with highly-developed stipules. Fertility, average.

CULTURE.—The free stock is the only one upon which this Pear will thrive, and even then it forms only meagre and irregular pyramids, the growth of which is always slow. Grafted on a Quince stock, it grows so slowly and is so weak in habit, that it never gives satisfactory crops, and ultimately kills the parent stock.

DESCRIPTION OF THE FRUIT.—Size, very large. Shape, oblong, ovoid, generally swollen and knobbed. Stalk, long or pretty short, fairly thick, bent, swollen at the extremities, inserted in a cavity which is seldom deep, the edges of which are irregular. Eye, average, often half-closed, regular, but slightly buried. Skin, very rough, very thick, of a dull bronzy green, speckled, and strongly marbled with light grey, and spotted with fawn colour round the eye and the stalk. Flesh greenish white, pretty fine grained, but sometimes coarse, half-melting, juicy, granular in the centre. Juice abundant, sugary, generally slightly astringent, but nevertheless aromatic and pleasant. Season, variable; it generally commences in November and ends in February; sometimes it may be gathered as late as March and April, and very exceptionally in May and June. Quality, first-rate or second rate, when the acidity of the juice is too marked. No other Pear can surpass it for making preserves.

HISTORY.—Up to the present time three opinions have prevailed with regard to the origin of this Pear, some asserting that it was obtained as a seedling by the Abbé d'Hardenpont at Mons, and that it first fruited in 1758 or 1762; others again deny that it was raised by the abbé at all, and affirm that he met with it as an unknown variety in the village of Rance, and that he was simply the grower of it; and lastly several authorities attribute it to Van Mons. The last assertion must necessarily be false, for Van Mons was not born until 1765, several years, in fact, after this Pear made its first appearance. Van Mons was but little acquainted with the true characteristics of this Pear, for he supposed that it was called Beurré Rance, *i.e.*, rancid, from the acid flavour of its flesh. But it does not follow from all this that we look upon this Pear as being first grown in Flanders between 1758 and 1762. That the Abbé d'Hardenpont may have found it unknown and unnamed in the little village of Rance we do not mean to deny in the company of a large number of pomologists, but we, nevertheless, have the conviction that it had already existed in France for many years previously under several different denominations. Let us try to show this, first by the help of Merlet's "Abégé des Bons Fruits," published in 1675, in which we read as follows: "During December and the following months the Gatellier, Jenart, or Beurré d'Hiver is eaten. It is large, green, of long oval shape, and buttery, with a not too pleasant juice, and pleasanter cooked than raw." Here we have, in a few lines, the exact description of the Beurré de Rance of this generally good, but sometimes indifferent Pear, the skin of which when it is even perfectly ripe remains of a bronze-green colour. Of the three names given it by Merlet, there is one, Gatellier, which will show us that it was propagated at Orleans as early as 1628 in the famous gardens of the Procureur du Roi Le Lectier. If we open the "Catalogue des arbres cultivés en 1658, dans le verger et plant" of this famous horticulturist we find the following formal description of it: Gastelier, a Pear tree, the fruit of which lasts until March, May, and June. As for the name Beurré d'Hiver, which Merlet makes synonymous with Gatellier in 1675, it is worthy of remark that I remained attached to this variety for a long time and travelled with it to Holland and elsewhere, as the following short extract from the "Jardin Fruitier," a pomological work, published by the famous Louis Noisette in 1821, will show—

"*Beurré d'Hiver.*—This fruit is of the same shape as the Beurrés, but the skin always remains green. The flesh is melting, sugary, perfumed, and good. We imported it from Brabant in 1806. It ripens in January. NOTE—As there are Beurrés de Rance which also last as long, it would be as well to make a comparative study of the Beurré d'Hiver and the Beurré de Rance in order to properly establish either their difference or their identity."

The investigation here suggested by Noisette took place, and on all hands it was decided that the Beurré d'Hiver was in no way different from the Beurré de Rance. Before concluding we must correct another mistake which has obtained with

respect of his Pear. It has been stated that it made its appearance in French collections under the latter name in 1828, and again in 1835, but neither of these dates is correct.—*Dictionnaire de Pomologie.*

THE GROUND OR PEA NUT.

(ARACHIS HYPOGÆA.)

THIS little annual is interesting not only on account of the very large quantity of oil contained in its seeds, and which is so largely expressed for commercial purposes, but also on account of its peculiar habit of ripening its seeds beneath the surface of the ground instead of above it. The plant forms an erect, thick, angular stem 1 ft. or more high and bears long stalked alternate leaves with two pairs of opposite leaflets of a lightish green colour. The flowers are papilionaceous, golden yellow, and crowded together in the axils of the lower leaves or solitary. The pod, which is formed at the apex of the stiff reflexed stalk, is pushed beneath the ground in a very young state; the ovary, indeed, remains very small for a long time, forming apparently only a blunt point to the stalk which is covered with a hard cap to enable it to force its way into



The Pea Nut.

the ground, which it does to the depth of 2 in. or 3 in., and it is not till it has so buried itself that the ripening of the fruit commences. If anything occurs that the ovary does not become thus buried it does not increase in size, and consequently the seeds are not formed. The usual number of seeds in a pod is two, but three are not unfrequent. The oil expressed from these seeds is used in all countries where the plant is cultivated either for culinary purposes or for illumination.

Enormous quantities both of the seed and the expressed oil are brought together to this country as well as to Marseilles, Hamburg, Berlin, and other places. At Marseilles more particularly the Ground Nut forms at the present time a very important article of commerce. Arachis oil is used both as a substitute for and as an adulterant of Olive oil. The seeds are eaten either raw or roasted. They have also been used as a substitute for Coffee and even for chocolate when beaten in a mortar; indeed, one writer on North American products says: "The manufacture of chocolate cakes out of Ground Nut alone, without a particle of Cocoa, is an immense and most profitable part of northern manufacture."

The native country of the Ground Nut is not accurately known. It is cultivated to an enormous extent throughout the tropical world in Africa, Asia, and America, but it is not known in a truly wild state. It has been suggested, however, that it may probably belong to Brazil, to which country the other species of the genus belong. It may be raised from seeds, and is not unknown in our botanic gardens. It flowers in July and August.

J. R. J.

Slugs and snails this summer have been very troublesome. I have had to sow seed over and over again after covering the ground many times with soot and lime with little or no effect.

As a last resource I placed a 6-in. flower saucer on the ground, half filled it with skim milk, and filled it up with water when it turned sour. After it had been there four days I emptied it, and counted in it over 250 slugs, from $\frac{1}{4}$ in. to 2 in. in length, quite dead. It has proved to me the easiest and most certain trap I have ever tried. Have any of your readers tried this plan?—T. C. ROATH.

WATER MELONS.

THE Water Melon is one of our most popular and well-known fruits, and one that is universally esteemed in America during the latter part of the summer season for its rich, abundant, cooling juices. It is a plant of vigorous growth, and is extensively cultivated in certain localities; but, singular as it may appear, most persons consider it rather difficult to cultivate, and, judging from the inferior specimens which they produce, one might suppose such to be really the case. But this is a very serious mistake, for no fruit is of easier cultivation than the Water Melon. It will grow in almost any soil, yet thrives best in one that is light and rich, with a warm, sunny exposure. The proper preparation of the soil is also an important consideration. The ground should be cultivated well and deeply. The hills should be 8 ft. apart, and be prepared by digging a hole about 1 ft. deep by 2 ft. across, and placing in it one-half bushel of well-rotted manure, in which some bone-dust has been well mixed. Upon this place 5 in. of soil, and mix the whole as thoroughly and deeply as possible. Firm this hill down well with the spade or fork, and then cover it with 3 in. or 4 in. of finely broken soil; in this place ten or twelve seeds on their edges, and cover to the depth of $\frac{1}{2}$ in. with fine soil. When the plants have become strong and well established, all but three or four of the most promising should be removed.

Where early Melons are desired, the seed should be sown in 3-in. pots, or on inverted sods, in a hot-bed, in the beginning of April. The plants should be gradually hardened off, and planted out when all danger of frost is over; or the seed may be planted in the open air at any time after the 1st of May if given the protection of a hand-glass. Dust a little soot, lime, or wood-ashes on the plants while young, and when they commence to run lay the branches out evenly, so that they can cover the entire ground. Keep them clear from weeds at all times. If the ends of the leading shoots are occasionally pinched back, the plants will bear more freely, and if some fruit is removed the remainder will considerably increase in size. There are numerous varieties of Water Melons, some twenty or more being enumerated by our seedsmen, but for amateurs the following will be found the most suitable:—

BLACK SPANISH (No. 1).—This is an old variety, but is not as extensively cultivated as the other sorts. The fruit is of a round shape, and is rather small in size. It also has a very thin rind and a rich, sugary flavour.

PHINNEY OR EARLY OVAL (No. 2).—This is the earliest sort, and is very prolific, the fruit being of moderate size, with bright red flesh, and good in flavour.

MOUNTAIN SWEET (No. 3) is the most productive, and is one of the best, as well as the most extensively cultivated variety. When well grown the fruit will attain a large size. The flesh is red, sweet, and of excellent flavour.

MOUNTAIN SPROUT.—This variety is not as

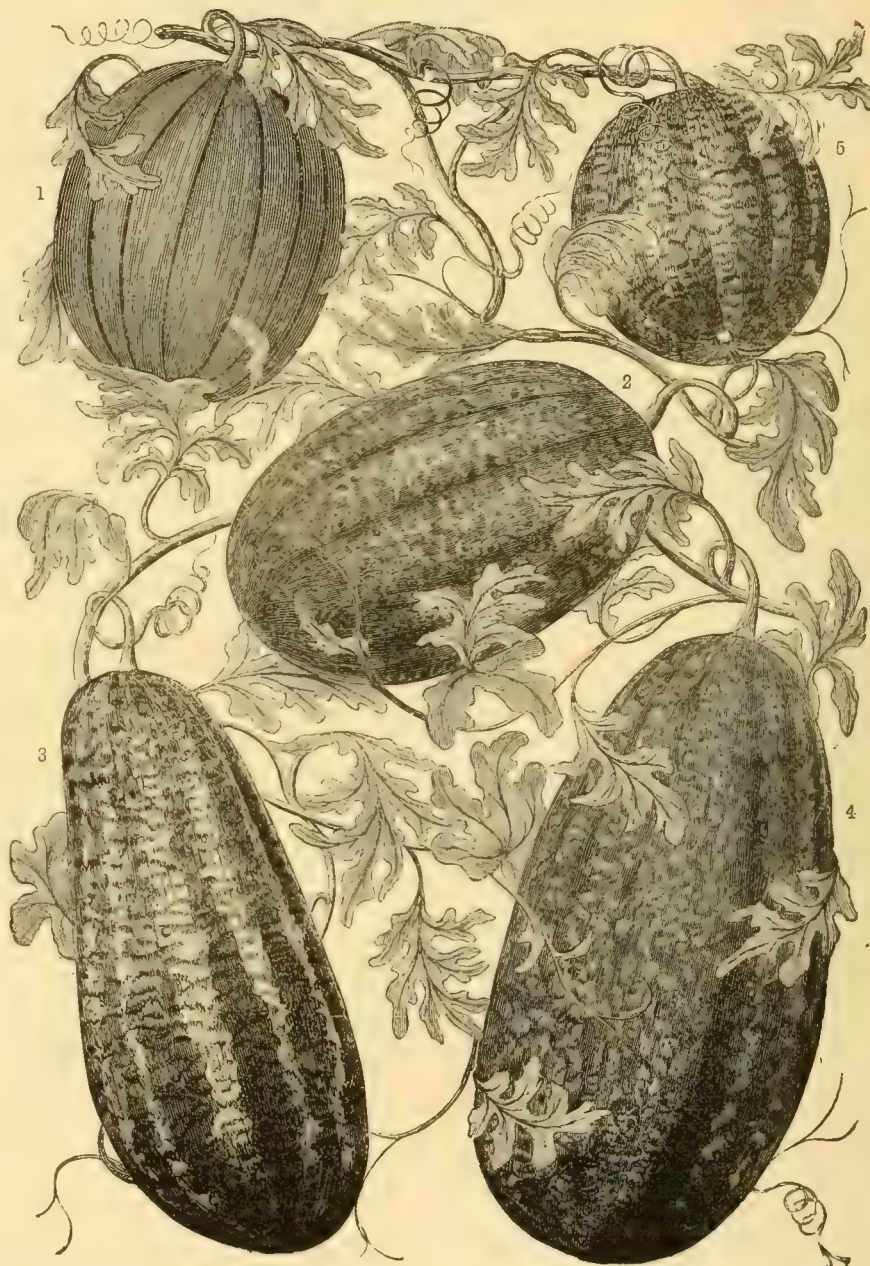
early as the sorts previously mentioned, but the fruit will keep until quite late in the fall.

GISSY (No. 4).—Oblong, light green, mottled and striped with white; flesh scarlet, very solid, and delicious in flavour.

CUBAN QUEEN.—A variety recently intro-

ORANGE.—This is an entirely distinct sort, being peculiar inasmuch as the divisions of its flesh peel from the rind like an Orange; it separates into segments in a similar manner. It is of medium size, oval in shape, and excellent in flavour.

THE CITRON (No. 5) is used for preserving



Varieties of Water Melon.

duced, and remarkable for its very large size, combined with excellent quality.

ICE CREAM.—This is considered by some one of the most delicious. It is of medium size, and is almost round. It also has a thinner rind than most of the other sorts; the flesh is of a bright crimson colour, and has a very rich, sweet flavour. Of this sort we have two varieties, differing mostly in their shape and the colour of their seeds, one being round, with white seeds; the other long, with seeds of a grey colour.

only, and is well known to all. It may be sown in the open air, as it is harder than the other varieties.—*American Garden.*

Begonias out-of-doors.—The writer of the short note on this subject in *THE GARDEN* (p. 248) has done these plants great injustice, and I think from his account he can scarcely have seen good specimens of bedding Begonias. I have grown them for the last eight or ten years as bedding plants, and my beds, instead of "looking wretchedly dull," are far brighter than the beds

of any other flowers I know, and they have been greatly admired by all who have seen them. Of course, suitable kinds should be grown. Many of the fine greenhouse varieties are utterly unfit for bedding, while for this purpose the very floriferous short-wooded varieties seem well adapted.—H. T., *Frankton, Rugby.*

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J., SURREY.

A LARGE bunch of white Japan Anemone cut long and placed in a tall glass has a wreath of red-leaved Virginia Creeper climbing about among the flowers with excellent effect. In another tall glass some late flowers of *Lilium auratum* are with large shoots of Solomon's Seal that have turned a golden green colour. Single Dahlias, yellow, orange, scarlet, and darkest red, with some red tinted leaves of Chinese Pæony, make a harmonious group of strong warm colour. Spikes of Japan Monkshood are with cream-coloured and white Zinnias. Pink China Roses, with red and red-bronze coloured Bramble leaves, are pretty in a white china basket. Pale rose coloured Verbenas, also in white china, are arranged with Mignonette and foliage of variegated Sweet Geranium. Chinese Pinks, strongest crimson and pink, make a bright table bouquet. The late flowering *Gentiana asclepiadea* is a valuable table flower, lasting long in water; a few of its Willow-like shoots with blue flowers and one or two of the white variety look well in a slender Venetian glass.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Yuccas.—There is such a distinctive, graceful appearance about several varieties of this genus that they must be placed in the very forefront of ornamental plants for the flower garden. Greenhouse varieties may be used for standard or dot plants in summer foliage bedding, and hardy kinds for a like purpose in winter, and for grouping on the turf as permanent plants. *Recurva*, *filamentosa*, *gloriosa*, and *stricta* are the best hardy Yuccas, and kinds that will grow well in any kind of soil provided it be well drained. The greenhouse varieties *aloifolia*, *a. variegata*, *serrulata*, and *superba*, which make excellent plants for association with summer bedding succulents, can with safety be planted out early in May, and they may be left out without being in danger of injury from frost till the end of October. All the kinds are propagated by cutting up the large roots into eyes, inserting them in sandy soil, and placing them in heat. Yuccas also sometimes throw up suckers from the roots, which, if severed with a piece of root attached to them, make plants much more quickly than do eyes taken from the roots.

Preparing for winter.—At no time during the present season have bedded-out plants been more brilliant than now; but their season is all but over, and preparation must be made for housing such plants as are intended to be saved, or, at any rate, for securing cuttings for next year's stock. Our plan with all tender kinds is to house them as soon as ever there is any danger of injury from frost, and replace the same with hardy plants to stand the winter. In this way the change of the garden from its summer to its winter dress goes on so gradually and imperceptibly as to be hardly noticeable till the whole has been donned in winter garb. Coleuses, *Alternantheras*, and *Iresines* are always the first to be destroyed, and as soon as this takes place, we substitute hardy Heaths, dwarf Sedums, Thymes, Ajugas, and small shrubs such as *Retinosporas*, *Cupressus*, *Aucubas*, *Euonymus*, and *Iris*. The one aim in their disposition and arrangement being that the colours and design of the beds shall as nearly as possible be similar to that of the summer arrangement; of course summer gaiety is impossible, but a winter garden of coloured foliage, taking into account the changed

season, is at least of equal merit to summer brilliancy. This combined summer and winter embellishment of the parterre of course necessitates a reserve garden for the accommodation of the necessary plants, but much of it may also be of a permanent nature, or at least consist of such plants as will do equally well for summer or winter. This fact we keep in view when making our summer arrangements, and work in all the hardy plants possible—perhaps at the loss of a certain amount of brightness; but this is more than counterbalanced by the lightened autumn labour of changing the plants, and the ensured cheerful aspect of the beds in winter. Those who have not attempted the winter furnishing of parterre beds, and as a matter of course have not yet got the plants for doing it, may make a beginning by using the hardy dwarf carpeting plants that are now so generally used in summer bedding. A groundwork of these and a few small shrubs dotted over it is wonderfully telling in dull winter weather. Bulbs, such as *Hyacinths* and *Tulips*, may also be planted in masses, and the ground be covered with these live carpets, which also prove a good protection to the bulbs. Other ways besides these might be suggested as to winter planting, but these will suffice to show in what direction to work in order to get rid of those ugly mounds of soil that disfigure our gardens all the winter, and which afford a very strong argument against—and not lightly used either—by the opponents of bedding out.

General work.—This will consist in keeping flower-beds and borders in trim condition by repeated picking over, cutting edgings, and tying up such plants as need it. Herbaceous borders are still very gay with Japanese Anemones, *Rudbeckias*, *Phloxes*, *Achilleas*, *Gladioli*, and *Asters*, but there are numbers of other plants that have done flowering, and are looking so "seedy" as to spoil the appearance of others; the stems of these, as soon as matured, should be removed, and in any case they should have the old flower-heads and rusty foliage cut off. The tall *Pyrethrums* and *Michaelmas Daisies* require stakes, and the like attention is needed by *Castor-oils*, *Hemps*, *Gums*, and other tall plants used as sub-tropicals. Pot up and house *Pelargoniums* that have been struck in open borders, and those recently put in pots and boxes must now have the shelter of a frame. *Violas* and *Calceolarias* should complete propagation for the present. All kinds that are being struck on a hot-bed should be taken out the moment they are well rooted, and be placed in other frames that can be well ventilated or protected as may be needed, it being necessary to successful wintering that the growth be of the most robust kind; and this cannot be unless great attention be paid to ventilation, which does not mean full exposure in all weather, but only in suitable weather. The clipping of hedges, moving of shrubs, and preparing soils in which to plant them, also digging and trenching ground for new plantations, are some of the other operations that claim immediate attention.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Table plants.—Of small plants suitable for table decoration or like purposes, the comparatively new *Cyperus laxus variegata* is one of the best amongst variegated subjects that has ever been introduced. It has a distinct and elegant habit, and the white variegation of the beautifully curved leaves is constant. It is a small grower, and admits of being increased fast from suckers. The handsome *Aralia filicifolia* is an excellent plant for the same purpose, its erect habit giving it a distinct and pretty appearance. It is a good grower, and can be increased much faster than most others of the genus. Where table plants are constantly required there should be a regular succession prepared by propagating the different kinds used, for to make them at all passable the growth must be sufficiently free to give them a healthy look, and under such conditions they soon get too large for use in this way, and nothing can well be

more out of character than using them when too big. Neither should such kinds be selected as have any approach to broad, heavy leaves. Light, elegant forms are alone fit for the purpose. The *Cyperus* may be increased now in heat by suckers taken off and treated in the usual manner, and the *Aralia* also by the insertion of cuttings, but for the latter purpose it is best to use growths that have sprung from an older plant that has had its top removed. Where any of the variegated *Dracenas* are used for this purpose they should be confined to the narrow-leaved varieties. Those with broad massive foliage, even in a small state, are unsuited. Amongst green-leaved kinds, the elegant *D. congesta* and *D. stricta* are both good table plants; where any old stools of these are at hand, they may be increased either by laying the stems down on a propagating bed covered with half an inch of soil, or by cutting them in bits with a couple of joints each, which, treated as ordinary cuttings in heat, will make, in due course, good plants. *Primulas* are better yet out in cold pits or frames, and will be well now with the lights facing southwards, as the sun they are likely to get after this time will be more to their benefit than otherwise. They should have plenty of air night as well as day.

Cyclamens.—These will not require shading after this time, and every encouragement must be given to all the stock, whether old bulbs that have been reported some time back, or last year's raised seedlings; where the latter are really well managed from the vegetation of the seed, for general purposes they are preferable to old plants. A moist bottom for the pots to stand on is also much the best for them, as they are plants that never suffer from damp; whereas, if stood on dry shelves or stages, except in the winter season, their two greatest enemies—red spider and aphides—are much more troublesome. The moisture always rising from the damp bottom, such as advised, keeps the undersides of the leaves continually moist and unpleasant to the insects.

Plant stove.—Those *Allamandas*, *Bougainvilleas*, *Ixoras*, *Dipladenias*, and others of like character that were started latest into growth will, as a matter of course, continue flowering the longest, and there is no time of the year when they will be found more acceptable and useful than during the autumn months. It will be well now to put them all together at the warmest end of the house, letting those started soonest have a place at the coolest end, keeping them the driest, and giving all the air that is required at this end. By an arrangement of this kind the two objects of accommodating the plants that want to keep on flowering and those that are ripening off can be effected. The atmosphere of the house may now be kept drier without its being any worse for that portion of the plants which still want to go on blooming.

Medinillas.—*M. magnifica*, and also the newer *M. amabilis*, will by this time have their growth about completed, which can readily be seen by a good, strong bud being formed at the base of the terminal leaves, which latter gain substance and full size without the shoots showing any inclination to extend. When this condition is arrived at these plants will be better in an intermediate temperature during the autumn and winter; likewise keep them drier at the roots.

Hexacentris mysorensis.—Though this magnificent climber is indigenous to the warm Mysore country, I have always found it succeed better in a house kept at an intermediate heat than in a hot stove. Where a situation of this kind can be afforded it, it is a splendid plant for training to a rafter; so grown, its highly coloured crimson and yellow flowers are seen to the best advantage, and it blooms more freely, though of course not so soon in the season as when it receives more heat. As it is naturally a strong grower, too much root space should not be given if it is planted out; where grown in pots, manure water will be a great assistance from the time it begins to show flower. Treated in this way, I have had it keep on flowering to the close of the year.

One great advantage in growing it cooler is that so managed the flowers are of much more service in a cut state.

Hedychiums.—These are very useful when in bloom for conservatory decoration; they succeed best in medium heat. It is not advisable to allow them to get over large. They are of a free-rooting, strong-growing disposition, and if allowed to go for years without being divided they do not bloom so freely through the soil becoming exhausted; where the plants are big enough they may with advantage be divided now, as in most cases the flowering will be about over. The best plan will be to turn them out of the pots and cut them in pieces. A plant that has been in a 15-in. or 16-in. pot will bear dividing into three or four, giving each piece a 10-in. or 12-in. pot, accommodating them for the winter where they will keep growing. They will generally be found to bloom better in loam than peat, though they will grow in either.

Griffinias.—Those that since their growth was finished up have been submitted to cooler treatment and more air will still be pushing up flowers. During the time these are advancing they must not be kept too cool, and care is necessary in giving water not to allow the young flower-stems, until they have attained some size, to get wet, unless early enough in the day for them to dry, or they may damp.

Luculia gratissima.—This charming flowering plant is worthy of all the attention requisite to get it to bloom freely. To see it produce its beautiful flowers in the profusion that it is now and then met with, it wants to occupy an end or back wall in an intermediate house, where it will not be over-shaded. Still, fine as it is when grown in this way, it is very useful for decorative purposes, and also for cutting when in pots, as by having a number they can be so managed as to come on in succession; whereas when planted out the time of its flowering is regulated by the temperature maintained in the house. See that it gets plenty of light, as the flowering of all subjects of this description that have somewhat soft wood is much assisted by their growth when about completion being under the influence of full light. From the time that it shows bloom, manure water will be of service.

Caladiums, Gloxinias, and Tuberos-rooted Gesneras.—As the leaves of these discolour, and the plants show signs of their growth stopping, water ought to be gradually withheld, allowing them to flag somewhat, and then only applying sufficient to freshen them up a little, but still keeping them in the stove. They are best during the winter in the pots in which they have been grown; if there is not room for this they can be put in paper bags in dry sand; they ought not, however, to be wintered in a lower temperature than 55°.

Poinsettias.—Where these are required dwarf, say in 5-in. or 6-in. pots, with single heads from 8 in. to 11 in. or 12 in. high, they may be had by striking the tops of strong shoots made by plants that were started early, but they would not succeed if put in to strike in the way usual with ordinary cuttings, as, from their succulent nature, they would mostly rot. The way to proceed is to cut the shoots half through to 6 in. or so from the top, letting them remain in this state for ten days or a fortnight to give the cut portions time to callus over; when this has taken place they can be severed and inserted singly in 3-in. pots, using equal proportions of sand and sifted loam, and keeping them quite close in a cutting frame or under bell-glasses; they should not have less heat than 70° or 75°. For the first few days only give enough water to keep the leaves from flagging; managed in this way they will soon root; after which inure them by degrees to the air of the house and stand them quite close to the roof. If a shelf near the roof over a path is available it will be found the most suitable place, the object being to keep them as dwarf as possible. When the little pots are full of roots, they must have others 2 in. or 3 in. larger, now using

good loam with a little sand and one-fourth rotten manure added. The tops may be struck a second time where the plants are required very dwarf, but, though they can be had to flower in a very small state by this means, the heads of bloom will, of course, not be nearly so fine as those borne by strong, tall shoots that have never been stopped.

ORCHIDS.

J. DOUGLAS, LOXFORD HALL.

Cattleya house.—It will be seen that a number of plants in this house are now starting into growth—perhaps not much top growth as yet, but a fresh growth from the roots, and it is when this root growth commences, or rather just before, that the plants may be potted. *Lælia cinnabarina* is an example. I usually pot this species in January or February, but I question whether it may not be done now as well as at that time. Use plenty of drainage; the pots should be quite three parts full. Then pot in the same compost as that recommended for *Lælia purpurata*. I have received plants of both these species as imported and have found the material clinging to their roots is much the same; it seems to be light, fibrous peat. The *Pleiones* are now approaching their period of rest and the leaves are gradually dying off; this is the signal that water must be gradually withheld. *Odontoglossum Phalanopsis* seems to succeed admirably in this house, the plants being placed on a shelf near the glass with the *Pleiones*. *Cattleyas* of the *C. Mossii* and *C. Mendellii* type have now almost completed their growth. If any small white scale is found on their leaves, it must be at once washed off with a sponge and soapy water. I must again urge the importance of watching at night for slugs and small snails; slices of Turnips and Carrots should be laid down to attract them, and these must be frequently examined. Shading may almost be dispensed with for the *Cattleya* house now, but it may be allowed to remain up in order that it may be let down in the hottest part of a very hot day. Whatever shading is used now should be of the very thinnest description. I often wish that young growers would realise the great importance of giving plants all the light possible without being injured by the effects of the sun's rays upon them. Roller blinds should also be fixed so that they may be let down or rolled up with the least possible delay. There are also certain *Cattleyas* and *Lælias* that delight in having as much light and even exposure to the sun as they can get; indeed, many good growers do not shade their *Cattleya* houses. The large house in Messrs. Backhouse and Son's nursery, York, is a case in point, and also a small house in the well-kept garden belonging to Mr. Dorman, The Firs, Sydenham; both these houses are well exposed to the sun, and the plants are freely watered and syringed while the sun shines upon them. The temperature at night should be 60°.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Orchard houses.—By this time all the mid-season Peaches, Nectarines, and Plums will have been gathered and the trees will be in the best possible condition for potting or top-dressing. If they are in large sized pots or tubs no danger need be apprehended from reducing the balls and replacing them in the same pots; but before this is done the whole of them should be turned out and laid on their sides where the roots can be covered with some damp material to give time for washing the pots and crocks and getting them thoroughly dry before the repotting is commenced. Meanwhile a good quantity of dry turfy loam of a calcareous nature, old lime rubble, and a little bone dust should be thoroughly mixed and protected from wet ready for use. When all is ready choose a mild, cloudy day, of which we now have too many, crotch carefully and liberally, divest the balls of all sour soil, cut back strong roots and replace them with the tops of the balls sufficiently

low to admit of a thin covering of compost at least 1 in. below the rim when all is finished. It is important that the balls are thoroughly moist at the time of potting and the new soil is well rammed with a wooden rammer, otherwise water will pass away without entering the old part and the trees will cast their best buds in the spring when they ought to be bursting into flower. If it is inconvenient to house the trees they will do very well on a firm bottom free from worms in a warm situation out of doors, where they can be syringed overhead on fine days and moderately supplied with water when they require it. When fresh root action has set in thin out any surplus wood and shorten back strong shoots to triple buds to keep the trees in shape, but avoid cutting the weak growths, as it frequently happens that the only wood-bud they contain is at the point, and the loss of this from pruning or any other cause would render all the flower-buds abortive. If choice Peaches and late Plums have been taken out to give the Peaches more room, these will have been replaced under glass with the October Peaches to ripen up, where, with due attention to watering and protection from birds and wasps, they will hang for a considerable time after similar kinds on walls are over.

Vines.—As Vines in late summer and autumn houses are cleared of the crop all laterals should be cut away from the base buds on the leaders and spur shoots to plump up the eyes before the main leaves fall. The latter must, however, be carefully preserved from injury, and kept clean by an occasional syringing with clean water until they ripen off a bright orange colour and fall gradually. If the borders have been allowed to get very dry, repeated waterings with clear water or weak liquid will be necessary, and when the soil is properly moistened all old mulching and inert soil may be removed and replaced with a rich dressing of fresh turf, bones, and a covering of short horse manure. Houses in which ripe Grapes are hanging may have the temperature gradually lowered, otherwise the black varieties will soon lose their colour, but sufficient fire heat must be applied to admit of a free circulation of air, and to prevent the berries from damping off at the footstalk. Follow up the removal of laterals from Muscats, discontinue filling the evaporating troughs, and cover up the external borders with glass lights, shutters, or tarpaulings. Prune the early houses of Hamburgs which are to be started in November, and spare no pains in getting them thoroughly cleansed and dressed; also wash and paint all internal woodwork, limewash the walls, and have everything put in thorough working order with as little delay as possible. Shorten back fruiting pot Vines and leave them out of doors where the roots can be protected from heavy rain. If top dressing is necessary, clear away all old mulching and use old turf, bone dust, and thoroughly decomposed cow manure.

Peaches and Nectarines.—Houses in which the very latest kinds are retarded through every stage of their growth will now require and well repay all the attention that can be devoted to them with the view to the perfect maturation of the wood. The first step after all the fruit has been gathered will be the removal of every superfluous shoot to let in light, warmth and air when those left to furnish the trees must be lightly tied to the wires some 6 in. apart. Many people lay them in much closer, but it is injurious to the trees, and very often leads to failure or the production of mediocre fruit which ripens off when it should be commencing its last swelling. If spider or any other insect pests have got on the trees, they must of course be dislodged with pure water or an insecticide, and then will follow the treatment best calculated to ripen up the current year's wood. In our own management in this garden, which lies low, cold, and damp, we apply gentle warmth to the pipes with plenty of air through the early part of the day, and the trees being clean, advantage is taken of every ray of sun by shutting up early with dry heat. In the management of trees in late houses a luxuriant

growth of wood should be carefully avoided, and where, through light cropping or other causes, there exists a suspicion that the next year's growth will become gross, now is the time to give them a check by digging a trench along the front of the border or in a semicircle round each tree. If the border is in good condition the old soil or new maiden loam may be used for filling up the trench again. On the other hand, the soil being bad or the roots down in the drainage, partial lifting and relaying will be the best, if not the only effectual remedy, as few trees so quickly recover from the check and produce crops of fruit of superior quality the following season. In all cases where the soil is sound and fairly good the use of manure should be avoided in every form through the autumn months, but it may be used freely as a summer mulching, particularly where the soil is too light or deficient in lime. In limestone localities, where the Melon, the Strawberry, and the Rose grow well, the Peach is quite at home, and all that is needed is charred refuse, burnt clay, or old lime rubble in the proportion of one to five to keep the loam open after the fibre is gone.

Strawberries.—Let the most forward plants of the kinds intended for early forcing be examined and moved from time to time to prevent the roots from striking into the ground or bottom of the bed in which they are partly plunged. If, as is generally the case, they occupy very small pots, they will require a supply of water every day to keep the balls from shrinking away from the sides, and an occasional syringe over with clean sulphur water will do no harm in checking spider and mildew, which sometimes get a hold of the plants and break out in a very lively form when they are introduced to the genial warmth of the forcing house early in the spring. This must be looked to. Pay also particular attention to the midseason and late kinds now making rapid growth, and move them to the most suitable places for ripening up the crowns and foliage. In unfavourable situations, where the crowns barely ripen in good seasons I have always advised the appropriation of dwarf walls or raised shelves for ripening the roots as well as the crowns, as the pots can be arranged in single rows, turned and tended with the greatest care, instead of being crowded, as we too often see them, into a limited space in which the exclusion of warmth, light, and air might be looked upon as the first element of success.

Pines.—By this time the fruiting house will have been nearly cleared of summer fruiters, and the few left may be removed to a smaller compartment where they can have plenty of light and bottom-heat to swell and ripen off the fruit. If a complete clearance and cleansing of the pit has been decided upon, this work should not be delayed, as some little time will elapse before the new plunging material, be it tan or leaves, is in a fit state for the reception of the plants. They may, however, be placed on the surface or in shallow basins where they may remain until the violent heat declines, when the beds can be made up again without disturbing them. As many of these which have quite recently started into fruit will have to remain through the dead months of the year when ventilation will be reduced to a minimum, close arrangement must be avoided, and the crowns must be kept well up to the glass, otherwise they will become drawn and out of proportion to the size of the fruit. Although watering will not be so frequent, the plants must be examined every week, and those only which actually require water must be liberally supplied with warm diluted liquid or guano water, while all available surfaces capable of giving off atmospheric moisture will require damping to counteract the drying influence of fire-heat, as overhead syringing will have to be discontinued. Queens intended for early starting may be kept a little more on the dry side, and atmospheric moisture may also be reduced; but it will not be well to lower the temperature to any great extent until days become shorter and nights colder than they are at the present time. Plants which will make a spring growth before they start may be

kept progressing for some weeks longer, and where, owing to the unfavourable state of the past summer, the fruiting-pots are only partially filled with roots, the growing may be steadily continuous until we have a change to severe weather. An important point in winter management is cleanliness, internally by the removal of all other plants, and externally by the frequent washing of the glass. Shading on the brightest days is no longer needful—indeed, it is positively hurtful—but the blinds will do good service by being let down at night to economise fire-heat, and to prevent the loss of moisture by radiation.

ORCHIDS.

DR. PATERSON'S ORCHIDS.

THE Orchids grown by Dr. Paterson at his residence, near the Bridge of Allan, have often been alluded to in these pages and elsewhere. Not being for the nonce able to accept an invitation to see the plants "at home," I, with many others, went to the auction rooms in George Street, Edinburgh, on the 14th inst., to see that portion which, in the interest of his main collection, Dr. Paterson felt bound to sell. It is sometimes said that amateurs are losing their love for and their interest in Orchids when they bring their plants to the auction room, or if this is not what is thought, there are often knowing nods and winks and insinuating suggestions of "weeding out bad varieties," or hints that the plants are "worn-out specimens;" but of the plants sold by Dr. Paterson the other day I heard but one opinion, in which I fully coincided, and that was the fact of their excellence both as regards size and quality. Plants of such solid growth and vigour are but rarely brought to the hammer, and everybody felt that for once the genuine article was before them. The first plant of note was a dark variety of *Odontoglossum vexillarium*, a healthy mass with many growths, not large growths, but clean and fresh in all ways. It was 2 ft. in diameter, and when it last bloomed it had thirty-four spikes on it of its deep rosy flowers. It fetched 15 guineas. A good strong plant of *Epidendrum prismatocarpum*, with sixty-one pseudo-bulbs and fifteen leading growths, fetched 11 guineas; and then came a well-grown specimen of *Lælia anceps Barkeri*, with ten flowering growths, a tempting bite, which cost the buyer 26 guineas. One of the attractions of the sale, *Vanda tricolor Patersoni*, a healthy plant, with forty thick, leathery leaves and two young growths, brought 21 guineas. A smaller plant fetched 4 guineas; then *Angræcum sesquipedale*, 2 ft. in height, fresh and clean, with thirty leaves, brought 18 guineas. A few more lots went at prices varying from 30 shillings to 6 guineas, and then there was some lively nodding for that wonderful plant of *Cattleya Trianae Symei*, described in THE GARDEN for July 1 of the current year. This plant was knocked down at 39 guineas, and was really worth much more. A grand specimen of *Aerides Fieldingi*, the "Fox-brush" variety, with thirteen growths, and which bore the same number of flower-spikes this year, cost the buyer 25 guineas, a smaller plant going for 7 guineas. A plant of the true *Aerides suavisimum* of Reichenbach, a plant far less common than is supposed, brought 17 guineas; another *Vanda tricolor Patersoni*, 9 guineas; *Cypripedium Dominianum*, 7½ guineas; and then came that marvellous specimen of *Anthurium Scherzerianum*, which was figured in THE GARDEN some years ago, and which has received silver medals from the Horticultural Societies of both Edinburgh and Glasgow. This, perhaps the finest plant in existence of Veitch's variety, brought 20 guineas. Mr. Wm. Thomson informed me that Dr. Paterson had refused £60 for this plant when in flower some time ago.

Perhaps the best grown plant of the white-flowered *Chysis bracteescens* ever seen was next sold for 10 guineas. It had ten bulbs and two leading growths, the largest measuring 20 in. in length and 7 in. in circumference. Then came lot 97, *Cattleya labiata*, true autumn flowering

variety, four bulbs, all with leaves in robust health. This is a very scarce plant, and is guaranteed true. It was of the "green leaved" variety, and had one leading growth "made up," and showing double sheath, and it fetched 39 guineas. I wish some of my Orchid-growing friends who have been writing in praise of *Cattleya labiata Percivaliana* would compare the size and price of this plant with the prices obtained for the imported plants of Percival's variety which Reichenbach named, but of which he has not as yet published his description. Mr. Harry Veitch paid 21 guineas for a splendidly grown plant of *Vanda suavis* (Dublin Botanic Garden variety), 5 ft. in height, with three young breaks. This is a grand form, originally brought into notice by Mr. John Bain, who grew it splendidly many years ago in the Trinity College Botanical Gardens along with *Vanda cœrulea*, *Renanthera coccinea*, *Cattleya labiata* (true old variety), *C. crispa superba* (true), and many other fine things. A small plant of *Miltonia Moreliana atrovirens*, bearing deep claret-purple flowers 3½ in. across, sold for £6. *Aerides suavisimum* fetched 11 guineas. *Dendrobium (chrysotis) Hookerianum*, with clean strong growths nearly 7 ft. high, cost Sir Trevor Lawrence only 40s., but a plant of Boyd's variety of *Cattleya Mendelli* woke up the interest of buyers, and brought 27 guineas. A robust plant of Walker's variety of *Dendrobium thyrsiflorum*, which bore twenty-two spikes this season, went for 37 guineas. *Vanda tricolor Patersoni* and plants of Rollisson's variety of *Vanda suavis* realised 16 guineas apiece. A remarkably good bit of *Vanda cœrulea* having twenty leaves, correctly described in the catalogue, No. 138, as "a splendid young plant without a speck upon it," cost but 4 guineas. This, as well as the foregoing, went to the Chelsea collection. The fresh *Sphagnum* in which this choice bit of the blue *Vanda* grew was jewelled with several fine plants of the Cape *Drosera spatulata*, as indeed was that of several other of Dr. Paterson's specimen plants.

I quite forgot to say that lot 37, *Lælia superbiens*, in perfect health, with thirty bulbs and three flowering growths, was publicly valued at £30—or guineas—I forget exactly which, the buyer being Mr. Marshall, on behalf of Messrs. Backhouse & Sons, of York. Lot 139 was a remarkable one in a tub of *Cattleya labiata Warneri*, 27 in. in diameter, having seventy-nine bulbs, of which sixty bore perfect leaves. The plant had belonged to the original collection of the late Provost Russell, of Mayfield, Falkirk, and, judging by its health and vigour, must have been an especial pet of Mr. Sorley, who grew the Provost's plants so lovingly and so well. After some considerable competition it was knocked down to Mr. Veitch at 49 guineas. Veitch's variety of *Vanda suavis*, with sixty leaves, "a fine specimen in grand health," fetched 7½ guineas; another plant of the Dublin College Garden variety brought 19 guineas, Paterson's variety of *V. tricolor* 16 guineas, *Aerides Reichenbachianum* 9 guineas, *A. quinquevulnerum* 6 guineas, and another specimen of *V. t. Patersoni* to Mr. Veitch for 14 guineas, concluded the sale of the really choice lots.

A plant of *Disa grandiflora superba*, 18 in. across, which had borne seventeen flower-spikes, went for 55 shillings only, and a fine mass of Dr. Paterson's variety of *Masdevallia ignea* fetched 8½ guineas. Thus have we "noted the cream" of the Orchids sold, but it is difficult to give an adequate idea of the vigorous health and cleanliness of the plants generally. We believe we are right in saying that Dr. Paterson is (or has been until quite recently) his own gardener with the aid of one of his sons, Mr. Charles Paterson, as practical Orchid grower. On both gentlemen these surplus specimens—all duplicates—reflected the highest credit, and this was the generally expressed and unanimous opinion of the best of judges. This sale had several points quite out of the ordinary run of "sales by auction." The auctioneer himself, as he frankly confessed, had never conducted a sale of the kind before, yet under the management of Mr. Thomson, jun., of

Clovenfords, all worked smoothly and well. It was a most instructive sale in many ways; held in a place where Orchid sales and Orchid buyers are generally few and far between, it was nevertheless a success. By some good judges it was thought that had the sale been held in London the finer specimens would have fetched far higher prices. Be this as it may, none of them were "given away," and the fact of fair prices generally having been obtained was mainly owing to the first-class condition of the plants and the absolute truth of the descriptions given in the sale catalogue. Dr. Paterson grows his plants in warm and airy houses, a fact attested by their sturdy vigour and deep green freshness, and, as he observes, he could not give them "vapour bath" treatment even if he wished it, since his hot-water power is limited. That he may long be spared to grow and enjoy his pet plants is the wish of many besides myself.

F. W. BURBIDGE.

ORCHIDS AT SELBORNE, STREATHAM.

HERE, as in many other pretty suburban gardens, Orchids have driven nearly all other kinds of plants off the place. In the present case there was, however, good reason for the change, for the houses, originally built for vineries, pineries, and greenhouses, were, owing to their situation and faulty construction, altogether unsuited for the purposes for which they were erected. After a trial and a little alteration Mr. Southgate found that Orchids succeeded admirably in them, and that, too, where neither fruit nor greenhouse plants could be grown in anything like perfection. In each of the nine houses plenty of bright and interesting plants may be found at all times of the year; even now—perhaps the worst season—flowers confront one at every turn, and the fresh, healthy appearance of the foliage affords them a pleasing background. Mr. Salter, the gardener, says that cleanliness is quite half the battle in growing Orchids, a statement well sustained and practically carried out here. I have always found that, when everything was kept clean round about Orchids, it went a great way towards keeping them clean too; and that when insects would obtrude themselves, they consisted of the early colonists, the first arrivals, and were soon exterminated, not one being left to stock the place with two or three generations before declaring war against them. A very good collection of medium-sized plants of good, and in many cases very rare, things is to be found at Selborne, and as some are exceptionally well grown they demand special notice.

The Pleiones, so often destroyed by being left in a hot, moist place after the leaves wither, are here very good, and some of the plants are now throwing up so many flower-spikes that when in bloom a finger could hardly be placed between the flowers without touching them. They are grown in shallow pans suspended in an intermediate house close to the glass, and kept profusely supplied with water until the bulbs are fully formed and the leaves begin to turn yellow. They are then removed to a cold, airy greenhouse, where they will remain during the blooming season and until they start again, when they will be returned to their warmer quarters. Under this very simple mode of treatment Pleiones cannot fail to thrive. *Oncidium macranthum* is grown in perfection and in quantity, and many fine varieties may be found here, the variety *Southgatei* being perhaps the best. They are grown on a narrow shelf attached to the back wall of the finely stocked *Odontoglossum* house. They are at a good distance from the glass, and Mr. Salter says he finds them to do best when kept moderately shaded—in fact, when grown precisely the same as an *Odontoglossum Alexandræ*, the plants of this *Oncidium* at Selborne are the plumpest and cleanest I have seen lately. Of *Dendrobium Brymerianum*, the spring flowering variety is said to be quite distinct from and better than the ordinary kind, and as seen here it is decidedly different. A fine plant of it is in the Dendrobe house. Its growths maintain the whip-like characteristics of the old variety, but they are stouter and much larger, being from 2 ft. to 2 ft. 6 in. in height—a noble Dendrobe indeed.

Good plants of the following are now in bloom, viz., *Vandas*, *Phalaenopsis*, *Cypripediums*, *Oncidium Lanceanum* (four spikes), *O. Krameri*, *O. excavatum*, *O. Forbesi*, *O. crispum*, *O. flexuosum*, *Cattleya guttata*, *C. Loddigesi*, *C. Wallisi* (a lovely white variety), *Masdevallia bella* (fourteen spikes), *M. Davisi*, *M. Reichenbachiana*, *Cattleya pumila*, *Miltonia radians*, and that lovely variety *M. bicolor*, *M. Clowesi grandiflora*, *M. Moreliana*, *Odontoglossum pardinum*, *O. constrictum*, *O. tripudians*, and a great quantity of other *Odontoglossums* in bud. I was also glad to see a good example of that singular plant *Mormodes Warszewiczii*, with its two spikes of flowers so dissimilar that it is difficult for one not aware of the habit of this plant to believe that they belong to the same Orchid. There is yet another spike coming; it will probably differ from either of those now out. A very pretty ornamental rock fernery, with water and cave, forms a good finish to a neat, well kept, and interesting place.

Harrow-on-the-Hill.

JAMES O'BRIEN.

Mimicry in Orchid flowers.—When I was a very young boy I remember seeing a picture of the devil in a book entitled, "A History of His Satanic Majesty." The appearance of the devil's face as therein represented has never been quite effaced from my memory. He was represented with a very long chin and beard, an open, ugly mouth, and four horns. You can imagine my surprise the other morning upon finding in my house an Orchid in bloom (*Stenia fimbriata*) the flower of which bears a striking resemblance to the face of Mephistopheles as represented in the book referred to. Many of my friends who have seen the flower have been highly amused with the supposed likeness to the "Old Gentleman."—ALEXANDER PATERSON, *Fernfield, Bridge of Allan.*

Gongora superbiflora.—In THE GARDEN for September 2 (p. 204) this plant is spoken of as being in flower in Mr. Peacock's collection at Sudbury House, Hammersmith, and it is stated, "We should like to know more about this species." Well, it is a very fine Orchid, but it is not a *Gongora*, but *Bifrenaria aurantiaca*. It was, however, purchased under the name of *Gongora superbiflora*. *Bifrenaria aurantiaca* is one of those old and somewhat rare Orchids, the first appearance of which in this country can be traced back as far as the year 1835, when it flowered in the collection of the Duke of Devonshire, and a very faithful illustration of it appeared in the "Botanical Register" of the same year. It has also been figured in more recent works in which it is stated to be a native of Demerara. The genus *Bifrenaria*, though not so large as some of the others belonging to Orchidaceæ, certainly contains some showy species well worth cultivation. *B. aurantiaca*, for instance, flowers at a season when Orchid flowers are rather scarce, and, moreover, it is good for cutting purposes; its flowers will last two or three weeks in perfection and they are delightfully fragrant. It has flowered freely here during the past month, the plant in question having nine spikes all expanded at one time. It is grown in the East Indian house attached to a piece of cork and is kept rather dry, treatment under which it seems to thrive admirably.—W. GOSLING.

Prairie flowers of Manitoba.—This is now a place of considerable importance to Englishmen, and it may be of interest to give your readers an account of some prairie flowers which bloomed with me this year. The seeds were sent to me by Mr. Howard Stokes, son of the late Naval Storekeeper here, in 1880. He gathered them in the Pembina Mountain district, where he had taken up a farm. There was first *Physostegia virginiana* var. *speciosa* (Gray), a robust, showy perennial, 4½ ft. in height when in flower with dark green, lanceolate, strongly serrated leaves and large spikes of variegated purple flowers. This plant is very different from the ordinary garden form of *Physostegia virginiana*, being much larger in all its parts, with larger, darker, almost coriaceous

leaves and long spikes of very bright-coloured flowers. It is so different that it has been described as a distinct species. It is the *Draccephalum speciosum* of Sweet's Brit. Fl. Garden, t. 93, and *Physostegia imbricata* of Hook. Bot. Mag., t. 3386. The first to bloom of these prairie flowers was *Anemone cylindrica* of Gray, so named from its achenes being arranged spike-like on a much elongated receptacle. The flowers did not open very well with me. Another was *Liatris scariosa* (Wild), a rather showy plant, and one which grows, I believe, from New England to the Western States of America, as well as in our own North-west. *Gaillardia aristata* is another composite. The *Gaillardias* are all southern and western plants, none occurring east of the Mississippi. This one is quoted by Torrey and Gray from Missouri, Saskatchewan, and Oregon. But the form sent by Mr. Stokes, is a large, robust, lanuginose plant, apparently different from the forms described in botanical works, and, if new, may be known as var. *Stokesi*. The last I will notice is a thoroughly æsthetic plant, whose flowers would delight Oscar Wilde. It is *Heliopsis levis* (Persoon), and is a rather diminutive, but neat, broad-leaved perennial Sunflower, the only Sunflower, in fact, fit for a button-hole, if any are. These flowers give one some idea of the floral display on the prairies of our North-west, where they flower abundantly.—PETER JACK, *Halifax, N.S.*

NOTES AND READINGS.

COOL ORCHIDS.—It is a significant commentary on the value attached to this class of Orchids that in the collection of famous specimens sold in Edinburgh the other week, amounting to some 220 from one garden, there was not a single *Odontoglossum Alexandræ* or *Pescatorei* and very few cool Orchids of any kind. The tendency of the time is evidently to invest in cool Orchids in preference to those usually called hothouse specimens.

LATE PEACHES.—About this season of the year we usually hear something about these. We have rarely tasted a Peach after the middle of October that was worth eating. The Salwey Peach so much spoken of is certainly a late kind, as it sometimes comes in in November, but it is pale, colourless, and insipid, too often having that dry, mealy flesh so disagreeable in such fruits. We ought to be satisfied with some things in their season, and when Grapes, Pears, and Apples are at their best, and Plums, and Oranges, and Nuts are to be had we can do without bad Peaches.

YELLOW FLOWERS IN AUTUMN.—There is rather a predominance of these at this season among herbaceous plants, but among the best, if not the best, of clear bright yellows of a pleasing shade is the *Harpalum rigidum*. Single plants of it are pretty, but it would probably look best in large masses; for cutting it is one of the best hardy plants we possess. There are many shades of yellow and orange, and the most glowing among the latter is the common pot Marigold. If this was not so common a plant it would probably be fashionable. With us last year it bloomed the whole year through, the winter being so mild. It is a self-sowing annual, and the flowers vary much in colour, some plants producing pale flowers with centres of the same colour, while others are of a deep glowing orange shade in the petals; the centre dark, almost black; flowers semi-double; but there is now a double kind which comes true from seed, we believe, and is good in colour. We saw a large bed of the orange coloured variety a few days ago that would have delighted the eye of the author of "Colour in the Flower Garden." The bed contained Marigolds only, and was set off by the Grass and a band of dark shrubs behind—the best yellow bed we have seen this season, and one likely to last long in perfection. The next best annual to this, also a sure self-sower, is the common *Eschscholtzia californica*; but it is only on

sunny days it is seen in perfection, when its orange and yellow petals are well expanded, and shine with a brilliancy seldom seen, except it be in the Tulip. The noblest orange and yellow subject at this season, however, is the Tritoma, which stands erect and alone in its majesty, and is conspicuous afar off. No wonder this plant commended itself for bedding-out purposes in times past. Lines of it planted several years used to be a redeeming point in some flower gardens, but it is in masses the plant is displayed to best advantage, when the flower-spikes can be counted by hundreds or thousands.

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COTTAGERS' GARDENS.—It is a noteworthy fact for the consideration of land owners, farmers, and local horticultural societies that the garden plot of the agricultural labourer as a rule is the worst cultivated and poorest cropped in the parish. We have had unusual means of judging, and have often been struck by this fact. A good garden would be of far more value to the poor and ill-paid agricultural labourer than to the better-paid artisan or collier, but his very occupation prevents him using his bit of ground to the same advantage. Working early and late, without any half holidays, his hours of leisure are few and needed for rest, and the most he can do or, as a rule, attempts is to get in a few Potatoes which grow amidst weeds and neglect, as often perishing by disease as otherwise, rendering his garden little else than an encumbrance to him. It is in the suburbs of towns and large villages that we find the most successful cottage gardening, and where small horticultural societies are most flourishing, managed by the cottagers themselves; but in many rural parishes no effort is made to encourage the poorer cottier in that way, unless the vicar chooses to saddle himself with the task, often an arduous as well as a thankless one. Farmers are themselves poor gardeners, and take less interest in their men's gardens than anybody else.

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JUDGING AT EXHIBITIONS.—The usual crop of complaints is growing up at this season. The probability is that judges endeavour, as a rule, to do their duty fairly and well, but it does not follow that their decisions are always right. At the late great show in the north even the judgment of the jurors is, I see, impeached in your report. An agricultural writer of experience and knowledge in such matters some time since wrote on the subject of judging at agricultural shows, and he thus summarises the faults of judges, and which are the same as have been laid to the charge of horticultural judges from time to time, viz., (a) want of ability in the judges, (b) the hurried manner in which they judge, (c) prejudice on their part for or against certain strains of blood. Judging by a general estimate of quality (rule of thumb, he calls it), the writer condemns and advocates judging by "points" in all cases. With ordinary judges this system insures—(1) correct and of course uniform rewards; (2) it affords ample information with respect to the exhibits and their points; (3) it is to a high degree educational, as the reasons are given for all the decisions. Good horticultural judges do judge by points, but more follow the rule of thumb practice; and when that is the case, a glaring want of uniformity in the awards is almost always discernable when the exhibits run very near and there are many of them. With a recognised standard of points the judges can hardly make a mistake if they understand their duties otherwise; and where this plan has been adhered to it has frequently and entirely upset first impressions gathered from a general estimate of the exhibits; we have even known cases in which the judges have themselves been surprised at the result of the adding up, and have carefully analysed the points again and again to make sure there was no mistake.

*

EDINBURGH.—I like those outspoken utterances about the capital of the north and its gardens, and one hopes they may suggest reflections in the right quarter, but your enlightened and liberal Scot is frightfully conservative on matters horti-

cultural. It is true, however, that Edinburgh must come to London for a lesson in town gardening, in which respect, always excepting Princes Street Gardens, it is one of the most poorly decorated towns in the three kingdoms. The architect and the mason have fully done their duty—indeed, overdone some things, and it is now the gardener's turn to show his art, but plants appear to be only grown for sale there. One can love and admire "Auld Reekie," and still say that much. It has hardly made the least horticultural progress these last thirty years. A word for the Edinburgh Botanic, however. At £1500, as against the £20,000 allowed to Kew, Edinburgh cuts the most creditable figure by a long way. It is evident that the money must be spent economically as things stand. Re-arrangements and alterations are not easily made without extra grants, and one wonders the Edinburgh folks have never thought more about their botanical garden—it, too, suffers from the horticultural inertia apparent in the Scotch capital; all the enterprise is in the hands of the "trade." Noteworthy horticulturalists in the north have plenty of work if they like to do it near home. The culture of fruit is commendable, but it is not everything in gardening, and some things have been sacrificed to it in the north, particularly in horticultural exhibitions, which, in respect of plants and flowers and other branches of gardening, are falling quite behind the provincial shows in England.

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COMING ROUND.—"Those who have tried early stopping or pinching back seem almost to have fared worse than those who have left the young shoots unstopped, for hardly were they stopped till the buds at the base broke forth into a fresh crop of breastwood, and these secondary shoots are not only far more numerous, but almost as strong as the first. As to those unstopped, some of them are 3 ft. long, and of corresponding strength; all this abnormal energy of growth is so much the worse for the fruit crop of 1883. Neither is this forcible arrestment of growth of much use or benefit. In all matters relating to vegetable life it is emphatically true that mere force is no remedy. This is especially so in regard to the pruning of the heads of trees; and yet a certain amount of pruning of breastwood seems necessary, especially for trees of limited size and formal shape." The above passage from a leader in a contemporary has reference to wall and other fruit trees, and is from a quarter where such doubts and admissions would not have been expected at one time. "The forcible arrestment of growth" means restriction, we presume—"seems" necessary indicates a transition state of doubt on the part of the writer.

*

STANDARD PEACH CULTURE IN FRANCE.—One would like to concentrate the English gardener's attention upon the paragraph in THE GARDEN two weeks ago on the Amsden June Peach. The heads of standards, about 3 ft. high and 5½ ft. diameter, were ordinary grafts three years ago, we are told, and that "these heads take naturally and almost without any pruning whatever the most regularly rounded form. Every tree this year bears at least 105 lb. of fruit, and on some the crop must have exceeded 140 lb." What can be done in France by standard training can be equally well or better done in England with properly constructed houses. Such examples should give confidence to those about to go into Peach culture.

*

USELESS CARNATIONS.—The choicest varieties of Carnations and Picotees, says one of your correspondents lately, "are weakly in constitution, and do not readily lend themselves to border culture," for which reason we are recommended to nurse them in pots, as if we had not enough of pot work in gardens already. The above statement is, however, only half true; it is not the "choicest," but the weakest varieties that do not lend themselves to border culture; and that being so there does not appear to be any use for them at all except to swell the rubbish heap. Hardy plant growers have other fish to fry than to nurse hopeless weaklings.

There are numbers of splendid Carnations and Picotees that will grow anywhere, and no others need be cared about.

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PYRAMID TREES.—It is instructive at this season to note the difference between the formal and naturally trained fruit tree. In the average managed garden the half-neglected pyramid is, wherever not recently root pruned, covered by a pall of rank young growth that completely shrouds the internal portion of the branches where all the fertile fruit-buds are, or ought to be, and which need the light most. The natural untrained tree, on the other hand, does not show a tithe of the exuberant spray of the pyramid, and turns all its bearing branches and buds outwards to the sun and air, its internal portions being comparatively bare. The two are perfectly opposite in habit—the pyramid is a tree turned wrong side out, and the mind that conceived it must have had some corresponding twist or peculiarity. The shape, in any of its modifications or exaggerations, has not one good point to recommend it. A writer in a late number of *Farm and Home* remarks that "there is no reason why good training, fine appearance, and fruitfulness should not go together," which may be true; but, what is more to the purpose, fruitfulness will go without the other two, apprehending "good training and a fine appearance" here spoken of to mean mutilation and fanciful shape.

PEREGRINE.

INDOOR GARDEN.

SINGLE DAHLIAS INDOORS IN WINTER..

I REGRETTED being unable to wait in London for the first National Dahlia Show, held at the Crystal Palace on the 8th and 9th inst., as I was anxious to see some of the newest types. A gentleman who was with me at our exhibition in Dublin a few days later, however, assured me that the show of double Dahlias there in a few classes eclipsed that at the Palace; but most unaccountably there was not a solitary single Dahlia exhibited. This certainly did not arise from want of Irish patronage, for besides being largely grown in private gardens, I saw admirable specimen beds of single Dahlias at the Botanic Gardens, Glasnevin; and Mr. Burbidge also showed me some really fine varieties at Trinity College Botanic Gardens, Pembroke Road. Though I could not wait to see the National Show, I did the next best most convenient thing: I went out to Tottenham to see Mr. Ware's "acres of single Dahlias." And certainly they were a treat, especially the seedlings, which contained many varieties, distinct advances on anything that has hitherto come before the public. I should require considerable space to give even an idea of this specialty at Tottenham, but my present purpose is to recommend the utilisation of single Dahlias in winter decoration. This matter came under my notice this way: Last year I had some young plants from Mr. Cannell, Swanley, of alba (syn., White Queen); they did not flower at the usual time, but I kept them growing on and took them inside when danger of frost became apparent in the end of October. I gave a few to an enthusiastic neighbour, and they were the brightest gems he had in his conservatory towards Christmas. He asseverates most strongly, remembering the fine contrast they made with Begonias (tuberous), the different varieties of Zonal Pelargoniums, and other winter flowering plants, he should never again be without them. My experience with less heat and elaborate appliances has been similar, and this year I have kept back and gradually shifted on from small to large pots additional varieties—the dwarf kinds are very convenient—pinched as one would Zonals. Juarezi and Paragon are rather robust growers, but I have alba not yet showing a flower, while the coccinea and lutea types are dwarfer still. I would recommend any of your readers who may find it convenient, even yet this year, to try this additional plan of winter decoration.

W. J. M.

Clonmel.

Cineraria leaves (*J. C. Farmer*).—The leaves of your Cinerarias are attacked by the grubs of a fly, nearly allied to the Celery fly (*Tephritis onopordinis*). The best way of destroying the grubs is to pinch that part of the leaves in which they are; they will easily be seen by holding up the leaves between yourself and the light, and will generally be found at the end of the burrows they are making.—G. S. S.

Eucomis punctata.—In THE GARDEN (p. 224) mention is made of a "spike of this Eucomis about 1 ft. long sent by Mr. Groom." We grow it here, and at the present time we have spikes 21 in. long that have been in flower for the last six weeks; indeed, we highly value the Eucomis not only as a greenhouse, but also as a decorative plant for the drawing-room, its beautiful scented white wax-like flowers making it a great favourite.—THOS. OLDHAM, *Friern Hatch, Finchley*.

New Fuchsia.—I send you some Fuchsia blooms taken from a root sport of Mrs. Marshall, from which, as you will perceive, they are quite distinct, the colour of the corolla being brighter, but the chief point of difference is in the sepals being quite sharp pointed instead of rounded, as in Mrs. Marshall; they are also tinged with the same colour as the corolla. It has about the same habit and free-blooming property as Mrs. Marshall.—H. G. [A handsome Fuchsia with rich rosy salmon corolla, and white tube and sepals.]

Vallota purpurea.—The large flowered white-eyed variety of this fine old plant, alluded to at p. 224, is perhaps *V. purpurea eximia*, which, if I mistake not, Mr. Bull sold some time ago. At the recent flower show in Dublin there was a well-bloomed specimen of it, which obtained considerable attention. *V. purpurea major* is a large flowered form of the type, *V. purpurea* being self-coloured scarlet and not so large in flower.—F. W. B.

I have about a dozen of *Vallota purpurea eximia*, and they all have flowers measuring from $3\frac{1}{2}$ in. to 4 in. across, and some of the first flowers that opened measured rather more. All of them have white centres.—GEO. CARPENTER, *Rydens, Walton-on-Thames*.

Diseased Fuchsias (*F. N. R., Italy*).—You say you "always find the same kind of insect" on the diseased leaves. These insects may possibly have something to do with the disease, but we cannot say without further information. Insect excretion is abundant on the leaves, and may be mistaken for fungi. Whether any fungus originally caused the ailment or not we cannot say. The fungus you sketch is a *Mucor*; it does not cause disease, but grows on decaying organisms. The object you describe as a possible fungus with "green flesh and seeds and a thick purple rind" cannot be one. The description accords with a gall, but we can see no galls. Our opinion is that the Fuchsias are out of health, through too much sun, drought, or dry air, or that the roots are in a bad state. The cuticle is dead, and the leaves destitute of inner substance. The sulphur you have tried would be likely to make matters worse. We can see no fungi or trace of fungi on the leaves sent.

Fungus on Cinerarias.—The Cinerarias attacked with the fungus named *Trichobasis senecionis* (p. 247) have been grown in a cold pit standing on ashes. Those affected are the produce of seed sent from Boulogne. Looking round the garden a few days ago, I pulled up a root of Groundsel, notably *Senecio Jacobæa*, and to my surprise the leaves were quite eaten up with, apparently, the same fungus as that on the Cinerarias, though I hardly think they have caught it from the Groundsel, as they have been under glass. It appears, however, that there is plenty of the fungus in this locality. Singularly enough, we have a very good early batch of plants raised from English seed growing side by side with those raised from French seed, and they do not show the least sign at present of being affected by fungus. I found the plants from French seed infected with the fungus about a fortnight ago. It

attacks the undersides of the leaves, curling them up and eating right through them. It does not seem to spread very rapidly, but there is no doubt that it will kill the plants in time, or at least make them look very unsightly.—W. ROBERTS, *Arklow*.

SOCIETIES.

INTERNATIONAL POTATO EXHIBITION.

SEPTEMBER 20 AND 21.

On Wednesday and Thursday last the eighth international exhibition of Potatoes was held at the Crystal Palace. Compared with its predecessors, it was an unqualified success, there being no falling off in point of numbers, and certainly not in the quality of the tubers, which was higher this year than on any previous occasion. The schedule was so framed as to admit growers of all classes. It was divided into nineteen classes with from four to six prizes in each, the prizes ranging from 10 guineas to half a guinea. The classes were all well filled, some being numerous represented, and there was a noticeable increase of exhibitors in the large classes. There were 1456 dishes shown in competition for the prizes, and as all but one class had nine tubers to a dish, there were upwards of 13,000 Potatoes submitted to the judges. These, together with the enormous quantities exhibited not for competition made such an assemblage of this favourite esculent as has rarely been seen before.

All the exhibits were, as usual, arranged on long tables, running lengthwise of the transept, and assuredly no better place could be designed for a display of this nature, and the promptitude of arrangement and also of the judging deserves commendation.

Though the show could not be called an international one, it certainly was not local, there being exhibitors from Scotland, the midland and western counties, though of course the competition was mainly confined to the home counties. The most prominent exhibitors this year were Mr. Pickworth, of Loughborough, who won no fewer than four first prizes, three seconds, a third, and sixth. Mr. R. Dean, of Ealing, ranked next with three first, while the other prominent exhibitor was Mr. Ellington, of Soham, who won what may be called the champion prize, the first for twenty-four varieties, besides several others. It is a singular fact that these Potato exhibitors rarely experience the same success for two successive years; for example, the exhibitors which were most prominent last year were not so on this occasion, a circumstance no doubt more attributable to locality and climate than to skill and varieties.

There can be no doubt that the promoters of these Potato exhibitions effect a deal of good to the community at large not only by encouraging good culture among the comparatively few that exhibit, but they also do good in giving a stimulus to the production of good varieties, for it is a well known fact that old varieties do degenerate, and that it is absolutely necessary that new ones be raised to supplant them, or rather take their place. We should no doubt be always well supplied with novelties among Potatoes, as we are with other things, by the enterprise of the commercial element, but this committee or society, whatever it may be, puts a check on the exuberance of what we may call commercial novelties by certificating none but what are proved to be thoroughly deserving of it after a crucial test, both as regards their growing qualities, their appearance, and, above all, their edible qualities. As an instance of this, there were no fewer than twenty-six new varieties submitted to the judges, but only four were found worthy of certificates. These four, the Potato-eating public may rest well assured, are all that a good Potato should be. The new varieties for trial are sent by the raisers to Chiswick, where the Royal Horticultural Society has placed at the disposal of the committee as much land as they require for the purpose of testing the growing and cropping qualities of the varieties, and each sort is tested as to its edible property both at Chiswick

and at the exhibition. Such excellent work as this, carried out so diligently and disinterestedly by a few gentlemen, ought certainly to meet with cordial support from the public at large, for above all other horticultural produce the Potato stands pre-eminent, and its improvement is for the common weal. It has been said that these exhibitions only serve to encourage Potatoes of a class only suitable for exhibition that is large, and what enthusiasts call "handsome;" but anyone who saw the varieties certificated on this occasion would admit that the judges certainly were not led away by size or appearance compared with the many other varieties exhibited. There are many useless varieties of Potatoes grown as regards their table quality, and one of the chief efforts of the society should be to suppress these and encourage varieties that are not only "handsome," but good food.

With regard to the exhibits generally, we can only say they were excellent, the finest probably that could be produced, as there were in every class so many collections or dishes, as the case may be, for the judges to select the prize lots from. In most every class they must have experienced not a little difficulty, for to the uninitiated who do not take into consideration every "point," there was no difference between several of the exhibits. Of all exhibitions, a Potato show is one of the most difficult to describe to the general reader in an intelligible way, for Potatoes are Potatoes all the world over, and we could only say that the prize lots consisted of large and uniformly sized tubers, and "handsome" if needs be, the "points" of the judges being uniformity of size and good shape throughout the collections—in short, such as would be considered generally good table Potatoes.

As we give elsewhere a full list of awards, we will only mention the names of the varieties shown most prominently in the various classes, as these may be of some service to our readers in making a selection of at least exhibition varieties. The principal class was for two dozen varieties, open for competition to all comers, and such a large number of sorts, of course, tested the strength of the competitors. There was a dozen collections shown, that from Mr. W. Ellington, of Soham, being an excellent one, and thoroughly representative as regards the various sections.

Of *Red Rounds* were Adirondack, Triumph, Tiftie's Annie, Grampian, Matchless, Vicar of Laleham, Blanchard, Reading Russett. *White Rounds*—Schoolmaster, Porter's Excelsior, Eight Weeks, White Emperor, Rector of Woodstock, Early Border. *White Kidneys*—Pride of America, Wiltshire, Snowflake, International, Bresee's Prolific, Early King, Covent Garden Perfection. *Red Kidneys*—Mr. Bresee, Queen of the Valley, Prizetaker.

In the second collection from Mr. Pickworth were, of *Red Kidneys*—American Purple, Superior, Prizetaker. *White Rounds*—Champion, Bresee's Prolific, Reading Hero, Fox's Seedling. *Red Rounds*—Fenn's Cricket Ball, Peachblow, Beauty of Kent, Blanchard, Grampian. *White Kidneys*—King of Flukes, Ashtop Flukes, Woodstock, Wiltshire Snowflake.

The third collection contained, of *Red Kidneys*—Extra Early Vermont, Mr. Bresee, Heather Bell, Wonderful Red, Defiance. *White Rounds*—Schoolmaster, Early Oxford, Rector of Woodstock, Porter's Excelsior, Bedford Prolific. *Red Rounds*—Radstock Beauty, Triumph, Vicar of Laleham, Grampian, Beauty of Kent. *White Kidneys*—St. Patrick, Magnum Bonum.

The second class was confined, to the competition among gardeners, and was for eighteen varieties. The first contained of *Red Rounds*—Beauty of Kent, Triumph, Reading Russett, Adirondack. *Red Kidneys*—Trophy, Superior, Beauty of Hebron, Holborn Favourite. *White Rounds*—Bedford Prolific, Early Goodrich, Wiltshire Snowflake, First and Best, Reading Abbey. *White Kidneys*—Woodstock Kidney, Magnum Bonum, Myatt's Ashleaf, Pride of America, Pride of Ontario. In the second were of *Red Rounds*—Radstock Kidney, Vicar of Laleham, Mr. Bresee, Blanchard. *Red Kidneys*—Prizetaker, Purple Ash-

leaf, Porter's Excelsior, Garibaldi, Jackson's Improved, Advance, Cosmopolitan, Fiftyfold, Fillbasket, International; and in the third and fourth, Bountiful, Bresee's Prolific, Queen of the Valley, Matchless, Early Vermont, Mammoth Pearl, Webb's Surprise, Wonderful, Early King, American Purple, Cosmopolitan, Grampian, Blue Prince, Feltham White, Lapstone Kidney. Nineteen collections were shown, and all the six prizes in this class, amounting to 22 guineas, were given by Messrs. Sutton & Sons, Reading.

The third class was for twelve sorts, six to be English and six American. Among twelve collections the finest, from Mr. Pickworth, contained, among Americans, Triumph, Rose, Queen of the Valley, Adirondack, Trophy, and Matchless; and Ashtop Fluke, Woodstock Kidney, International, King of Flukes, and Magnum Bonum among English sorts. The second, from Mr. R. Dean, contained Adirondack, Queen of the Valley, Triumph, Matchless, and Early American among Americans; Magnum Bonum, Edgecote Seedling, Radstock Kidney, Vicar of Laleham, Advance among the English. The above-named varieties, with Pride of America, Reading Russet, Blanchard, Grampian, Schoolmaster, were shown in the other collections.

Twenty-four collections of six sorts were shown the best from Mr. Pickworth, including International, Blanchard, Ashtop Fluke, Reading Russet, Radstock Kidney, and Grampian. The second, from Mr. Finlay, contained Woodstock Kidney, American Purple, Blanchard, King Noble, Triumph, and Edgecote Kidney. In the third lot were Queen of the Valley, Magnum Bonum, Schoolmaster, Mr. Bresee, International, and Beauty of Kent. In other collections were Vicar of Laleham, Magnum Bonum, Adirondack, Ashtop Fluke, Early Vermont, International, White Elephant, Schoolmaster, Bresee's Prolific, and Queen of the Valley.

The fifth class was for four dishes of the largest and handsomest tubers, six to a dish, and, as may be supposed, there were some prodigious examples shown. The schedule stated that any variety could be shown, so Mr. Pickworth literally interpreted it, and only showed one, and that was International Kidney, his twenty-four tubers being very large and fine, and were undoubtedly the best. The second prize lot contained Silverskin, White Elephant, International, and Queen of the Valley, all probably as large as they can be grown in conformity with good shape. The third collection consisted of White Elephant, Vicar of Laleham, International, Trophy; and the fourth, Queen of the Valley, International, Manhattan, and Magnum Bonum. Among other varieties shown in this class were Vicar of Laleham, Trophy, Beauty of Hebron, Mammoth Pearl, Early Vermont, Pride of Ontario, Manhattan, Redskin Flourball, Breadfruit, Pride of America, and Mr. Bresee, all of which were of large size, but not so fine as the second lot.

Thirteen collections of three dishes of white rounds were shown. In the first, from Mr. R. Dean, with Bedford Prolific, Porter's Excelsior, Model; in the second, Bedford Prolific, Schoolmaster, Porter's Excelsior; and the third and fourth contained Reading Hero, Porter's Excelsior, Schoolmaster, Carter's Eight Weeks, Alpha and Bedford Prolific.

Among nineteen collections of three dishes of coloured round sorts, the best, shown by Mr. Pickworth, consisted of Queen of the Valley, Blanchard, Reading Russet; in the second were Vicar of Laleham, Blanchard, Reading Russet; in the third, Grampian, Vicar of Laleham, Radstock Kidney; and in the fourth, Vicar of Laleham, Manhattan, Flourball, Centennial, Lye's Favourite, Beauty of Kent.

Seventeen sets of three dishes of white kidney sorts were shown, out of which Mr. Dean showed the best, having International, Edgecote Seedling, and Woodstock Kidney well represented. In the second best were Woodstock, Jackson's Improved, Yorkshire Hero; and the third, Magnum Bonum, International, Advance; the fourth, Pride of America, Magnum Bonum, Woodstock Kidney;

and in the others, Fenn's Perfection, Covent Garden Perfection, King of Potatoes, Bresee's Prolific, St. Patrick, Lapstone, King of Flukes.

Mr. Dean again was first with three dishes of coloured kidneys among thirteen competitors, showing American Purple, Mr. Bresee, Beauty of Hebron. For the second place were shown Purple King, Beauty of Hebron, Mr. Bresee; the third, Defiance, Mr. Bresee, American Purple; the fourth, Superior, Early Vermont, Beauty of Hebron; and among others, Prizetaker, Early Rose, Trophy, Scammell's Glory, Wonderful Red, Fenn's Bountiful.

There is little to say with regard to the competition for Messrs. Sutton's prizes, to which the next three classes were devoted. One was for Sutton's First and Best, a fine white round, and the well-known Magnum Bonum. There were eight competitors. The second was for Sutton's Reading Hero and Woodstock Kidney, both white rounds of excellent quality. Fourteen sets were shown. The third class, for Sutton's Reading Abbey and Red-skinned Flourball, was represented by six exhibitors. All the produce shown in these three classes was of a very high quality, and these fine Potatoes were shown to perfection; and the same may be said of the competition for Mr. Turner's four prizes for Schoolmaster, which were competed for by fourteen exhibitors.

The next class was for nine dishes, the five prizes being given by Mr. Fidler, Reading. There were a score of sets shown, the best from Mr. Hughes, containing Beauty of Hebron, Manhattan, Adirondack, Porter's Excelsior, Reading Russet, International Kidney, Queen of the Valley, Purple Ashleaf, Blanchard. In the second set were Purple Kidney, Vicar of Laleham, International (very fine), Surprise, Tiffie's Annie, Standard, Wonderful Red, Reading Russet, Garibaldi. There was uniform high quality throughout the many collections in this class, and none of the rest were below the average.

New varieties.—There were four classes set apart for these, and, as may be imagined, excited a deal of interest. One class, in which six prizes were offered, was for the best dish of a new variety in commerce not offered to the public before 1882. In this class the new red round, known as Sutton's Reading Russet, took the first, second, and fourth prizes, while Sutton's Prizetaker, a red flat kidney, was third, and Queen of the South, also a red flat kidney, was fifth. Reading Russet was shown by eight, Early Border by four, and Adirondack by three exhibitors, while other sorts shown were, Victoria alba, Fiftyfold, Mr. Bresee, Cleopatra, Defiance, Cauce's Perfection, and Cosmopolitan. Thirty-six dishes were shown.

Certificates.—The other three classes were for a single dish of nine tubers of any variety not in commerce, and first-class certificates and a prize of £1, given by Mr. Peter McKinlay, were the awards. There were fourteen dishes of white kidney sorts shown, that selected for the certificate and prize being

Recorder, raised and exhibited by Mr. R. Dean, Ealing. It is a handsome sort, in the way of Woodstock Kidney, and is said to be of excellent edible quality and a very prolific cropper. It is a seedling from American Success crossed with Woodstock Kidney. Among five dishes of coloured kidney sorts shown the judges selected

Alderman de Keyser, raised and exhibited by Mr. Fenn, Reading. It is "an early second early," whatever that may mean, and is a cross between American Snowflake and a discarded seedling; it was No. 6 at the Horticultural Gardens at Chiswick in 1882. Among five new sorts of white rounds the judges selected two for certificates; these were

Sir Walter Raleigh, raised and exhibited by Mr. Ross, Newbury. As shown it is rather a small tuber, smooth and symmetrical; it is a seedling from Excelsior. The other was

James Abbiss, raised and exhibited by Mr. Fenn. It is a cross between Turner's Union Round and the old Shutford Seedling. It was No. 3 at Chis-

wick this year. There was no award or certificate made in the class for coloured round Potatoes, though five sorts were shown. Among these were Cauce's Perfection, a cross between Grampian and Scotch Blue Beauty of the West, between Vicar of Laleham and Scammell's Glory, Lye's Purple King and Dargavel Pride, a pretty sort, descendant of Myatt's Seedling. Other white rounds shown were Laudable (Ross) and Lord Mayor (Dean). Other new coloured kidney sorts included Crimsor King, like Wonderful Red kidney, a cross between Late Rose and Bountiful; Wiltshire Giant, like Superior, also the same cross as the preceding; Dargavel Beauty (Kerr), between Myatt's and Ruby; and Sir Garnet, also between Myatt's and Ruby, both pretty sorts. Among the thirteen sorts of white kidney not certificated, many were under number only, but among others were Rival, (Ross) Sanday's Seedling (Pearson), Superintendent, Beauty of Abingdon, between Mentmore Seedling and Early Jargonelle; and Maincrop Kidney, between Magnum Bonum and Victoria; and Pride of the Market, also from the same parentage.

Miscellaneous collections of Potatoes were very numerous as usual, and added considerably to the importance of the exhibition. The most prominent exhibitors were Messrs. Sutton & Sons, Reading, who had a fine display, which worthily sustained their high reputation. The collection, which consisted of about 130 varieties, arranged in heaps and dishes, and included all the leading sorts in cultivation, as well as about twenty-five new seedlings not yet in commerce. Most prominent were heaps of Sutton's Reading Hero, Magnum Bonum, Early Border, Reading Russet, Prizetaker, Fiftyfold, Sutton's Reading Abbey, Woodstock Kidney, King of Potatoes, Berkshire Kidney, Hundredfold Fluke, First and Best, Fillbasket, and Redskin Flourball.

Mr. R. Dean, Ealing, exhibited an admirable collection, numbering some seventy kinds, the whole of which could bear comparison with the competitive collections for high quality. Excellent samples of Trebon's Onion, large and finely shaped bulbs, showed this fine variety to perfection.

Messrs. Harrison and Sons, Leicester, had sixty-two dishes of Potatoes, and some uncommonly fine Celery; and Messrs. Daniels, Norwich, had a huge pile of the new White Elephant Potato, an American production of great size; it is a long tuber, and of a ruddy tinge.

Messrs. Webb & Sons, Stourbridge, were exhibitors of a very fine collection, consisting of nearly a hundred dishes representing all the leading varieties. Webb's Surprise, the Favourite, and Schoolmaster were particularly noticeable.

Messrs. Lee & Sons, Hammersmith, had a similar collection of about seventy-five kinds, among which their new Defiance was prominently exhibited, also of Early Hammersmith, which is spoken so highly of.

Mr. Fidler, Reading, had a capital table of about fifty dishes, Reading Hero and Magnum Bonum being conspicuously fine.

A full list of awards is given in our advertising columns.

NOTES FROM THE EDINBURGH SHOW.

It is gratifying to learn that all big shows are not failures, for from what we hear the late "international" at Edinburgh has resulted in an unqualified success both financially and otherwise. The Royal Caledonian Horticultural Society are to be congratulated on their enterprise, and they assuredly deserve the thanks of the community in providing such enjoyment to the crowds that visited the show. We understand that "during the two days the show was open upwards of 30,000 persons visited it, and the money taken at the entrances amounted to £1060. Besides this amount there are receipts from the sale of tickets (about £40), special subscriptions (about £450), and annual subscriptions from about 500 members from 5s. to £2 2s., so that it has been a financial success. The prices of admission were: First day—9 a.m. to 11 a.m., at 1s. (gardeners only)

11 a.m. to 1 p.m., at 2s. 6d.; 1 p.m. to 10 p.m., at 1s. Second day—10 a.m. to 5 p.m., 1s.; 5 p.m. to 10 p.m., 6d." In our hurried report last week a few exhibits necessarily escaped our notice. Among these the following are the most important:—

Roses.—We incidentally mentioned in our report that the cut Roses were exceptionally good having regard to the season. This remark more particularly referred to the collections shown in competition for the prizes offered, but these were eclipsed by the non-competing exhibits, particularly the fine collection from Mr. Hugh Dickson, Belmont Nursery, Belfast, who showed admirably to what perfection the Rose may be grown in that part of Ireland even in September. The principal sorts shown were: Baroness Rothschild, Comtesse de Serenye, Albert Page, Mrs. Jowitt (very fine), Madame Hippolyte Jamain, Alfred Colomb, Beauty of Waltham, Madame Marie Rady, Ferdinand de Lesseps, Marie Baumann, Paul Neyron, Etienne Levet, John Stuart Mill, Duke of Teck, Lælia, Dr. Andry, Marquise de Castellane, Charles Lefebvre, Mrs. Baker, Madame Victor Verdier, Annie Wood, Bouquet d'Or, Mrs. Harry Turner, La France, Belle Lyonnaise, and several other varieties less known. Mr. Smith, Stranraer, likewise had an excellent collection, consisting of most of the varieties just named.

Hardy Ferns were far superior to what we are in the habit of seeing at London shows. Some of the collections consisted of large, coarse growing kinds, such as *Lastrea Filix-mas cristata*, *Polystichum angulare Wollastoni*, *Osmunda cristata*, *Athyrium Filix-femina*, but others contained dwarf growing kinds, for which there was a special class set apart, the size of the pots being restricted to 6 in. We never remember seeing such a neat collection of a dozen British Ferns as that shown for the first prize. The plants were uniform in size, very vigorous, and bore indications of skilful culture. They included *Cystopteris montana*, *Woodсия ilvensis*, *Trichomanes radicans*, *Blechnum Maundersi*, *Asplenium septentrionale* (exceptionally fine), *A. lanceolatum macrodon*, *A. Trichomanes confluens*, a handsome variety, larger than the type, and also the variety *incisum*. Associated with these were, moreover, *A. fontanum*, well grown, and *Polystichum lobatum*. These were exhibited by an amateur, Mr. A. W. Anderson, a postman in Edinburgh, we learn, who also showed numerous other Ferns, including some of the best filmy kinds.

Croton Thomsoni appears to have been the only new plant certificated on this occasion. It is a very handsome variety, having foliage 1 ft. or so in length and some 2 in. to 4 in. wide. The leaves are of the golden yellow hue, broadly margined, and spotted with rich green and suffused with crimson tints. It possesses the desirable quality of colouring highly even in a small state which many others do not. Though we have already nearly a surfeit of *Crotons* there is still room for such a handsome variety as this, which will surely become a popular stove plant. It was exhibited by Messrs. Ireland & Thomson, Craigleith Nursery, Edinburgh. Among other new plants submitted to the judges for certificating were some extremely fine *Coleuses* from Messrs. Dicksons & Co.'s nursery, Pilrig Park. Two of these are specially noteworthy, as they possess the finest foliage that has yet been obtained on a *Coleus*, some of the leaves could not have been far short of 6 in. in length and almost as broad. The colouring, too, is extremely rich, one is a deep golden yellow, broadly margined with the richest crimson. There has been no such *Coleuses* as these seen in London, whence nearly all the hosts of varieties in gardens have been sent, and these Edinburgh novelties must some day assert themselves. Messrs. Dicksons also exhibited a new Poplar which called *Populus Bolleana alba*, which may be best described as a pyramidal form of the White Poplar or *Abele*. As yet it is seen only in a juvenile stage, but if it answers the description given of it it will certainly be one of the most valuable additions to hardy deciduous trees that has been made for years. The plants shown were some 5 ft. or

6 ft. high, and have a fastigiate growth in a marked degree.

Tuberous Begonias.—Judging by the display of these at the show, they do not appear to have become so popular in Scotch gardens as they are in the south. There were two collections of pot plants, and but only one of these, that from Messrs. Ireland & Thomson, was at all presentable. This collection consisted of half a dozen large plants tolerably well flowered for the season, but the varieties were not remarkable compared with the grand things we have in this way about London. As an example of what tuberous *Begonias* really are in perfection, Messrs. Laing & Co. sent from their nursery at Forest Hill, a collection of cut blooms, a great variety including some of the finest sorts which won many admirers.

Amongst miscellaneous collections of plants not previously mentioned was one from Messrs. Rodger, McClelland and Co., of Newry, which was of a most interesting character, entirely different from the rest, inasmuch as it contained plants quite out of the ordinary run. The most prominent was a specimen of *Trichinium Manglesi*, than which we have never seen a finer. It was in a 12-in. pot, and bore some dozens of its dense clusters of feathery pink flowers. This plant alone attracted much attention, comparatively few having seen it before. It would be interesting to know how Mr. Smith grows this *Trichinium* so finely, for, as a rule, it is considered one of the most difficult of plants to manage. This Newry group also contained several varieties of *Nandina*, Japanese or Chinese shrubs of the Barberry family; *Fuchsia pumila*, a little gem in its way; *Linaria aureo-reticulata*, one of the strangest admixtures of colour among flowers; *Arctotis arborescens*, a handsome Composite; *Rosa rugosa*, *Senecio pulcher*, *Gladiolus Saundersi*, *Darlingtonia californica*, and *Colletia Benthamiana*, all conspicuous and interesting plants.

A gigantic Potato, exhibited by Mr. Sadler, from the Royal Botanic Garden, received a good share of attention. The plant was in a huge tub, and was at least 9 ft. high; the stems, which were supported by tall sticks, had attained this remarkable growth in the open air without the aid of artificial manure. It had been grown from a single tuber planted in the open border on February 26 last. It had kidney-shaped tubers, samples of which were shown along with the plant.

The vegetables formed a most important feature of the show, and throughout all the classes there was high cultivation conspicuous; indeed, with regard to many of the exhibits it would be impossible to see finer. Onions, Celery, Cauliflowers, Tomatoes, and Leeks were exceptionally fine, particularly the latter, the bunch from Mr. Thomson, a butcher, Kirkintilloch, looked as if they had been stimulated to high development by blood manure or other strong food. Potatoes were excellent, and there were twenty collections of twelve sorts shown, and all the prize-winners were Scotch gardeners. The finest display, however, of all were the collections of twelve sorts, of which there were fifteen exhibitors. The first three collections were uncommonly fine, particularly that shown by Mr. Muir, of Margam Park, Glamorganshire, who won the premier award. This collection was remarkable for the high quality of every dish, and every care seemed to have been taken in making a representative selection. It included, Cardiff Castle Cucumber, Muir's new hybrid Marrow, a handsome variety of which we should like to know more, King of the Cauliflowers, Defiance Celery, Banbury Onion, Telephone Pea, Manbattan Potato, Champion Runner Bean, Hollow Crown Parsnip, Crossling's, Glamorgan Tomato, Snowball Turnip, and Intermediate Carrot, all of which were simply perfection. All, or most of the collections of vegetables were arranged in square wooden trays, a neat and convenient arrangement. Mr. Muir likewise showed the finest basket of salads, which, like his vegetables, were beyond criticism. The collection shown by Mr. R. Black, Liberton, in the class for

market gardeners, was one exceptionally fine, and we doubt if it could be surpassed even by our most celebrated market gardeners about London.

THE Société Régionale of the North of France opened on the 3rd inst. an international flower show which obtained a well merited success. We have rarely seen on the Continent so fine a show, and one arranged with such good taste. The success of the undertaking was, however, greatly due to the group of 100 new or rare plants exhibited by M. Linden, director of the Continental Horticultural Company, of Ghent. This in itself formed a magnificent show; it consisted of charming specimens of all the newest and best plants, and to which was awarded a large gold medal.

Primulas (J. C.).—Your plants are attacked by the grubs of the black Vine weevil (*Otiorynchus sulcatus*), a most destructive insect. As soon as a plant begins to flag examine its roots at once. Watering with Tobacco water or a decoction of Quassia has been recommended. The parent insects feed at night on the foliage of various plants, and should be searched for with a lantern. When disturbed they fall to the ground.—G. S. S.

Lilium auratum virginale.—I alluded some months ago to a sale of this at Messrs. Protheroe & Morris's rooms, and, questioned as to what it might be, I bought a few; these have flowered; one has proved to be a pure white auratum, the others are auratum, different in foliage and breadth of petal (see enclosure) to any I have grown before. It appears to be more robust than the ordinary type.—DELTA. [The flower and leaf sent appear to be identical with those of the variety *platyphyllum*, one of the finest of all the forms of *L. auratum*, and yet scarce.]

Ants.—Would some one be good enough to let me know how I can eradicate ants which infest my stove?—G. A. F.

Preparation of Conifers for removal.—What is the best season to cut the ground round large Conifers in order to prepare them for removal another season?—R. R. W.

Animal charcoal.—Can someone tell me whether this is a good manure for a Vine border and for other garden purposes on a light soil, and in what proportions to use it?—R. R. W.

New genus of Orchids!—What is the specimen Orchid alluded to in the *Gardeners' Chronicle* of last week (p. 363) under the name of *Macranthera coccinea*. I never heard of the genus before.—B. M. [We believe there is no new genus of the name—at any rate the plant alluded to was the old *Renanthera coccinea*. "Macranthera" is no doubt simply a misprint for *Renanthera*—an error easily made, and as we live in glass houses we throw no stones.—ED.]

Names of plants.—*Salmoniceps*.—1, *Neillia thyrsoiflora*; 2, *Othonna cheirifolia*; 3, *Anthericum ramosum*.—*S. H. T.*—*Blitum capitatum*.—*S. W. C.*—*Geranium Robertianum*.—*E. Molynx*.—Please send again.—*W. M. S.*—*Astrantia maxima*.—*F. R. M.*—1, *Teucrium* (species); 2, apparently a species of *Inula*; 3, *Origanum vulgare*; 4, *Viburnum Opulus*.—*L. M. (Galloway)*—*Solidago canadensis* (Aaron's Rod).—*M. J. F.*—*Lastrea dilatata*.—*Reader*.—1, *Campanula muralis*; 2, *C. isophylla alba*; 3, *C. isophylla fragilis*.—*T. H. S.*—*Oncidium pulvinatum*.—*H. V.*—1, *Verbascum nigrum*; 2, *Begonia insignis*; 3, *Helianthus giganteus*.—*A. J. H. (Collare)*.—1, *Dianthus superbus*; 2, apparently *Erica cinerea*; 4, *Dianthus deltoidea*; 5, *Saxifraga aizoon rosularis*.—*C. M. O.*—The flowers of the *Geranium* had fallen.—*P. S.*—We don't under any circumstances undertake to name varieties of florists' flowers; send them to some specialist. All the *Pelargoniums* you send appear to be common sorts.—*Z. S.*—1, *Begonia Weltonensis*; 2, *B. semperflorens*; 3, send a frond with spores; 4, *Adiantum Sanctæ Catharinæ*.—*T. P. B.*—Your Rose is the single white Macartney.

COMMUNICATIONS RECEIVED.

G. D. S.—J. C. C.—W. T.—G. J.—A. S.—J. G.—J. S. W.—F. W. B.—H. T.—H. F.—T. L.—M. & Co.—J. O'B.—W. W.—J. M.—G. S. S.—W. R.—G. B.—J. C. C.—W. H. F.—A. D. W.—J. W. N.—S. & Sons.—P. McX.—F. W. B.—H. C. B.—Alpha.—C. C.—F. W. B.—P. N. F.—A. W.—J. S. & Sons.—M.—A. B.—J. C.—D. A. S.—Iynotis.—G. S. S.—M. T.

No. 567. SATURDAY, SEPT 30 1882. Vol XXII.

"This is an Art
Which does mend Nature : change it rather : but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ST. NICHOLAS HOUSE.

Notes from a north-east coast garden.

ONE is apt to distrust the sea-coast in many places as garden ground and with good reason too. But where people take the trouble they may, even on the most stormy of our coasts, succeed in gardening, aided by skill and a good knowledge of plants. This truth was never more clear to us than a few days ago, when we had the pleasure of seeing a garden where the results are all that could be desired. It is on the north-east coast, in Scarborough, which means, unhappily, that smoke, as well as strong and harsh winds, have to be fought against, and sometimes the smoke plague is almost as bad as in other towns supposed to have a monopoly of it. Well, it is curious to note, in the first place, how well the flowers love the seashore, even in the face of all these difficulties. The spring winds are very harsh, and the early growth is nipped in the bud with a vengeance when the east and north-east winds begin to blow. Still plants are struggling creatures that do not readily give way, especially the hardier herbaceous plants and the half-hardy things put out in the early summer. But there are trees, too, here which shade the whole with such umbrage as we rarely see so near any shore, much less that of an open sea.

Trees.—No garden without trees, and we must have them even on the seashore where possible. Here the surprising thing is how well they do on the cliff straight over the sea. The spot looks an oasis of trees as seen from the strand below. It is pleasing to note, too, how well the trees do in Scarborough generally, but here they stand over the waves and are their own protectors. The kinds that do best are our summer-leaving trees, the Chestnut, Ash, Wych Elm—the weeping varieties of these being good as usual—the Thorn, the Oak, Sycamore, often valuable near the sea; and among evergreens, the Holly and Aucuba.

In another property belonging to a member of the same family, and situated on the coast some miles further north, it was very interesting to see the way the common Oak faces the sea and successfully begins to plant its kind, so to say. The situation is partly dingle, partly cliff, directly over the sea, and here the Oak grows, but is shorn off above as if clipped; the branches lean back, however, and gradually rise so that soon one walks in a gnarled Oak wood, very picturesque, and with the great branches forming a roof. We are taught to begin sea-coast plants with the Tamarisk, Sea Buckthorn, and other shrubs careless of the sea, but the Oak itself, as we see, will alone do the work. One is charmed with the beauty of the

Tritomas, extending their handsome spikes along the back of a well-planted border of flowers, and backed by a wall of carelessly trained Jasmine. This bold and pretty border against the red brick house was very good in effect. Accustomed as we are to see these flowers so often cut off in the midland counties and about London, it is cheering to see them so well along the coast, and also inland at York. There was a large, round-headed kind in possession of Mr. Nelson, at Aldborough, which we should like to see increased. But all kinds are admirable on warm soils where they escape winter killing. Their foliage is, in a sense, almost as valuable as the bold spikes for the relief of the ordinary type of flower garden, and, in combination with Yuccas of various kinds, they are specially suitable for the seaside.

Veronicas.—Another race of plants, always admirable in coast places, is the New Zealand Speedwells. We know nothing more beautiful in autumn than their varied flowers, blue and purplish. A sunny, sloping bank might be admirably

embellished with them; and they, no more than other things, like the half shade and half starvation of the shrubby border where they are neglected. The right way in such cases would be to bring them together with Fuchsias, Hydrangeas, and other bold and hardy flowers and shrubs that brighten the autumn days. A number of new varieties have lately been raised in the south of France and at other places, and likely to be important additions, especially to seaside gardens and mild districts. Messrs. E. G. Henderson used to pay these Veronicas some attention, and we hope other nurseries will not neglect so fine a race of plants. Blue Gem has proved very hardy here, but so near the sea few are likely to prove too tender. Gloire de Marseille and Etoile de Marseille are two good additions of modern date. The rich crimson V. imperialis, though less hardy, is specially worthy of a sheltered and sunny position for the sake of its bold tone of colour; and V. Traversi makes a neat shrub for edging a shrubbery, but is here so chary of its flowers, as to make it to be considered only for the sake of its Myrtle-like growth. A strong clay soil, and shelter from all but the moist sea winds, are important items in the culture of this class of shrub.

Tea Roses.—The difficulties that seem so common in the growth of ordinary Roses in many dry and hot and in various exposed positions do not seem to be in the way in the case of what are perhaps the most beautiful of all Roses, the Teas. Here they are in abundance and flower well, some on banks, but most on walls protected by a little glass coping. This throws off the rain and keeps the flowers in fair condition at all times. It enables one at very little expense to have a beautiful Tea Rose garden in a district that might otherwise not be easily supplied with these flowers. We have never seen the various kinds of Tea Roses more happy. In many parts of the south of England the coping is not necessary, because they flower on a wall admirably, and in many cases where our ordinary Roses do not make much progress. Somehow the Tea Roses have long and too commonly been supposed to be the most difficult of cultivation, but this is at least doubtful. No garden need be without them, with a little care as to site and soil and a little simple coping where necessary. Mr. Woodall has all the newer Tea Roses on trial here or in the kitchen and fruit garden in another locality, and among them the following are the most promising of the new or recent kinds: Comtesse Riza du Parc is most remarkably vigorous in growth, abundant in its supply of salmon-rose blooms, and hardy when exposed to sea winds. Paul Nabonnand is another very free growing pink Tea Rose of good shape; M^{me}. Lambard, M^{me}. Welch, Souvenir de Paul Neyron, Perle des Jardins, Marie Van Houtte, M^{me}. Faloot, and Caroline Kuster, of older varieties, Aline Sisley, so remarkable for its Nectarine-like perfume, and Comtesse de Nadaillac all grow and flower well; but Souvenir d'un Ami, M^{me}. Willermoz, Devoniensis, Maréchal Niel, and Catherine Mermet but rarely show themselves in beauty.

Carnations.—Of all flowers there is none, perhaps, from its associations, its hardness, its beauty, and its fragrance more worthy of our esteem than this, and we have never seen it so good as at Scarborough. Plants live over the hardest winters, and form large bushes crowded with flowers in August. Every house has its Carnations. Here they are as happy as they can be; and also the hybrid Pinks, Napoleon the Third and Marie Paré. Mr. Woodall places his Carnations frequently on the tops of low terrace walls. Along with the Carnations are the hybrid Pinks, a good white and a good rose, very distinct, and very charming. They too are placed on the tops of these low terrace walls. They live longer and flower longer in this position, and they are really effective as garden plants. Where a plant does so well as the Carnation here, it would be well to hunt up every good form of the family, especially those suited for border culture.

Fuchsias.—Quite at home is the Fuchsia out-of-doors, of course, and perfectly hardy,

as in most seaside places. Mr. Woodall has collected most of the old border Fuchsias, the graceful red-bloomed kinds, and others equally hardy here. It is needless to say how good they are in association with the Veronicas before spoken of, the Hydrangeas, the Yuccas, Gladioli, Roses, Stocks, and the bolder flowers that come in the autumn. It is very rare that one sees a garden in which sufficient care is given to those hardy Fuchsias which flower so well late in the year, and carry the beauty of the garden far into the autumn months. Where, however, Fuchsias are exposed to much smoke they drop their flower-buds so persistently, as to reduce their value as flowering shrubs.

Verbenas.—The Verberna has for some reason fled from our London gardens. The place is often occupied by flowers we could better spare, for surely nothing is more beautiful than many of the varieties of Verberna. Perhaps they went from not fulfilling the requirements of the day as to strong colour, and in some cases disease and insects hurt them. It is pleasant to see the ground covered here with old Melindres, which makes a pretty carpet, and is so free with its brilliant trusses. In these days when the advantages of carpet plants are being recognised it would be a help in many places, as would various of the larger kinds. One objection to the Verberna is remedied to some extent by raising the plant from seed. The eggs of insects remain on the cuttings so that it is not easy to keep them clean. By quickly grown seedlings in a clean pit or frame we make a better start. It is true we do not get the kind we want always, but we believe that certain houses now offer the seed in colours, and in any case a good mixture is admirable. If only for a change even it is worth while occasionally to give the Verberna a place. Why should we not have a flower garden rotation? It would do more good than merely relieving the eye, as growing the same flowers in the same beds year after year gives us poor plants in the end.

Paris Daisies and Gazanias.—These many-flowered bush-like plants are at home here, and large and strong, partly no doubt from having stood over the winter in the open air. Thus treated, young plants acquire a strength which they would not do in Yorkshire treated in the usual way. The Gazanias, too, not so common as they used to be in our London gardens, have stood the winter here, and are now bright with flower. They are excellent plants which our gardens can ill spare. Of course, it will be understood that it is the proximity of the sea which served them in wintering out-of-doors, and it is interesting to see how vigorously *Choisya ternata* thrives as a bush several feet through, having withstood the late severe winters triumphantly in company with *Pittosporum Tobira*, another seaside evergreen flowering shrub.

Bouvardia Humboldti corymbiflora.—This fine plant is flowering in the open air and abundantly, from plants put out in spring. The fact suggests the wisdom of putting a variety of some graceful plants in the open air in warm spots; even for the sake of the better health and bloom of the plants it will be worth doing, as carefully taken up, they will flower well afterwards, and they are well cleaned by their open-air life.

For the benefit of others having seaside gardens, I add a list of genera observed to thrive in the same garden, and which otherwise call for no special remark.

New Zealand Flax	Heliotrope
Day Lilies	Large-leaved Saxifrages
Anemone	Dahlias
Phlox	Heris
Wallflower	Dracena (the hardier ? ew
Calceolaria	Zealand kinds)
Funkia	Tritonia
Lily	Aralia Sieboldii
Sweet Peas	Olearia Haasti
Oak-leaved Pelargoniums	Arundinaria falcata and
Tropæolums	other hardy Bamboos
Mimulus	Arundo conspicua
Pentstemon	Acapanthus
Sedum	Eunymus

Escallonias of sorts, excepting E. Philipiana, which though so hardy at Messrs. Veitch's, a

Coombe Wood, is much injured by sea winds here, showing it to be an inland plant, and quite unlike the others in constitution and requirements. R.

PLANTS IN FLOWER.

EUCOMIS PUNCTATA.—A fine spike of this, cut from a plant in the open border, comes from Mr. Field, Stanley Hall, Bridgnorth, who considers it to be a most useful autumn-flowering plant. It is easy to grow, but dull in colour, and more fit for a botanic garden than most private ones.

FINE LILIUM AURATUM.—Some exceptionally fine flowers of this Lily come to us from Mr. W. Gordon, of Cullum Street. They measure fully 9 in. across, and the petals are $2\frac{1}{2}$ in. broad. The golden band is broad and the spotting very pronounced. We are inclined to regard this vigorous form as distinct from the ordinary type.

CARNATION W. P. MILNER.—Mr. R. Proctor, Chesterfield, sends us blooms of this beautiful white Carnation, which, he says, has been in flower in his nursery for the last nine weeks. It is large, pure white, and deliciously scented. He also sends another, called Novelty, a new sort with white petals, feather-edged with deep pink.

LARGE COCKSCOMB.—Without exception the biggest Cockscomb we have ever seen comes to us from Messrs. Austin & McAslan, Buchanan Street, Glasgow. We have seen specimens as large, perhaps, lengthwise, but none so broad. It measured 27 in. in length and 14 in. across, and in colour was all that could be desired in a Cockscomb.

GYMNOLOMIA MULTIFLORA, a showy new North American Composite, is now in flower in the herbaceous ground at Kew. It forms a dwarf, compact plant, and bears a profusion of bright yellow flowers like those of *Bupththalmum salicifolium*. If perfectly hardy it will be a useful addition to yellow autumn-flowering plants of low growth.

VALLOTA OUT OF DOORS.—The Scarborough Lily is always good, whether in the greenhouse or the sitting-room, and to see it out of doors is a great pleasure. Mr. Kingsmill brings some very fine specimens indeed from his open-air garden, in which the plant has thriven well for a number of years. We need not say that it is a splendid addition to September blossoms in the flower garden.

HELIOPSIS SCABRA.—Under this name Mr. Stevens brings us a handsome yellow-flowered composite, very similar to *Harpalum rigidum*, but somewhat smaller. It appears to be a later flowerer than the *Harpalum*, and if such be the case, it will be useful as a succession plant. The colour is a good, clear yellow, and the blooms, which are fully 3 in. across, are attractive. It is slender in growth, but we have no idea of its height. *Helianthus occidentalis*, now in flower at Kew, is very similar. It grows about 4 ft. high, and is of slender habit.

DAHLIA ZIMAPANI.—This so-called Dahlia, which has flowers almost black, Mr. Lynch, of Cambridge, considers but a form of *Cosmos diversifolia*, therefore no Dahlia at all; but being a near ally, probably it could be made to intercross with the varieties of *D. variabilis*, *gracilis*, &c., and so yield some interesting and possibly some very distinct hybrids. It is still in flower gardens about London, having been in bloom for at least two months.

CONVOLVULUS MAURITANICUS.—Among many graceful flowers brought us by Mr. Kingsmill is this pretty plant. Considering that it is hardy in so many places, we do not often see enough of it in gardens. It is wholly distinct in colour from all its charming race, and people should take a good deal of trouble with it. If a tender plant, its use for baskets would be great; but having the charm of hardness in warm soils and places, it merits attention all the more.

CHRYSANTHEMUM MADAME DE GRANGE, one of the early-flowering class, is, Mr. Stevens tells

us, the best of all the numerous kinds he has in his collection. It is very floriferous and naturally bushy in habit, the flowers averaging about 2 in. across, and creamy white, deepening into yellow towards the centre. It would be a good thing if raisers could infuse a little more variety of colour into these early *Chrysanthemums*, which are deservedly becoming popular.

TROPEOLUM TUBEROSUM AT BALCOMBE PLACE.—We were lately greatly pleased with this plant growing over a corridor of the gardener's house at Balcombe Place, in Sussex. It was intertwined in about equal quantities with the sweet-scented *Clematis Flammula*, and the effect of both was extremely good. There is a high wall superbly covered with various climbing plants in the flower garden here, all suggesting how good and how various are the materials for beautiful effects from these graceful plants.

IXORA DUFFI.—This handsome species, of which an excellent coloured drawing appeared in *THE GARDEN* about four years ago, is now finely in flower in the Palm house at Kew. It is distinct from any of the ordinary kinds of *Ixora*, but is not unlike *I. Lobbi*. It has large clusters of bright scarlet flowers, sometimes as much as 9 in. across. Its foliage is large and handsome; in short, it is a very desirable stove shrub, and one that will flower well in a small state. It is a native of New South Wales.

VITIS GONGYLODES, the vine that has peculiar gouty swellings on the stems, and that throws out numerous whipcord-like aerial roots, is flowering in the Cambridge Botanic Garden, and the large plant of it that covers a good part of the roof of the Water Lily house at Kew is also in flower. These are the first instances of this species flowering in Europe, or indeed in cultivation. Respecting the singular structure of the stems, Mr. Lynch read a paper illustrated by drawings some time ago before the Linnean Society.

FUCHSIAS OUT OF DOORS.—I send blooms of *Fuchsias* grown out of doors in summer as bedding plants, but not left out during winter. It seems impossible to give them too rich earth. They are amongst our most effective plants here during the latter part of August and through September. As single specimens or in curved beds about $1\frac{1}{2}$ ft. or 2 ft. wide they show to far greater advantage than in thick groups or in straight lines. Few plants give less trouble, as they are easily kept through the winter and like a damp climate, a useful liking in Ireland.—C. M. OWEN.

SAXIFRAGA PELTATA.—This interesting Saxifrage, which usually flowers in June, the flower appearing before the leaf, is again in bloom here. It has a stout stalk, 2 ft. high and more than 1 in. in diameter at the base, tapering gradually to the large flower-truss, which is corymbose, and consists of nearly a hundred delicate pink flowers with deep red centres, very pretty and curious. The leaf-stalks are long, and the huge circular leaves nearly 20 in. across, and hollow in the centre like funnels, many of them holding water for several days.—BROCKHURST, *Didsbury*.

SALVIA BETHELLI AND BRUANTI are among the most important plants just now in flower in the conservatory at Kew, where they are used pretty freely, and rightly so, for few autumn blooming plants surpass them in beauty. The first, a variety of *S. involuerata*, has large clusters of violet-purple flowers, terminated by a knob of bracts; the other, a variety of *S. splendens*, has blossoms and bracts of the brightest scarlet produced on long spikes. These two *Salvias* are deservedly becoming popular for indoor decoration at this season of the year.

MICHAELMAS DAISIES.—In looking over the large collection of these the other day at Kew we singled out the following as being the most suitable for the general cultivator, being all more or less distinct from each other, and all showy as regards flowers, viz., *Aster bessarubicus*, a form of *A. Amellus*, but much finer, the flowers being larger and the colour brighter; *A. Curtisi*, rather a newish species, but very bright and attractive;

it grows about 4 ft. high, and bears a profusion of bright purple flowers; *A. turbinellus*, with slender spreading branches and large deep mauve flowers, scarcely a full bloom yet; *A. lævigatus minimus*, a well known small growing kind, known generally as *A. formosus*, or *longifolius formosus*, or *Madame Soigneuse*; *A. versicolor*, about 5 ft. in height, a kind with long wreaths of flowers which change from white to plum colour; *A. oblongifolius*, about 3 ft. high, very dense and with bright purple flowers; and *A. lævis*, somewhat like the last, but with very smooth leaves and deeper tinted flowers.

DICENTRA EXIMIA is undoubtedly one of our most useful hardy perennials; it not only flowers profusely in spring and early summer, but it gives us an abundance of autumn bloom. Its ferny foliage of a tender green, and its elegant loose clusters of deep rosy, heart-shaped blossoms, make it an exquisite plant from which to cut a spray or two to drop lightly into a tiny vase by themselves, where they have a charming effect, particularly under artificial light. It comes from Mr. Stevens, who also brings a similar pretty plant—*Corydalis capnoides alba*.

CHRYSANTHEMUM ADRASTUS, one of the early-flowering type, is, we observe, the best of all in London gardens just now. It is taller than any of the others, being from 4 ft. to 5 ft. high, and is extremely floriferous. The blossoms are larger than those of most of the early section, compact rosettes, the colour being a lively reddish purple. In appearance they are scarcely inferior to those of the larger-flowering kinds, which bloom later on. At Kew it is grown both in the conservatory and in the open border, those in the latter being particularly fine. Madame De Grange, mentioned elsewhere is also beautifully in flower at Kew.

VARIETIES OF COLEUS.—Mr. J. King sends us from his nursery at Rowsam, Aylesbury, leaves of a beautiful series of *Coleus*, in all about a dozen, representing some of the finest yet produced. Their colours are very bright and varied, indeed quite indescribable, particularly those named Mrs. George Simpson, Ada Sentance, and Mr. John Paule. There are several unnamed seedling varieties likewise very fine. Some of the leaves sent by Mr. King are 6 in. long, but nevertheless they are small compared with the Pilrig Park varieties, the leaves of which were nearer 9 in. than 6 in. Few have, however, done more in the way of raising beautiful new varieties than Mr. King.

SEDUM SPECTABILE, with fine flat heads of bloom about 6 in. or 9 in. across and of a cheery pink colour, a useful hardy plant, comes to us from Mr. Stevens' garden at Byfleet. It is well known, but too much can hardly be said in its favour. It is hardy and sturdy, and not at all fastidious as to soil, but likes an open, dry border, and never fails to produce a fine crop of bloom to enliven our gardens during the month of September. There are many plants of it now in blossom in one of the flower borders at Drumlanrig. It succeeds admirably under the same treatment as that usually given to *Phloxes*.

PANSIES.—We have received from Mr. Hooper, of Bath, a collection of Pansies belonging to what are called fancy kinds, beautiful blooms, large and fresh and bright in colour. *Ophelia*, *Ne Plus Ultra*, and Mr. Israel Davis are lovely varieties with a small yellow eye set in a field of dark glossy velvety purple; Mr. W. Hardman (maroon) is charmingly edged with white; in Mrs. Robinson, which is somewhat similar, the white is exchanged for pink, and there are many others of similar character, though different in shade; one of the best of this class is *Little Gem*, truly a handsome Pansy, though not large. There are also pretty violet-coloured kinds edged with white, such as *Queen of Violets*, and maroons edged with yellow of all shades, and others of all colours—charming mixtures, as handsome both in colour and form as any flowers of the kind could well be.

PANSY DISTINCTION.—I send you flowers of this Pansy, sent out from Pilrig Park Nurseries at

year or two ago. The plants have blossomed continuously from May till now, and promise to produce more flowers still. Almost every other kind of Pansy here, even if still in blossom, has gone off in size if it began to flower early in the summer, so that Distinction seems to be a valuable bedding kind.—C. M. OWEN. [A very large Pansy, delicate purple in colour, and intensely deep in the centre. Some of the flowers measure over 3 in. across; a Pansy like this is invaluable for furnishing autumn bloom.]

TWO GOOD MICHAELMAS DAISIES are *Aster versicolor* and *A. bessarabicus*, a variety of *A. Amellus*. The first-named bears a profusion of flowers, about 1 in. across, first white, then changing to a purplish hue. It grows about 4 ft. high, is very twiggy, and lasts in bloom a long time. *A. bessarabicus* grows about 2 ft. high, and has flowers about 2 in. across of a beautiful rich purple. It should always be preferred to *A. Amellus*, as it is a stronger and altogether a better plant. Both do well in ordinary garden soil in an open situation. From Mr. Stevens, Grasmere, Byfleet.

DAHLIAS.—Messrs. Rawlings, Romford, have sent us lovely blooms of two seedling show Dahlias. One, a crimson, named John Henshaw, is a full sized flower quite 12 in. in circumference, perfect in form and striking in colour—a deep, well built bloom, full in the centre, and with petals beautifully cupped. The other, named Harrison Weir, is a bright canary-yellow, quite 14 in. in circumference, somewhat looser than the crimson sort, but a noble flower. Much as we are interested in single Dahlias, we are not insensible to the beauty of such blooms as these, formal in aspect though they must be admitted to be.

TRICYRTIS NIGRA is a distinct and handsome form of the better-known *T. hirta*, and more desirable, inasmuch as it flowers a week or so earlier than the type; hence it escapes injury from early frosts, which mar the beauty of the blooms considerably. The flowers are borne in clusters, which terminate the tall erect stems, and are large, white or faint purple, copiously blotched and spotted with deep brownish crimson. The singularly branched style gives the blossoms a peculiar appearance—like a miniature Passion Flower. It is a peat and shade lover, and though not a showy plant, is very interesting. From Mr. Stevens.

AZALEA VICTOR VANDIER HECKER.—Just now plants of this *Azalea* are the prettiest things in flower in the greenhouses at Drumlanrig. They are half-specimen size, but untrained, and as full of bloom as any *Azalea* could be in spring. The flowers are of the largest size, and blotched or mottled pink and cream colour. Mr. Thomson states that he has had no difficulty in keeping it in bloom from the beginning of September onwards, but added, "I question if you will find it in any catalogue." This is to be regretted, for if this grand *Azalea* were generally grown it would fill up a gap now in a great measure void.—CAMBRIAN.

CROSSANDRA UNDULATIFOLIA, a very handsome little shrubby stove plant of *Aphelandra*-like growth, is in flower in one of the stoves at Kew. It has comparatively large, deep green shining foliage; the flower-spike terminates the stem, and bears crowded whorls of showy blossoms, in form and size like those of some of the smaller growing *Aphelandras*. The colour is a clear orange-red, or rather Indian red, a colour distinct from that of any other flower with which we are acquainted. It flowers freely in a small state, the plants at Kew being barely 1 ft. high.

FINE WHITE BRUGMANSIA.—When visiting the gardens at Cottimore in this neighbourhood the other day I was struck by the beauty of the old single white *Brugmansia* planted out and trained to the roof of a span greenhouse. It is flowering most profusely. I did not count the flowers that are out or those to come out, but, roughly speaking, I should say that there were no fewer than 300 in about 4 square yards, and most of them were more than 6 in. across. Mr. Ross, the gardener, informed me that the only care it received was an

occasional pruning, just to keep it within bounds.—GEO. CARPENTER *Rydens, Walton-on-Thames.*

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J., SURREY.

THE last of the Gladioli are arranged in two tall bouquets, one of red and salmon-coloured with autumn-tinted Bracken, deep orange, rusty red, and deep red bronze; the other of the pink and rosy colourings with pale green shoots of *Canna*. Another large bouquet has a foundation of darkest foliage of Portugal Laurel with white Japan Anemones and single white Dahlias. A large bowl is filled with Heliotrope, light and dark, with leafy twigs of Lavender. In white china, clusters of Sweet Brier berries are grouped with the dark bronze-tinted and red foliage and handsome black berries of *Rosa spinosissima* and its varieties the Scotch Briers; the latter have the smaller fruit, but the leaves more brightly coloured. Rosy pink and white Scabious make a pretty table bouquet with foliage of Sea Holly and *Cineraria maritima*. *Lilium speciosum*, two or three whole growths cut 2 ft. long, is in a tall buff-coloured oriental jar with side shoots of variegated Maize. An oval Venetian embossed copper holds two plants of large white-flowered *Bouvardia*, surrounded by various Ferns of lower growth, all carpeted with fresh Moss.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Retrospective notes.—As the end of the bedding-out season for this year is at hand, notes of such plants and arrangements as have afforded the greatest satisfaction, owing to their rarity, novelty, or effectiveness, may be of assistance to some who are bent on making changes in their flower-garden arrangements next year. The notes in question must necessarily be taken as from my point of view only, readers for themselves deciding as to whether the plants and arrangements named are likely to meet their respective tastes and requirements. The flower of the season with us has undoubtedly been the Marguerites, golden and white. We have them in large basket-vases, intermixed with various kinds of plants, such as Heliotropes, Fuchsias, scented Pelargoniums and Petunias, and also arranged in a long border as a back line, alternated with the Cactus and other single Dahlias, and the effect is strikingly pretty, so much so, that it begets praise from even the "don't-care-for-anything-in-particular" amongst garden visitors. The white Marguerite and deep purple-crimson *Petunia* *Spitfire* intermixed is another excellent hit, and so is the yellow Marguerites and single *Dahlia coccinea*, raised from seeds in February, and the Marguerites from cuttings at the same time. Next to the Marguerites come the single Dahlias; the ease with which they can be raised and the great variety of colours aid in making them immensely popular for flower garden decoration. We have circular beds of them, arranged as follows: In the centre, Paragon, deep maroon-crimson, with light purple stripes on each side of the petal; next, the Cactus *Dahlia* (Yuarezi), the outer line being alba, pure white, and coccinea, bright scarlet, the undergrowth Harrison's Musk, and the edging silver variegated Thyme. The yellow or lutea types of single Dahlias look charming alternated with *Ricinus* *Gibsoni*, kept at a proportionate height for the Dahlias by an occasional stopping of the leading shoots. Another noteworthy bed—but only pretty in the eyes of enthusiastic disciples of the æsthetic school—is composed of tall Sunflowers and Giant Hemp, the greenery of this latter plant setting off to advantage the gaudy Sunflower. For a sheltered nook in a distant part of the sub-tropical garden, or rather, as seen from a distance, this combination is really excellent, but a far more pleasing arrangement for the same kind of garden we have

in the form of an oval-shaped bed, planted in a mixed way with tall, variegated *Abutilons* and *Grevillea robusta*, the edging being *Salvia argentea*. Amongst dwarfier plants really acquisitions are the new *Violas*, Mrs. Grey, almost pure white, and another variety named Yellow Dwarf; both have flowered continuously on our dry soil without more than the ordinary amount of watering all summer, and are still covered with flowers. Tuberous *Begonias* are also amongst our best flowering bedding plants of the year; at the present moment they far excel the Pelargoniums in brilliancy, and no rain storms hurt them. We have beds of them intermixed with the variety, *castanifolia*, which is one of the best of the non-tuberous bedding kinds there is. These *Begonia* beds have an outer margin or narrow border planted with succulents and hardy Sedums in formal pattern, types of plants that harmonise most perfectly with the inmates of the beds. We have also used them as central plants in small panels or rings, some of which are carpeted with *Sedum acre* elegans, others with *Sedum glaucum* and *Herniaria glabra*, and the effect is quite unique, there being such a natural look about the arrangement, and what in our case is of great importance, the groundwork being hardy, there is so much the less to do at the season when we have to turn our summer into a winter garden. In such borders we have simply to lift the *Begonias* and replace them with small shrubs. These are a few of the most noteworthy arrangements, and plants that have come under my observation this season, my experience of them being such that I shall not only hope to repeat them another year, but extend them.

General work.—Till the leaves are all down and cold water has set in, which will keep worms from coming to the surface, daily sweeping up and rolling of turf and walks will be needed. Edgings should have their final clipping for the season, and if the walks are now well cleared of weeds, they will entail no further trouble in that respect till spring. Still keep beds and borders in neat condition by repeatedly picking them over, and when all hope of further effectiveness is ended for this year, let them be at once re-occupied with plants to stand the winter, or, in the case of herbaceous plants, clear away the unsightly stems, mulch the borders with Cocoa fibre, and fill up vacancies by planting out from the seed beds such biennials as Canterbury Bells, Sweet Williams, Wallflowers, Snapdragons, and spring-flowering bulbs, such as Hyacinths, Narcissi, and Tulips. Roses are still flowering profusely, the late heavy rains having given them a fresh start; old blossoms should be kept picked off, the beds freed from weeds, and standards secured to stakes. The ties of all that were budded this season ought now to be removed, and all Brier shoots and suckers rubbed off. Secure all bedding plants that have been propagated in the open border by potting them up and placing them in frames; also mark, by tying on them pieces of matting or labels, all Dahlias and other plants that are to be saved, and which the first sharp frost would cripple beyond recognition.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

EVEN in the mildest parts of the kingdom it is not safe to leave greenhouse plants out after this time, for although frost may keep off drenching rains may be looked for, and these reduce the soil about the roots to a soddened, unhealthy condition at a season when neither the drying influence of the air nor the absorption by the roots is such as to remove the superabundant moisture.

Chrysanthemums.—Where these are grown on the planting out and layering system, with a view to produce dwarf single-stemmed plants, the time of taking up and potting needs to be regulated by the setting of the buds, but as soon as these are fairly set, and the layers are well rooted, they may be cut away from the stools and potted. If the soil in which they were layered is of a light

sandy character, when taken up much of it can be shaken from the roots without breaking them, and this will enable the young plants to be put into comparatively small pots; they will bear soil much richer than most things. One-fifth rotten manure added to the loam in which they are to be potted will not be too much, as upon their being thus liberally sustained depends the quantity and full development of the flowers; press the material moderately firm in the pots, and thoroughly soak them with water to keep them from flagging. If after potting they can be shut up close in a cold house of pit, it will prevent any loss of the leaves, which, if the work is well managed, should keep wholly perfect down to the soil. Where dwarf, floriferous plants are wanted to stand on conservatory or greenhouse stages where tall specimens would be unsuitable, this planting out and layering method has much to recommend it, but the plants must be well attended to with water, so as never to let the soil get dry until the flowers are fully open, otherwise many are apt to go blind or open imperfectly. Pretty little plants can be had in 7-in. or 8-in. pots. The *Pompone* varieties and the medium-sized free-flowering kinds, such as the white *Mrs. George Rundle* and the yellow *Mrs. Dickson*, conform to this treatment best.

Epacris.—Where a good selection of these is grown it will be found that some varieties naturally flower much earlier than others. Amongst these will be most of the erect growing kinds; the time of blooming is in a great measure dependent upon the treatment to which the stock has been subjected, as *Epacris* generally set flower soon after they are turned out in the open air in summer, no matter what time that may be. They are not plants that bear forcing, but their blooming may be accelerated by keeping them a little close, such as in a house or pit where double *Primulas* and *Cyclamens* are being brought on, say where the temperature is not lower than 45° at night. Those thus encouraged to come on should be placed close to the light and should have plenty of air every day, otherwise a certain amount of shoot growth will take place, which it is desirable to avoid.

Epiphyllum truncatum.—Where the stock of *Epiphyllum* is limited it will in most cases not be advisable to have them in flower until the beginning of the year, but where there is a sufficient number of plants to afford a succession, a few may shortly be put in gentle heat; for this purpose plants should be selected that bloomed early last winter, and which, after making growth, were well hardened up by exposure to the sun in the open air, treatment under which the bloom-buds will now show prominently at the points of the shoots. Where bright coloured flowers for intermixture with others of paler hue are in demand for bouquet-making or filling small vases, this section of *Epiphyllum* is very useful.

Hyacinths and other bulbs.—Although the potting of these may, in the case of those that are required for blooming late in the spring, be deferred for some time, yet it is best to get the principal lot completed now, as it gives time for their being well rooted, upon which, before any excitement is attempted, much of their success in flowering depends. Out-of-doors, plunged in ashes or Cocoa-nut fibre, is still the best way of treating them, as they naturally root best where the sun comes full on the position in which they are set.

Heliotropes.—These are impatient of cold, but where sweet-smelling flowers are in demand they are indispensable through the late months of the year. Whether grown as standards, large bush specimens or small stock, such as that struck from cuttings in the spring, they should now be placed where a little fire heat can be used on cold nights. Those wanted to keep on blooming should be kept at from 45° to 50°, with plenty of air and light, for though the flowers will open in a lower temperature than this, still, if not warm enough, the plants will make but little after-growth, which is indispensable where a succession of bloom is looked for.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Hardy fruits.—Take advantage of fine dry days for gathering Apples and Pears as they become fit for removal from the trees. The crop of Apples in this locality, unfortunately, is very light, and on this account daily examination of the trees should not be neglected, as we cannot afford to risk the loss of a single bushel by exposure to storms or birds, which with us are unusually troublesome. Choice Pears that are to be kept for a long time should be handled with the greatest care, and none but those which are of full size and sound should be placed on the shelves where they are intended to remain until fit for use. As many of the trees, owing to the lightness or complete failure of the crop, have made unusually strong growth, and the ground is now in good order, immediate attention must be directed to root-pruning, otherwise the full advantage which may be derived from the judicious performance of this operation will be lost. Wall trees of all kinds, commencing with Apricots, early kinds of Peaches and Nectarines, if disturbed with care now, will fruit abundantly next year, and the fruit will attain its full size and quality, as the roots will have time to take a hold of the fresh soil before the leaves fall and the earth loses the warmth so essential to the formation of fresh rootlets. But amateurs and others who have not seen this operation skilfully performed must not suppose that root pruning means a general cutting away of all the roots which extend beyond a certain line and then filling the trench in again. The proper way is to open out a trench at the extremity of the principal roots, and then with steel forks to work inwards until a goodly number of the strongest roots have been traced to within a reasonable distance below the surface of the border. These will then require slightly cutting back with a sharp knife, and the work of re-laying in fresh loam, which must be made very firm by ramming, will follow as the trench is filled in again. If the old compost is really good, a small quantity of fresh loam will suffice, and the addition of manure, as a mulching only, will complete the operation. Where the formation of new orchards is contemplated, thorough draining must precede all other operations. Trenching as deep as the soil will allow will then follow, and the time of planting will be regulated by the soil. Free, friable loams may be planted at once; but cold, heavy soils often require turning over a second time, and full exposure to the action of frost before they are fit for the reception of the trees. Soils of this description may be greatly improved by the addition of burnt earth or garden refuse, road scrapings, or old lime rubble, and in some cases it may be necessary to crop with Potatoes or other vegetables for a year before the trees are permanently planted. The latter may, however, be bought in and grown on in nursery lines, when all doubtful or defective trees will be detected before the final arrangement takes place.

Melons.—Now is the time to apply artificial bottom-heat to the late Melons (if in pots) by means of fermenting material and hot-water pipes combined; but, if planted out on hills, fire-heat only can be used, when more water and atmospheric moisture will, as a matter of course, be required to counteract its drying influence. Early morning, after this time, should always be devoted to watering, for, much as the Melon rejoices in plentiful supplies of warm, stimulating liquid, it is impatient of stagnant moisture about its stems and leaves after the house is closed for the night. Regulate the foliage, and keep it thinly placed to admit of a free circulation of dry, warm air when solar influences favour ventilation, and, most important of all, wage incessant war with insect pests before they have time to gain a footing, as good quality cannot be expected where the leaves ripen in advance of the fruit. Keep plants in pits and frames as dry and warm as possible by means of fresh linings, by judicious thinning of the soft lateral growths, and by the use of a good covering at night.

Cucumbers.—The August-sown plants will now be in a fit state for bearing a few Cucumbers if the fruit is wanted, but if it is not required, the removal of all male and female blossoms for some time longer will give increased strength, and better prepare them for giving a full supply when the plants in pits and frames are no longer profitable. Where former directions have been followed, and plants in pots or boxes are placed on pedestals, thoroughly worked fermenting materials, consisting of Oak leaves and short stable manure, will now play an important part in keeping up a genial bottom-heat in every way preferable to that obtained from hot-water pipes, as the ammonia given off by the manure is obnoxious to insects, and the constant presence of atmospheric moisture reduces syringing to a minimum. In compact, efficiently-heated pits, many prefer planting out on hills or ridges, and, provided the compost used is not too rich, very satisfactory results are obtained; but great caution in this matter is needed, otherwise the growth of vine and leaf will become too strong at the outset, and a check will follow at a time when the absence of sun and light is most unfavourable to winter culture. In the arrangement of the plants, an effort should be made to keep the stems well away from the top heat pipes, as it is at this part of the house where spider first puts in an appearance, and the hot steam generated by constant syringing often increases the evil by scalding or making the foliage too tender to withstand the attacks of the enemy. Young plants may still be raised from cuttings or seeds for fruiting in February and March, a time at which good fruit is never too plentiful. To succeed with these, light rich turf, medium sized pots, and good drainage are essential. Bottom heat may be secured from tan until new Oak leaves can be obtained, or from tan and hot-water pipes combined. A position near the glass is also important. Cleanliness in every part of the pit, and good covering in severe weather cannot be too strictly enforced, as many start right and fail through inattention to details.

KITCHEN GARDEN.

R. GILBERT, BURGHEY.

TOMATOES, which are daily growing into more importance, will not ripen here, I feel sure; therefore, I am cutting those just tinged with colour, and placing them over hot-water pipes in our late vineries. This is a capital time to put in cuttings, and if selected from the smooth fruiting plants and those that bear satisfactorily, you will always keep improving the stock. My stock has been selected some years from Hathaway's, but I am a great admirer of Carter's Green Gage. The flavour is more refined, and the texture of a finer description. Small fruit simply put into bottles filled with white vinegar, with a few capsicums and peppercorns, will make an excellent pickle. If French Beans are not already sown, get them in at once. I have a houseful sown in boxes 3 ft. long and 11 in. broad. Canadian Wonder we always sow for an autumn and early spring supply, but Osborn's for mid-winter is preferable in more ways than one. Do not forget to see that slugs are not eating the young Lettuce and Cabbage plants. I was told last week by an amateur to sow dust on them twice a week, and leave the rest to Dame Nature. So much has been said lately respecting Mushrooms, that the subject is getting threadbare; nevertheless I may be allowed to say we have had and are now having grand weather for making up beds, and as far as £ s. d. is concerned, there is no other kitchen garden crop so profitable. Our beds for autumn are now all spawned, sealed, and thatched with rough Grass (keeping out the wet after spawning is one of the secrets of success). We are now cutting Bracken for winter covering; when cut green the fronds keep intact. We find this invaluable for covering all kinds of Broccoli, Celery, and Mushrooms; in fact, we cover everything up that is likely to suffer, even Lettuce and Endive. It is light and clean, and in most places it can be had in any quantity.

FLOWER GARDEN.

THE MARIPOSA LILY.

(CALOCHORTUS VENUSTUS.)

OF the genus *Calochortus*, which contains some of the most beautiful and elegant of all Californian plants, we have now a long list of species in cultivation, including the *Cyclobothras*, which botanists now merge with *Calochortus*. Out of the score or so of cultivated species and varieties there is not one that is not worthy of growing,

pulchellus (yellow), *albus* (white), *elegans* (slaty purple), all of which belong to the *Cyclobothra* section, and *C. luteus* (rich yellow), *splendens* (deep lilac), and *venustus* (white and spotted), which belong to the true *Calochorti*. The last named species, the subject of the annexed woodcut, is truly a lovely plant, having large white cup-like blossoms, yellow and bearded at the base of the petals, which are exquisitely feathered with crimson. *C. splendens* is similar, but larger, deep lilac and very free flowering, while *C. luteus* is a



Flowers of *Calochortus venustus*.

and the whole form a most interesting collection; but, owing to the want of diversity of colour among them, and the existence of a strong family likeness which runs through the whole of them, the general cultivator need only grow at the most half a dozen of them in order to have representatives of each set of species. These few should include the most attractive and at the same time the most vigorous, and consequently the easiest to grow, for, unfortunately, these beautiful Californians as a class but too well deserve the reputation of being among the most difficult to manage of all hardy bulbous plants. The best half a dozen to suit the general cultivator should include *C.*

glowing rich yellow. Of the *Cyclobothra* section the finest of all is *C. pulchellus*, a kind which bears curiously shaped, drooping, rich yellow flowers on forked stems in an elegant way. It is the hardiest of all the species, and one of the easiest to grow, as it rarely fails to succeed at least in southern gardens. *C. albus* and *elegans* are both pretty little species, but less desirable than either of the preceding.

The culture of these plants has long been a subject of discussion, and it is pretty clear that no one rule can be laid down which can be followed with advantage everywhere. The species mentioned are all more or less delicate in con-

stitution compared with most hardy bulbous plants, but for all that they resent too much coddling, and do not like to be disturbed when once they have become tolerably well established in any particular position. They may be all grown admirably in pots, and for this purpose the bulbs should be procured at this season, placed in moderate sized, well-drained pots in a soil consisting of sandy loam, the bulbs being placed about 1 in. below the surface. The pots should be plunged to their rims in ashes in an unheated frame under glass. The soil should be kept moderately damp throughout the winter, and when in spring the leaves appear more moisture may be given, and the plants should be exposed as much as possible to air and sunshine. Bulbs, too, planted out in free soil in a frame answer almost as well. After they have flowered in summer the soil should be kept rather dry, so as to induce thorough ripening of the bulbs. They will not require fresh soil for a couple of seasons, and probably not then; sometimes a top dressing with good soil will suffice if the drainage is right.

Another, but less certain, way of dealing with these plants is to plant them in a warm, sunny border of good light soil that is quite free from stagnant moisture. If the border is backed by a south aspect wall so much the better; in this case the bulbs should be planted as near the base of the wall as possible, as in such a position they get well repaid. During winter they should be protected either with a handlight or a covering of ashes, Cocoa-nut fibre, or other protective material. Some, however, do not even take that trouble with them, and yet have a good crop of flowers for a year or two, but they well repay a little extra trouble as regards protection. All the kinds mentioned can now be obtained at a comparatively low price.

W. G.

A FEW SHOWY PERENNIALS.

AMONGST the first that showed themselves this season, and the most noteworthy among the larger plants, were

THE DOUBLE PYRETHRUMS, in praise of which it is almost impossible to say too much, as their flowers are quite equal in size and form to those of the best *Asters* or *Chrysanthemums*, and almost as varied in colour, and as they are borne singly on stems, they are of great value for cutting, and last long in water. The soil that suits them best is a rich deep loam, in which they are able to send their roots well down and stand without flagging. As nurserymen supply double *Pyrethrums* in pots, they may be planted at any time, but in cases where it is desired to make divisions of established tufts, that operation should be left till the spring, as then the crowns may be cut through, and the separation made without fear or loss. The large single *Pyrethrums* are also worth growing, as, though they have but the one row of petals, and partake too much of the character and appearance of the Ox-eye Daisy, they are very brilliant in colour, and look well in vases. These single *Pyrethrums* seed freely, and, if sown early in spring, the plants raised from them flower the same season, and quite profusely the year after.

AQUILEGIAS, if taken as regards their earliness, come next in the order of merit; the best among these are *A. chrysantha*, *A. coerulea*, and *A. glandulosa*, and there are now numerous hybrids raised from these, but none that I have yet seen can compare with the three species just named. *A. chrysantha* is a remarkable flower, on account of the long spur-like appendages attached, and the clear, soft canary colour of the petals, which gives the blossoms a rich and refined appearance beyond what most *Columbines* possess. *A. coerulea* is also remarkably fine, with its almost equally long spurs

and the striking contrast which its blue and white flowers afford. Unfortunately, this kind is rather weakly and apt to die out, and to keep good plants it is necessary to sow and raise fresh ones annually.

ALSTREMERIAS are real gems, and should be in every garden; they are exceedingly beautiful, sending up, as they do, large heads of lovely Lily-like blooms. To grow *Alstroemerias* well, they require a dry, warm, sunny border, where they can have light, deep, rich soil with plenty of sand and free, open drainage; and, when they can be so accommodated, their tubers lie snug and safe, and the plants increase in strength year by year as long as they stand. We have beds that have been in the same positions for the last quarter of a century, and this season they have been as fine or finer than ever. To keep out very hard frosts from the ground, we mulch the surface with leaf mould, which we allow to remain on as a top-dressing in spring, and, beyond keeping the border clean, this is all the attention they get. In preparing beds or borders for planting, the soil should be trenched, and sand and leaf mould worked in; and when planting the tubers they should not be put in at a less depth than from 4 in. to 6 in.

PLANTAIN LILIES OR FUNKIAS of all kinds are very desirable plants to have in the herbaceous borders and well deserve the name of Plantain Lily, as their foliage bears a resemblance to the one and their flowers to the other, and both are remarkably striking. The noblest species among them is *F. Sieboldi*, which has magnificent leaves that grow some 3 ft. high, and are of a rich glaucous, bluish-metallic hue, rendering them very attractive. As a hardy fine-foliaged plant it is one of the best and well adapted for moist, shady situations among Ferns, where, if it has rich soil, it reaches its full development, and is then a great ornament. The different varieties of *F. ovata* are all good, as they too, though of much smaller growth, have highly ornamental leaves, some among them being marbled or variegated in a very beautiful manner. The whole of the ovata section are very free-flowering, and as the spikes are small and compact, they are very serviceable for cutting, and well worth growing for that purpose alone. Funkias admit of ready increase by division, the best time for doing which is early in spring.

GEUMS AND POTENTILLAS.—*Coccineum fl.-pl.* is a very fine plant, the flowers of which are most brilliant, and, being borne freely on branching stems, are also most useful for cutting. This *Geum* likes good soil and an open, sunny situation, and when so accommodated soon becomes strong. The double *Potentillas* are likewise very beautiful, especially the one named *P. Robinsoniana*, which has fine large flowers, with the petals tipped with rich orange, and is very showy and good. *Potentillas* are not particular as to soil, and will grow well almost anywhere, provided they have light and full exposure; and, as they are naturally spreading and of procumbent habit, they form capital rock plants, as they trail over and show themselves to advantage.

ANEMONE JAPONICA is just now grand, and of this there are several varieties, the choicest being the well-known *A. japonica alba*, the form and purity of the blossoms of which are quite unsurpassed. I have seen them used with capital effect cut and arranged in vases with single scarlet Dahlias, with which they blend and associate well. *A. japonica hybrida* is also a good plant, having flowers larger than the normal type and of a soft rose colour. These *Anemones* delight in deep, rich soil, and, once planted, should not be dug about or disturbed, as left to themselves they spread and send up strong crowns at the sides.

MONARDA DIDYMA.—This is now finely in flower, and its large fiery scarlet heads show up from afar. Being large and of strong growth, this *Monarda* is best adapted for planting at the backs of wide borders in the foreground of shrubs, where at this season it forms a fine feature. There is a lilac and a white variety of this *Monarda*; but these are weedy and poor compared with the red, which is brilliant and good.

DELPHINIUMS.—For general effect and for shapeliness of habit nothing can surpass the *Delphiniums*, the tall branching spikes of which are striking in the extreme, especially such kinds as *D. Belle Alliance*, *D. formosum*, and *D. Belladonna*, and the different hybrids of these. As *Delphiniums* are so easily raised from seed, the wonder is that they are not more cultivated. If sown early in heat, and pricked out as soon as large enough to handle, they bloom the same year. Where I have seen the tall *Delphiniums* most telling is associated with white Foxgloves in groups; and anyone having room or suitable positions for masses, should not fail to make use of them in this way.

DICTAMNUS FRAXINELLA is a remarkable plant, quite deserving a place in any herbaceous border, as it sends up fine spikes of singular looking flowers that always arrest attention and command admiration from those fond of a garden. Besides being of curious form and striking appearance, the *Dictamnus Fraxinella* is strongly and agreeably scented, and is in much favour with many for drying and placing in rooms. There are two varieties, the one reddish in colour and the other white, the latter being the smaller and weaker grower of the two, but both are very desirable.

ANCHUSA ITALICA is a plant highly deserving of cultivation, as the rich blue of its flowers is such as to vie with that of the Forget-me-not or Gentians; and being a very strong grower, ranging from 3 ft. to 4 ft. high, with a free branching habit, it makes a fine show in the back of a border.

BOCCONIA CORDATA has been condemned by some as coarse, and so perhaps it is in some situations, but for certain positions it makes a highly ornamental object, as, besides the large silvery elegant foliage it has, it produces long branching spikes of brownish-white flowers. As a single plant on lawns it is very striking, and so it is among low-growing shrubs, or near the margins of woodland or pleasure ground walks, for which its bold character suits it.

HARPALIUM RIGIDUM, with its tall, stiff stems and splendid clear yellow blooms of the miniature Sunflower type, is very showy in a border; and so are the *Helianthus multiflorus* and its double variety, one or two of which in the foreground of shrubs quite light up a place.

HYACINTHUS CANDICANS deserves a place in every garden, but to succeed well it must have a light dry soil and a warm situation, as otherwise the bulbs are apt to suffer and rot during winter. In planting, it is a good plan to use plenty of sand around each root, which insures proper drainage and allows the wet to pass freely off.

PANCRATIUM ILYRICUM is a beautiful plant, producing long, large, Lily-like flowers of the purest whiteness, and of great value for working up in bouquets. Like the *Hyacinthus* just mentioned, it requires light sandy soil and a warm position to prevent it taking harm in the winter.

TRITONIA AUREA is quite a gem, and distinct from anything else in the form and rich orange shade of its flowers. These are borne in great profusion on branching spikes, which, being thin and spare, are just what are needed for cutting. A warm, sunny border is the only place in which *Tritonia aurea* does well, and it should be mulched over in the autumn to protect it from frost.

RUDBECKIA NEWMANI is also a valuable plant for the herbaceous border, and very striking with its large bright yellow flowers and black discs, which no rain seems to injure or mar.

S. D.

Wintering Cannas.—As an old grower of these very ornamental plants, allow me to tell Mr. Falconer (p. 244) that they cannot bear a single degree of frost, but that they can be kept in the open ground in winter if sufficiently protected. Risking them out of doors, however, offers no advantage, as they may easily and with little trouble be kept in winter in a greenhouse, a cellar (the latter is best, being darker), or in any other

place free from frost. The best plan is to lift them before frost is apprehended, say about the middle of November. Lift them if possible without much disturbing the roots, and leave all the earth that will adhere to them; then cut the stalks at about 6 in. above the roots, and so store them close to one another till about March; then plant them as they are with all their roots intact, and so proceed year after year. Thus treated, they will be both vigorous and floriferous. Plant them, if convenient, in a half-shaded position, protected from wind. Let the ground in which they are to be planted be deeply trenched, say about 3 ft., and well manured, and when growing supply them liberally with liquid manure, and keep them constantly moist.—JEAN SISLEY, Lyons.

CARNATIONS, OLD AND NEW.

By way of supplement to the cultural and other remarks respecting these given in THE GARDEN (p. 233), I propose to record my experience of the new varieties gained during the past season. In doing this it may perhaps be best to take them in the usual order, beginning with

Scarlet bizarres.—Until these last four or five years this has been a weak class. Admiral Curzon (*Easom*) and Dreadnought (*Daniels*) were the best, but the two were much alike and of weakly constitution. Mr. Dodwell, an enthusiastic cultivator, detected the weak point, and immediately set about remedying it. He crossed the two varieties named above with Sir Joseph Paxton and others with the most successful results. He has produced flowers of as good or better quality than Admiral Curzon, while in habit and constitution they are far better. Indeed, some of them are as vigorous as hardy Cloves. I grow all Mr. Dodwell's seedlings before he introduces them to the public, and can speak from experience of them. They have also had to stand the test of public exhibition, with the result that in 1881 Fred, exhibited by me at the National show in London, gained the premier prize, while Robert Lord, also raised by Mr. Dodwell, gained the premier award this year. Besides these two, others were sent out last year and previously that should be in every collection, viz., Arthur Medhurst, Edward Adams, George, Harry Turner, James McIntosh, and Philip Thomas. Of still newer flowers, Alfred Hudson has been finely exhibited by Mr. Dodwell; it gained a first-class certificate from the National Society, and a first prize as the best seedling in its class. The colours are very bright, like those of Dreadnought; the outer petals are broad and well formed, white good, and maroon and scarlet very bright. Master Stanley is also a first-class flower of the finest form; the white, which is very pure, shows off to the best advantage the rich scarlet and maroon. Smike is one of the largest scarlet bizarres I have flowered this season; the colours are rich and broadly flaked. If it would come pure in the white it would be well worth a place in a select collection. Crimson bizarres constitute the next class, and here again improvement is obvious, although not quite so great as in the previous class.

The pink and purple bizarres run into the crimson so much that it is perhaps best to amalgamate them. The best flowers previous to the raising of Mr. Dodwell's seedlings were Albion's Pride (Headley), Jenny Lind (Puxley), J. D. Hextall (Simonite), John Simonite (Simonite), Lord Wilton (Ely), Lord Raglan (Bonner), Rifleman (Wood); and of pinks and purples, Falconbridge (May), James Taylor (Gibbons), Sarah Payne (Ward), and Unexpected (Turner). As additions to the above, distinct in form or colour, I may name Harrison Weir, a superb variety; H. K. Major, distinct, of good quality and form; Mrs. Gorton, a very pleasing pink and purple; Squire Llewelyn, Squire Penson, and Thomas Moore, all good. Of newer varieties grown in our own garden this year Miss Henderson is one of the very best; the flowers are of the largest size, petals beautifully formed, of great substance, and the colours rich pink and purple on a good white ground. T. S. Ware produced some fine blooms with me; my notes of it are, "P. P. B., a very dis-

inct and good variety, petals broad and well formed, white, very pure, pink and purple flakes evenly distributed." Mrs. Barlow I also noted as a distinct and good P. P. B.; flowers large, petals, well formed, markings regular and well defined, white good."

In purple flakes I have no notes of anything better than some of the best old varieties, and in truth some of them will not be easily surpassed. Dr. Foster (Foster) is extra fine, although it lacks colour in the south; Earl Stamford (Elliot) is constant and fine; Florence Nightingale (Sealey) is distinct in colour and a grand variety; James Douglas (Simonite) is one of the best flowers raised by that celebrated Sheffield florist; Juno (Baildon), although sometimes coarse and too early for the exhibitions, must be grown; Mayor of Nottingham, (Taylor) is also very fine; while Premier (Milwood) is worthy of its name, but it is very scarce. I would be glad to get it again. Squire Meynell (Brabbin) ends the list of purple flakes, as True Blue (Taylor) is weak in growth and often flowers as a self.

Of scarlet flakes it will be difficult to get anything to surpass Sportsman (Hedderly), a superb variety and a sport from Admiral Curzon. John Bayley (Dodwell) is constant and very fine, while Annihilator (Jackson), Clipper (Fletcher), and Dan Godfrey (Holmes) should be grown in even select collections. Of new varieties Henry Cannell will, I fancy, prove to be a great addition to this class, and Harry Matthews will ever be popular, owing to the large size of the flowers, their rich colours, and the excellent habit of the plant.

The rose flakes constitute a strong class, and it will not be easy work to raise varieties superior to those already in existence. James Merryweather (Wood) is a grand sort always well marked; John Keet (Whitehead) is also a superior variety; while Mary Ann (Fletcher), Rose of Stapleford (Headley), and Sybil (Holmes) are first-class. The last named is possibly the best rose flake ever raised. Of the new varieties I have noted Miss Erskine Wemyss as being distinct and good. The flowers are of the largest size, well marked, with bright rose on a good ground.

All the above to which the raiser's name is not attached were raised by Mr. Dodwell. Mr. Gorton, of Eccles, near Manchester, has also raised some really good Carnations; his William Skirving, c. b., must be placed somewhere in the front rank, while Tim Bobbin and Rob Roy are rose flakes that will yet be heard off; they are very distinct. Mr. W. H. Hewitt, of Chesterfield, has also raised and sent out a fine crimson bizarre in Master Fred form of flower, good colours, rich, and well displayed. Mr. Turner's Jessica is a good addition to the rose flakes, free in growth and good in habit. J. DOUGLAS.

Ilford.

CONCERNING STOCKS.

THE catalogues of the German seed growers, and those of some of the leading English seed houses make us familiar with the large number of varieties of these, or assumed varieties, all supposed, at least, to be in cultivation. In August last I had an opportunity of inspecting at Messrs. Sutton and Sons' Portland Nurseries, Reading, flowering examples of all the different types that could be collected, and they were well grown and bloomed, and also afforded an excellent opportunity for comparison. Let me, therefore, set forth as fully as it can be done the characteristics and difference of the different types. What we are growing as

Sutton's large flowering dwarf pyramidal German Stocks is a fine type of the ordinary large-flowered strain, but though consisting of eighteen colours, these were well selected, with a marked absence of objectionable tints. This strain grows to a height of from 12 in. to 18 in., a very large proportion double, and these of fine quality. Some creamy buff-coloured flowers showed a great improvement on those we knew a few years ago. This is an excellent strain for all ordinary purposes. Sutton's Perfection Stock is indeed a wonderfully fine

type of the largest flowering German Stocks, of strong growth, fine branching habit, very large and fully double flowers, the plants growing to a height of 15 in. to 18 in. A remarkable percentage of plants of this strain comes fully double. In some parts of the country it is the practice to exhibit Stocks, and the usual plan is to lift a plant, wash and trim the roots, and place it in a vessel of water. No finer Stock can be grown for show purposes than Sutton's Perfection. It can always be had in six good varieties, and Stocks are generally shown in sixes. In addition there is a yellow Wallflower-leaved variety which is very fine and well worthy of being cultivated. Those who grow Stocks to cut from should try the Perfection type. There is a section known as Sutton's Giant Branching Stock, a very fine and strong-growing variety, producing plants over 2 ft. in height and as many through, and instead of having a spare growth like the Perfection strain, it is much more branching. It is an excellent Stock to grow to cut from. What is known as

Miniature German Stocks are the smallest of all the German Stocks; the growth averages 6 in. to 8 in., close and compact. There are some very fine colours among these, and all lovers of dwarf Stocks will be charmed with them. The large flowered dwarf pyramidal Stock is an excellent strain for garden purposes, and it produces more double flowers than any other, as many as 95 per cent. It is nearly as dwarf as the miniature type, but more pyramidal in shape and growth. The Wallflower-leaved Stocks, with their bright, glossy, emerald-green foliage, have a dwarf and compact habit of growth, and contain good and distinct colours; the seed-pods of the Wallflower-leaved Stocks are bright green also, and not woolly, as in the case of other Stocks. The autumn-flowering Stocks are a very useful and distinct strain, following the German Ten-week, and they are remarkable for the dense growth they make, sending forth a large number of side shoots that flower successively, and so the plants last for a considerable time. The average growth is 12 in., and they are to be had eight colours at least, all very good. The strain known as

Perpetual Emperor comes most properly under the heading of Intermediate Stocks. They are biennial more than annual, and they flower during late autumn and winter under favourable circumstances. There is a little difference in the height and growth of some of the varieties. Some are dwarf, others taller, but all are good. There are Wallflower-leaved types among these. These can be had in ten varieties, and they are among some of the most useful Stocks one can grow.

The East Lothian Stocks come very near to the autumn flowering strain. The ordinary Brompton Stocks and the giant strain of the same are well known, and need no description. The Queen Stocks are also well known, and, like the Bromptons, they are true biennials, flowering in spring and early summer. The three varieties of the Queen Stocks, if the strains be good, are most useful garden flowers at the season of the year mentioned, and, being very free, yield a great quantity of cut blooms. It is the Queen Stocks that are so much grown by the market gardeners round London for bunching for market. It is the custom with most seed houses to have ordinary Ten-week Stocks in three colours—purple, white, and scarlet—for cheap packets. Samples of these were growing among Messrs. Sutton & Sons' trials; and the highest praise that can be bestowed upon them is to say that they are too good for the amount of money charged for them. Let it be stated that

The Cape or Giant Stocks are a very strong-growing strain, and though biennial in character, many of them, if strong and well established from spring sowing, will flower in autumn and at mid-winter if fine and open. They are of a free, branching habit, very showy in the garden, but scarcely so useful for cutting from as the autumnal strain.

Double Stocks never produce seed; it is only from single flowers that seed can be had. A

well-selected strain will be certain to produce a large percentage of double flowers; and it is obvious that, if all the seed produced double flowers, there would be an end to the production of double Stocks. There is another peculiarity about Stocks, namely, that certain sorts invariably produce a difference in colour between the double and single flowers. This is clearly illustrated in the sulphur-yellow varieties; in these, with scarcely an exception, the single flowers always come white. Hence, in saving seed, it is impossible so to select the plants that an occasional white does not appear among the double blossoms. The grower of Stocks does the very best he can to secure the finest strains, and the Continental trade may be relied upon to do this to the very best of their ability.

R. D.

LILIUM AURATUM IN NOVA SCOTIA.

HAVING noticed some reference in THE GARDEN recently to this fine Lily, and as the clump of it about which I wrote to you last year was in full bloom at the time, I thought I would have it photographed, to show what can be done in this hard climate with this beautiful Lily. There were not so many blooms on it this year as last, but the individual flowers were larger; I now enclose a photograph of it, and as I am standing alongside of it some idea of its height may be conceived. As I wrote you last year, it is grown in the open, only sheltered on the north by a large bush of the English Dogwood. The soil is a clayey loam enriched with stable yard manure. Our climate is, as I have said, a hard one. Last winter the thermometer went down to 18° below zero, and this summer it reached 90° above or a range of 108°, and yet you see how very fine the blooms are. The only protection in winter was a few Spruce boughs over the clump; there were thirty-six blooms this year. The facts just recorded may be interesting to some of your readers, as an evidence of what can be done in Nova Scotia, which is so generally supposed to be given up to snow and ice.—PETER JACK, *Halifax*. [A beautiful photograph sent with the above shows a fine plant tastefully placed among shrubs and flowering vigorously. It is not so tall, however, by a long way as specimens grown under the best conditions in English gardens.]

Tuberous Begonias out of doors.—Too much can hardly be said in favour of Begonias as bedding plants, or as single specimens amongst mixed flowers where the climate suits them, and (perhaps an equally important point) where they receive the very rich culture which they evidently like. The size of the tubers has also much to do with their success. Plants about three or four years old which we got last year from the Newry Nursery have made a brilliant display the last two seasons; they are now in full bloom. No amount of rain seems to much lessen their brightness; even if some flowers are injured, they are quickly replaced by others. If the plants are wanted to make some display early in summer they must be pushed on, under glass, in spring before they are planted out of doors; but if not required before August, the tubers may be planted, as if they were Potatoes, amongst spring plants (without injury to the latter) in March or April. They may also be cut up like Potatoes, leaving one bud or more to each piece—a plan, however, which we have only tried after they have sprouted in heat. In this case, of course, they must be gradually hardened off in May like ordinary half hardy plants. In some cases small tubers can be separated from the large ones when the latter are taken out of their dry winter quarters, but even where given the protection of a frame for a month or two these plants are not large enough to have a good effect the same season.—C. M. OWEN.

—Notice (p. 248) a statement questioning the use of the above as a bedding plant. With me it is about the best thing I have, and here we have Pelargonium Maréchal MacMahon, Happy Thought, and some of the best of the other varieties of Pelargonium; the latter are now on the wane, while the two beds of Begonias are as

full of bloom as they were in the middle of July. I am of opinion that there is a great future in store for the *Begonia* out-of-doors. It may not, however, thrive equally well everywhere; but that is no reason why it should be condemned. —A. B., *Berks*.

—Mr. Kingsmill sends us one of these *Begonias*, which certainly grow well out of doors. Our opinion, as lately expressed upon them, was based on large numbers in beds, which had a very dismal effect in the most favourable districts south of London.

—I send you some specimens of *Begonias*, chiefly seedlings raised this spring and planted out of doors in May, in order to show that they will do well even in such unfavourable weather as that which we have had this summer. —J. H. NEWINGTON, *Tenterden*. [A very bright gathering of flowers, as fine as anyone has yet seen picked from open-air plants. Though not remarkable for large size, they are all very brilliant in colour, and some doubles among them are especially noteworthy.]

Useless Carnations. —“Peregrine” misquotes my statement about Carnations. I said “some of the choicest varieties are of weakly constitution,” but I may add many of them have vigorous constitutions. Leaving out the word “some” makes all the difference. We grow all our choice Carnations and Picotees in pots; so does Mr. Turner, Mr. Dodwell, Mr. Simonite, and all the principal growers. We do not mind the trouble, because we know that we cannot get well-finished blooms in any other way. Ninety per cent. of them can be grown well in open borders, but they do not produce blooms good enough for exhibition. I have, I daresay, quite as many pot plants under my care as “Peregrine” has under his, but I could not give up the pleasure of growing and flowering 200 or 300 pots of Carnations, even if I had to work late and early to do it. It is all a matter of taste. Perhaps “Peregrine” would rather grow 200 or 300 scarlet *Pelargoniums*. Scores of amateurs and others fill their houses with these in July. I would rather have six weeks of Carnations and Picotees. —J. DOUGLAS.

THE EDINBURGH BOTANIC GARDEN.

TO THE EDITOR OF THE GARDEN.

I WAS glad to see a little wholesome criticism of this lately in *THE GARDEN*. It, like many other botanic gardens, still adheres to the old and orthodox system of growing everything, good or bad. It carries out the classification of plants in the open air—work which is really done well in the books and in herbaria, and, therefore, does not need to be done in a garden. Those who dispute this point would probably in any case admit that such classifications should be carried out in a secluded part, so as not to mar the general effect of a garden. Too much is sacrificed to the students in this, as in other gardens, yet by all accounts the very profession which these students join does not esteem the teaching of botany to them. In any case it is giving what is meant for all to a class. Even some of the higher minds in the medical profession have protested against this botanical education, as having nothing to do with curing broken legs or weakened stomachs! The day is passing when man can hope to be saved by innumerable drugs from vegetable, animal, and mineral kingdoms. Every day we see signs that natural *regimen* is at last being considered by the doctor, who knows well it is the habits of life he has to contend with if he does his work well. Any number of medicinal plants growing in a botanic garden cannot help him much in this way. It is, we say, a mistake to sacrifice so much for a class.

Apart from this, however, we have the overcrowding of individuals, evergreens, &c., which

is the marked feature in many a botanic garden, and which should be discontinued. It can avail us nothing to crowd up our spaces with specimens of evergreens, which do not even do well in the locality. There is a fine collection in the Edinburgh Garden both indoors and out, and my motive in making these remarks is rather to add to than lessen its variety; for if so much is given to encourage the study of botany among young doctors (it is well known that many of them go through the course for form sake), it is not possible to do justice to the larger interests of the country and its arboriculture. National institutions should do national work.

The tendency in such places is to overvalue the importance of the glasshouse department, where a number of plants belonging to warmer climes than ours are kept alive. The expense of the erection and keeping of these great glass sheds is so great, that there is not margin enough to do full justice to the collections out of doors. There are those who conscientiously believe that the true function of a botanic garden is to show us a living specimen of every obtainable plant. I should not be so ready to dispute this view if I did not so often see evidence of the want of garden experiments in various definite directions.

Adjoining the Botanic Garden are some fine lawns and knolls, purchased to form an arboretum. Who knows what may be depended on to grow in it? A botanic garden in its tree department may show us a collection of diseased sticks crowded together, but this would never do for an arboretum! We do not want an immense variety here, but we should have the trees best for the place and surrounding country, not only as single specimens, but in a bolder, broader way, so that one might see their character in groups or groves. Experiments (limited by the exclusion of many species already known to be tender in more favoured places) should be made on all likely species of hardy trees and on all their varieties, for among these we often get what we want. So, too, the apparently closely allied forms of a given hardy tree should be tried from various localities to see which proved the hardiest. It is now known that certain species of Conifers are hardy or tender according to the region whence they come. Thus North American Conifers tender in colder countries when raised from Californian seed proved hardy when raised from the seed of trees growing in the colder and drier region to the east. I merely say so much to point out the way in which work might be done by a public garden. The classification of weeds in the flesh in the open air and in the presence of the sun has been carried far enough.

The rock garden, as you point out, is most miserable as regards its effect—extremely like cockney tea-gardens and childish sticking together of clinkers and bad bricks. Artistically, it is about the most tormenting thing I have seen for many a long day, and I have seen many a monstrosity in the public gardens of this sad world. The way the Yuccas stick up singly in rustic pots made out of clinkers and like rubbish stuck together with mortar is enough to send Robert Marnock to the madhouse. To speak of breadth, dignity, and simplicity in connection with it is to connect good words with a wretched thing. To say that such arrangements are necessary for the growth or keeping of the plants is demonstrably incorrect. The countless pockets and wrinkles harbour vermin, and prevent

any free or easy grouping of the pretty plants together. Neither *Gentian* nor *Saxifrage* are benefited by being in a fortified hole.

TRAVELLER.

CAMBRIDGE BOTANIC GARDEN.

THIS beautiful and interesting garden, which is being made more attractive every year, is well worth a visit at any season, but seen now with the varied foliage in its fine arboretum and pinetum, and the brightness of its flowering plants yet untarnished by late autumn frosts, it affords a treat to be remembered. If plant lovers in London and its neighbourhood did but consider that this interesting spot can be reached in an hour and a half, many more of them would visit it than do at present, and I am sure that none of them would return disappointed. The curator, Mr. Lynch, one of the best and most enthusiastic plantmen of our day, is ever ready to afford his guidance and the benefit of his knowledge to all who desire them, and, being a close observer of Nature, he always has something interesting to relate. I was delighted to hear him explain the working of the mechanism by which Nature insures the cross-fertilisation of *Roscoea purpurea*. This *Gingerwort*, as most of us know, bears showy purple flowers, each about 1 in. in length. Insects in search of nectar light on the labellum, push against a forked lever, which brings the anthers down upon their backs, depositing the pollen there, from which it is transferred to other flowers, and cross-fertilisation is the result. In the houses much space is devoted to a good collection of Ferns, the centres of some of the houses being occupied by a rockery, in which the larger growing kinds are planted out, the smaller being arranged in order round the sides. I noticed many old favourites which I thought had been lost, such as *Pteris elata* with its large *Marattia*-like fronds; the true finely-cut *Davallia canariensis pulchella*, originally sent out by Messrs. Veitch; good specimens of *Acrostichum aureum*; *Polypodium seputum*; and the new and very pretty Californian *Pellaea Wrighti*, with finely cut foliage of the *P. atro-purpurea* type, and the rare *Mohria achillæfolia*. There is also an interesting collection of Mosses. The Orchid collection which is being worked up is at present not extensive, but still it contains many good and interesting plants. I found the pretty little *Hartwegia purpurea* in flower, *Nasonia punctata*, and some other curiosities I had not seen for a long time.

This garden is noted for its varied collection of succulent plants, in the culture and arrangement of which great care is taken, and during both summer and winter they are very attractive, as in so large a collection a wonderful variety of growth exists, and some of the curious looking specimens are continually putting forth bloom. In the centre of one of the houses stands the wonderful specimen of *Aloe plicatilis*, measuring 10 ft. high and the same across, and sending forth its branches in all directions, its knotted and gnarled stem suggesting its longevity. Mr. Lynch has a very good way of growing *Nymphaeas* and other water plants which might be followed by those who would like to grow such plants, but who have no tanks. At Cambridge they are grown each kind by itself in tubs about 2 ft. across and 15 in. deep, and placed on the side stages. Thus treated, they grow well and flower profusely. *N. pygmaea*, *N. cœrulea*, and both the male and female *Vallisneria*, with their curious arrangement of flowers, are still in bloom here. In the houses innumerable interesting plants will be found, but on this occasion I will confine my remarks to a few of the most striking at present in bloom. *Vitis gongyloides*, with its handsome foliage and very long string-like appendages, is here blooming for the first time in cultivation, I believe. The flowers, like those of the *Ampelopsis*, are not showy, but nevertheless the plant is always attractive. With this were associated *Tulbagia alliacea* with grass-like leaves, and showy heads of lilac-mauve flowers like slender *Agapanthus* blooms; *Trachelium cœruleum*, a pretty bushy plant, something like a *Heliotrope*;

the useful yellow *Lilium trigynum*, and a nice specimen of the beautiful, but difficult plant to manage, *Lisianthus Russellianus*; in general appearance this plant resembles the pretty blue *Exacum macranthum*, but the flowers are larger, more purple in colour, and the segments blunter. If easier to manage, both these plants would become general favourites. In the greenhouse Mr. Lynch makes a great show with different colours of *Scabious*, *Loasa vulcanica* (white), *Loasa lateritea* (brick red), *Lantanas*, *Begonias*, *Fuchsias*, &c., overhead being huge plants of *Plumbago capensis* and *Cestrum fasciculatum* laden with bloom; along the ridge was a fine cane of the true Currant Grape (*Vitis carinthiaca*) furnished with its unmistakable Currants.

In the adjoining house I observed fine plants of the beautiful *Arctotis aureola*, with its beautiful *Gazania*-like blossoms; *Fuchsia macrostemma*, with elegant flowers like those of the very long, slender *F. gracilis*; *Stenogastra concinna*, a lovely miniature *Gesnerad*; and *Malva umbellata*, sending forth numbers of its pretty red-maroon, *Hibiscus*-like blossoms on plants only a few inches in height. Here also in the coldest greenhouse Mr. Lynch makes what I consider to be the proper use of the pretty dwarf *Hypericum*s, such as *H. balearicum*, *H. Coris*, &c. They are evergreen, more beautiful in growth than many other plants usually kept in greenhouses, and they amply repay the extra care thus bestowed on them. Before leaving the houses I must notice a few specimens planted out which cannot well be matched; they are *Monstera deliciosa*, about 15 ft. high and tree-like, at present in flower and fruit; *Saccharum officinarum* (Sugar Plant), 12 ft.; and *Papyrus antiquorum* (Egyptian Paper Reed). These and some of the large Palms are very majestic.

Outdoors everything is neat and well arranged both for effect and reference, and many great improvements have been made, the most noticeable being the levelling and grassing over of numbers of beds in which the now gigantic trees were planted. This was a very necessary operation, as the trees for many years past have been able to take care of themselves and the beds useless and unsightly. The beds outside the houses, although not planted in a conventional manner, are very showy, and many of them novel in effect. One, composed of *Arctotis aspera alba*, with Fern-like foliage and *Marguerite*-like flowers, mingled with blue *Salvia patens* and edged with *Verbena venosa*, had a pretty effect; another consisted of the showy flowered *Pentstemon*s mixed with variegated *Epilobium* (Willow-herb); another, and perhaps the most effective, contained dwarf, bushy plants of the true bright red *Begonia ascotensis* with a ground-work of variegated *Dactylis* and an edging of *Viola cornuta*, while prominent among the edging plants was the pretty bluish *Chenostoma hispida*, with its myriads of starry flowers. The beds of single *Dahlias* and *Marguerites* led one to the newly-formed rockery where some fine clumps of European *Cyclamens* are in bloom, also *Paronychia argentea* and some very interesting *Asarums*, the variety *caudatum* having long tails to the perianth, and which in the bud are curiously doubled in at half their length. The *Meconopsis nepalensis* is here over 2 ft. across, and a very noble plant. In the newly-formed piece of water for aquatic and marsh plants a very fine, hardy, white Water Lily is now blooming profusely; it is named *candidissima*, and is, I should say, a N. American plant; its flowers are twice the size of those of *N. alba*, and it blooms long after that variety has done, and even until the frost takes it. *Houttynia cordata* is flowering freely. *Juncus effusus spiralis* from seeds may be seen coming quite true with its twisted stems, a matter which some have doubted. Among hardy trees many may be found which causes one to wonder why they are so seldom met with, even in more favourable situations. Such things as *Asimina triloba* (North American Paw-paw), *Pterocarya caucasia*, like a huge *Marattia* Fern, and many others one finds in these interesting gardens, which ought not to be so rare.

Harrow-on-the-Hill.

JAMES O'BRIEN.

NOTES FROM GOSPORT.

Nerium Oleander.—Referring to flowers of the double pink Oleander mentioned in THE GARDEN of September 9, I may add to the description therein appended a few notes as to how I have found this beautiful shrub to succeed best. It is not new or rare, but it is rare to find this plant well flowered; although one usually finds it with more or less flower-buds on it during the summer months, as a rule they drop off without coming to maturity, and this, I am of opinion, is caused by a check from drought, or from being starved in too small a pot. Now, as the Oleander is such a vigorous grower, I find that it needs some root restriction, or it soon becomes unwieldy; and as it shows flower-buds most freely when the pot in which it is growing gets full of roots, I find that the best plan is to treat it as one would a Fig, viz., plunge the pots in a cool house early in summer, so that the roots can escape into the surrounding material specially provided for them, or if in an orchard house, into the natural soil. This extra root run, combined with an unlimited supply of weak liquid manure, will not only cause the buds to swell up instead of dropping off, but will make the fully expanded blossoms as large as ordinary *Camellia* blooms. There is no difficulty in growing this plant; on the contrary, it is one of the easiest to manage, and it is also nearly hardy. In 1881 I planted one out at Linton to try how much frost it would withstand, but the winter proving mild it did not get severely tested, and it looked even better this spring than those wintered under glass. It may, therefore, safely be called half-hardy, and on a wall it might be kept for years with a slight covering in the southern counties at least. As it is subject to the attacks of scale, a cleansing occasionally by means of a stiff brush and a dressing of Gishurst will be of the greatest service, for if starved at the root, and deprived of its vitality by insect pests, one can hardly expect a rich display of flowers. Give it the same chance as some of our new and rare plants get, and it will be able to hold its own with many of them.

The large-flowered Plantain Lily (*Funkia grandiflora*) is indeed a noble plant under pot culture, and both in foliage, flower, and fragrance more than a match for *Eucharis amazonica*. With blossoms of the purest white and borne on tall spikes rising well up above the foliage it is the very symbol of graceful beauty; no tying or training can improve it, and one spike of flower fills an entire house with a delicate odour. It is a plant of the easiest culture, and not subject to any kind of disease or insect pest. It only needs the shelter of a glass roof to bring its bloom to the highest degree of purity; about a dozen roots in a 10-in. pot make a splendid specimen for either decorative purposes or exhibition.

Eucomis punctata.—This Cape bulbous plant, though well known, is not often met with; it has very pretty mottled foliage, and produces tall spikes of delicately-scented flowers, that although not brilliant are very pleasing, and add variety to a cool house, while *Vallotas* and similar plants afford plenty of colour. The *Eucomis* is nearly hardy, but repays the shelter of a glass roof by bringing both flowers and foliage to greater perfection than when fully exposed, and it is well worthy of cultivation on account of its pretty foliage alone. It grows freely in sandy loam, and is not subject to any of the insect pests that mar the beauty of so many fine-leaved tender plants.

J. GROOM.

Seafield.

Destroying wasps.—I have for the last ten or twelve years destroyed these troublesome feeders on fruit with methylated chloroform, and this involves the necessity of waiting till night, when all are at rest. But pulverised commercial cyanide of potassium, one or two tablespoonfuls, may be put into the entrance of the nest at any time of the day, and if quietly done does not in the least disturb the ingress of the insects. They

readily enter, never to return, so that in twenty-four hours every individual is destroyed. I was curious to know the contents of a large nest, measuring 9 in. across, having eight tiers of cells. I counted 3400 wasps, and five of the tiers were full of pupæ, which I did not count.—PETER SQUIRE, *Basmead Manor, St. Neots, in Times.*

PARA CRESS.

(*SPILANTHES OLERACEA*.)

THE genus *Spilanthus* includes upwards of forty species, natives of tropical parts of both hemispheres. They are for the most part annual, branching, weed-like plants with opposite leaves varying from lance shape to ovate, and solitary terminal yellow flower-heads. *S. oleracea* and *S. fusca* are both known as the Brazil Cress, the first named species being also called Para Cress. In hot countries the plant is cultivated as a salad. It is, however, very acrid, the flower-heads especially having a burning and caustic flavour, producing powerful salivation. An alcoholic tincture has been recommended in toothache. Its



Para Cress (*Spilanthus oleracea*).

action has been described as being like that of Horse Radish, but with much more intensity. *S. oleracea* usually grows about 1 ft. high, and has stalked, heart-shaped leaves and small yellow flower-heads borne singly at the apex of the branches.

J. R. J.

BOOKS.

TOWN GARDENING.*

THIS is a handy shilling book on a subject of great interest to many dwellers in our cities and their suburbs. The author tells his experience as a town cultivator in a very clear way, and the little book is not, like a good many shilling ones, "blown out" with large type to hide its size, but is closely packed with useful practical matter. The instructions, lists of varieties, &c., are all of a modern character, or, in other words, what they ought to be in our own day. Many of the books that are published on gardening are many years behind the facts and practice of the time, and therefore useless. As an example of the way in which plants not very common in town gardens are treated, we give the following:—

"Pinks (Indian and Japanese).—Hardly anything will be found to stand the smoke and dirt of towns so well as these. Though really perennials, and having the power of being perpetuated by cuttings, they are better raised from seed every year, as even if they would stand the

* "Town Gardening." By E. C. Ravenscroft. London: Geo. Routledge & Sons.

winter they always look very straggling and untidy the next year, but this trying season nearly always proves fatal to them. If you have a frame and want early blooms, sow the seed in boxes of loam, leaf-mould, and sand in March, and prick off and plant out as soon as large enough; a gentle heat will cause the seed to germinate more quickly and freely if early in the season, but they will do very well in a cold frame early in April. They may, however, be sown out of doors in April either in nursery beds or where they are wanted to flower with almost as good results as by the more troublesome method. Of course they will not bloom quite so early in this case, but the difference will not be much. Do not buy, as a rule, cheap packets of seed, but go to a good shop and do not grudge 6d. or 1s. for it. The best double Indian Pinks should be obtained, and some of the finest flowers come from the *Dianthus Heddwigi* and *diadematus* classes. The Chinese or Japanese Pinks are single, and the new Eastern Queen and Crimson Belle are beautiful. Indeed, in our opinion nothing can surpass these last for effect in bedding. They should be treated exactly in the same manner as the Indian Pinks; plant out 6 in. or 8 in. apart, as they will not grow quite so freely as in the country, and tie up the flower-stems to neat stakes. All should have a rich soil: good loam enriched with some well-rotted manure is about the best. Give them a sunny situation."

Barr & Son's list of bulbs.—We have now for years past had such a plethora of illustrations of every kind, good, bad, and indifferent, in catalogues, that it is a pleasure to take up the above without any at all, save a wretched one of a spray distributor, which might well have been omitted. The catalogue is simply printed and arranged, and is the most interesting and complete trade list of hardy bulbs existing. We should like to see the printing a shade better so as to get the rich, pleasing effects which good ink, "good working," and pressing afterwards give us, but perhaps the hurry of production of many thousands will not admit of this. When people have tried every possible variety of catalogue, they will, perhaps, at the end of a generation or two more of heroic effort after *The Illustrated*, come to the conclusion that good type, good paper, and good printing, if wisely used, will give a better, quieter, and more tasteful result than anything else. The cuts now used over and over again in hundreds of catalogues will for the future be really wasting space. If we want illustrations at all it would be well if each house would make its own of its own novelties and specialties. In that way our knowledge of plants would really be increased and catalogues become a source of interest.

ROSE GARDEN.

NATIONAL ROSE SOCIETY'S CATALOGUE.

ADMITTING that this society has conferred a boon on the amateur grower of Roses, and more especially on the young beginner, in publishing a list of Roses most suitable for exhibition, and granting that it is a step in the right direction, I for one think the list in question open to criticism. Taking the five types of exhibition Roses, we seldom see a flat Rose staged in these days, and while *Souvenir de la Malmaison* is represented in the drawing in its worst stage, it, nevertheless, like other good Roses if staged half blown, is equal to a Baroness Rothchild, and for form and colour indispensable. Passing over the other types, which do Mr. Curtis great credit, I would ask if No. 5, A. K. Williams, is a faithful drawing. I must confess I have never seen it so globular as represented, nor yet with such a quantity of petals. I admit that it is a beautifully formed Rose, but I never saw it globular. Some Roses are classed that I consider unworthy of a place in our authorised catalogue. Abel Grand is a good garden Rose, but too thin and poor in these times. *Boule de Neige*, perhaps the best of all whites for garden decoration, is seldom or never seen staged; *Centifolia rosea* is too flat and thin; Duke of

Connaught and Fisher Holmes are both good formed Roses, but too small; Madame Prosper Laugier and Marchioness of Exeter are not worth placing in the list; Sultan of Zanzibar is one of our best dark Roses on the Brier, but too often comes confused and, if I may use the term, "wraggy" for exhibition purposes. As to Comtesse de Serenye being better on cut-backs I never found it to be so. It produces buds in profusion, but they do not open. On maiden plants in a dry season it is one of our best autumn light Roses, if not the best.

As to bracketing Roses "too much alike," I do not agree with some that Mdle. Eugénie Verdier and Marie Finger are one; the latter is a much deeper pink and folds more in the centre of the flower than the other, while for travelling I never found, if staged ever so young, Mdle. Eugénie Verdier to stand; not so Marie Finger, which will not unfold until it drops. Passing this over and willing to accept and take as the standard on which these Roses are bracketed, viz., the flower, and not the foliage, I ask, is it right and just to bracket Sir Garnet Wolseley with Ferdinand de Lesseps, Maurice Bernardin, and Exposition de Brie? The General has a brighter shade of red than any of the others, and lacks that beautiful bluish shade which makes the other three so charming. Of the Teas I will offer but one remark. I for one can never agree that Josephine Malton and *Alba rosea* are synonymous.

Beeston, Notts.

W. H. FRETtingham.

Rose Mrs. Harry Turner.—In my remarks on new Roses in *THE GARDEN* of last week I mentioned, the above Rose as not being so good in form as one could wish. I think it fair to say that since the writing of my letter I have had a bloom of Mrs. Harry Turner, which for shape, size, and colour was everything that could be desired.—W. H. FRETtingham.

MR. FISH ON ROSES.

It is to be regretted that Mr. Fish's statements on Roses are not as correct as they are confidently stated. What could be more erroneous for example, than his assertion (p. 231) that "root disturbance quickens root activity," and from which he proceeds to draw a practical lesson? The assertion is quite contrary to well-established facts. It would just be as reasonable to say that a human being's vitality is quickened by amputating his limb or starving him. Every gardener who has potted a bedding plant knows that "root disturbance" seriously checks root activity, and, consequently, the plant's growth; and Roses are no exception to the rule, but show the effects of disturbance a great deal worse than some other plants, checking both root and top growth to such an extent that they take a year to recover.

Next, Mr. Fish says that "autumn-planted Roses will be found to have far more numerous, stronger, and more active roots in December than those that have not been moved at all," a statement more erroneous than the other. Where, I would ask, are the "stronger and more numerous" roots to come from, and where the time to produce them? I have planted scores and hundreds of Roses many a time, but I never knew such a circumstance to occur in my life. A Rose tree planted in October or November may and often does lose a portion of its roots, but it seldom makes more than a few tender spongioles the same year, and the chance is they will perish in winter if not protected. If Mr. Fish was right, autumn-planted Roses would push stronger in spring than those that had never been moved at all, because plants with the strongest and most numerous roots invariably grow strongest; but anyone might safely stake all they possess that Mr. Fish will not get autumn-moved Roses to grow as strongly as those which have not been moved at all, nor anything like it, other things being equal. Has he ever known such a thing to happen? What an exaggerated picture, too, Mr. Fish draws of the careless manner in which Roses are planted. "Leisurely unpacked in a cutting nor-easter, dangled in the air, or laid down on the freezing

earth while stakes are found, labels written, holes dug," &c. Who would ever give men the chance of planting Roses under such circumstances or in such a way? I am glad to say I never saw such barbarities practised by men calling themselves gardeners.

Since the above was written, I find Mr. Fish's opinions on "root disturbance" have been quite revolutionised. His experience travels faster than other people's, and I hope his readers keep pace with him. On September 9 he said, "root disturbance quickened root activity;" on September 23 he declares that "root disturbance results in a temporary suspension of the absorbing functions of the roots"—a roundabout way of contradicting himself and asserting quite the opposite thing. In his latest communication we have, however, a definition of what "root disturbance" means; "by root disturbance is meant the lifting of the roots rather than cutting or pruning any of them." This attempt to distinguish between root lifting, root pruning, and root disturbance will, however, not do. To the common-sense gardener the three terms mean exactly the same thing.

A ROSE GROWER.

GARDEN FLORA.

PLATE CCCLVI.

ROSE (H.P.) ALFRED K. WILLIAMS.*

THIS beautiful Rose was sent out by Schwartz, of Lyons, in the autumn of 1877, and flowered for the first time in my Rose garden the following summer. From the very first flower I at once discovered that it was a Rose of great promise; in fact, I was so impressed with its value, that I budded all I could get, and in the spring grafted large quantities of it. Longer experience has shown me that since Marie Baumann was first brought out no such perfect or constantly grand flower has appeared as A. K. Williams. A few complaints have been heard regarding its being a weak grower, and that when transplanted often it dies, misgivings to which I give no credit. With me, budded on Brier cuttings, it does wonderfully well both on maidens and cut-backs, and to prove that it will transplant as well as any other sort I directed the attention of one of the honorary secretaries of the National Rose Society to a row consisting of about fifty plants of it, all of which were transplanted last March; the whole quarter contained about 2000 plants of various sorts similarly treated, and A. K. Williams was perhaps the best in growth of all of them, and at the time of his visit (August 12) had many fine blooms out on it. I find it does well as a standard, and also on the Manetti, but I am inclined to think that the Brier is the best stock for it.

Colchester.

B. R. CANT.

A. K. Williams, the character of which has now been fully proved, is a Rose well calculated to sustain the reputation of its fortunate raiser, whose name is associated with such good and well tried Roses as Auguste Rigotard, one of the most beautiful of the cherry reds; Duchesse de Valombrosa, a lovely pink, and one which in a dry, hot summer is second to none; Egeria, an improvement in growth and flower on the Princess Mary of Cambridge; and this reminds me of one still older, but one of the best for autumn blooming, viz., Madame George Schwartz, a good globular Rose of the Victor Verdier type. In growth I should describe A. K. Williams as being between Duke of Wellington and Lord Macaulay. It will thus be seen that according to my estimation its

* Drawn from flowers sent by Mr. B. R. Cant, Colchester, in the second week in August last.



growth may be set down as moderate. The wood is thorny, the spines being what the rosarians call red. The form of the flower is perfect, being beautifully imbricated and of the brightest carmine-red. I know of no Rose resembling it in shape except the Beauty of Waltham, one of our best English productions. No Rose, if I omit Gloire de Dijon and La France, is more thoroughly perpetual. It is lovely in early summer, but if anything even more floriferous as the season advances, and the colour more beautifully shaded, while as autumn comes on a more abundant flowering Rose could not be named. For exhibition purposes, where well grown, it may be associated with Marie Baumann, Alfred Colomb, Charles Lefebvre, and others.

As regards constitution or durability, can it rank with Alfred Colomb, Marie Baumann, or Baroness Rothschild? I fear not. Alas, we cannot get all good qualities concentrated in one Rose. I wish I could conscientiously say that it could survive such winters as those of 1879-80-81. Let us, however, hope that it has now become more acclimatised and hardier. One great thing in favour of this Rose is that it grows alike freely on Manetti, seedling Brier, and standard Brier. No Rose since the introduction of Lord Macaulay and Maréchal Niel has been so much sought after as this. It is now some five years old, and yet the demand for it at present far exceeds the supply. The weakly constitution ascribed to it by some may therefore arise from its being overworked. When in good condition it may truly be said to be a star among Roses. H. FRETtingham.

Beeston, Notts.

NOTES FROM THE EDINBURGH NURSERIES.

DURING our stay in Edinburgh on the occasion of the late international exhibition we took the opportunity of visiting most of the principal nurseries in that neighbourhood. Our visit was a hurried one, and unfortunately upon the eve of the great show, when everybody was busy preparing for it. Owing to this circumstance and the fact that most of the nurseries were stripped in order to make a good display at the show, probably we did not see them at their best, and certainly September is not the season which one ought to select to see either nursery or garden in its brightest condition. The Edinburgh, and indeed all the large Scotch, nurseries are different from those in and about London, not that they compare unfavourably with our metropolitan establishments, but one finds in them a different class of contents. Most of those we saw at Edinburgh contained a little of everything and a good deal of some things, but no exclusive feature predominates, as in the case of many of the London nurseries. For example, no one nursery takes wholly in hand hardy plants, or trees, or Orchids, or hard-wooded plants; therefore one cannot see that state of perfection that is seen in London nurseries with regard to particular classes of plants. One of the chief causes of this doubtless is that there are not so many market florists to supply the Edinburgh flower trade as there are in London; hence the nurserymen require to grow plants for cutting, and plants for dinner-table and other decorations, a circumstance which compels them to keep a varied assortment of plants for the purpose. Two of the principal classes of plants which one sees done well in Scotch nurseries are trees and shrubs, both ornamental and useful, and hardy florists' flowers, which are grown to perfection in a climate just suited to them. One great feature of all the principal Scotch nurseries, too, is the rearing of forest trees, a branch of trade which is carried out on a much more extensive scale than in the south.

We were not a little surprised to find that the "rage," as it is so termed, for Orchids has not per-

ceived the Scotch nurseries; indeed, with the exception of one or two, this popular family of plants seems to be quite unrepresented, probably because the wants in this direction are well supplied from beyond the border. Another thing is conspicuous, and that is the almost entire absence of the finer types of hardy plants, such as seem to be the want of the present day. In one or two of the nurseries visited a few good hardy perennials are grown well, but we saw no good collection of them. With such a fine climate and other advantages for growing quantities of good, showy, hardy perennials, not a plant ought to cross the border northwards; if that were so, Scotch gardens, public and private, would wear a different aspect from that which they now do.

In a place like Edinburgh one would scarcely expect to find the nursery establishments split up as they are into portions, lying in some instances widely apart. Such is the case, however, a circumstance, no doubt, attributable to the rapid outgrowth of the town. In some instances, such as in that of Messrs. Dicksons & Co., these branch establishments are intercommunicated with by telephone, a great boon, and a plan which is found to work very satisfactorily.

MESSRS. DICKSONS & CO.'S NURSERIES.

THESE justly take rank among the foremost of northern nurseries, having flourished for upwards of a century, and enjoyed a wide-spread reputation. Men great in horticulture have been connected with them; even Loudon himself in his younger days worked, it is said, in them. The chief nursery was formerly in Leith Walk, but owing to the rapid outgrowth of Edinburgh this nursery was a few years ago transferred to Pilgrimage Park, an open, airy spot well out of the smoke of the town, and pleasantly situated on a sloping declivity to the south. There are several branch nurseries, the chief being at Redbraes, Logie Green, and Bonnington Farm. This firm has been long and widely known in connection with hardy florists' flowers, but we were not prepared to find such extensive nurseries as it possesses, teeming with such varied classes of plants. The Pilgrimage Park Nursery contains the bulk of the glasshouses, which consist chiefly of about a dozen long span-roofed structures some 70 ft. in length running north and south, all being connected by a long corridor, so that the visitor when entering at one end can go through the whole ranges without going outside—a capital arrangement, and one which is found to work admirably. They are not placed so near as to shade one another; on the contrary, there is ample space between them, and these interspaces are occupied chiefly by frames and capacious tanks, which catch all the rain water from the roofs, a great advantage in plant culture, and one that is too often overlooked, particularly in nurseries. Ample provision is made for replenishing the tanks, so that at no season is there a scarcity of water. The arrangement of this new set of houses and all their accompaniments is the outcome of years of experience gained at the old nursery.

The houses contain a great variety of plants, many being very fine specimens, some quite out of the ordinary run of plants found in nurseries. For instance, in the first house we entered were some really fine specimens of Himalayan Rhododendrons, amongst them large bushes of *R. Falconeri*, longifolium, arboreum, and niveum, which in early summer produce grand trusses of bloom. From these old plants a large stock of young ones are propagated, particularly of such as *R. ciliatum*, Edgeworthi, and the beautiful Countess of Haddington, a plant that should be grown in every garden. In the same house is an uncommonly fine specimen of Maréchal Niel Rose, about seven years old, budded on the Dog Rose. It now covers an enormous space, and, of course, constitutes a never-failing source of cut flowers, so largely in demand here at all seasons. Other Roses grown for cut bloom are Gloire de Dijon and Niphetos, and these are relied on throughout the year. In another house we saw a fine

specimen of the variegated-leaved *Phormium Veitchii*, with a tall flower-spike bearing numerous pods of ripe seed. Whether the seedlings will reproduce the variety true or not remains to be seen; but if so, there will be enough to stock the country with this handsome-leaved plant.

Eucharises are largely and well grown for furnishing cut flowers, and besides the ordinary *E. amazonica* we noticed some fine plants of the smaller *E. candida*, which is much better suited for some purposes than the larger kind. Another called *E. longifolia*, which we suspect to be *Calliphuria subdentata* or Hartwegi, is also grown here, and is highly spoken of as a useful plant for cutting from. The finest specimen of the variegated Pine-apple we have ever met with is here; it is about 4 or 5 ft. high, furnished with long, finely-coloured foliage, and altogether a strikingly handsome plant. Moreover, it is said to be a variety that does not fruit very quickly; hence if such is the case it will turn out to be a very valuable plant. It has been propagated by suckers, which of course afford the only means of increasing it. This is the plant that attracted so much attention in the large group shown by this firm at the great show.

Crotons and other fine-foliaged plants are of course grown largely, but we singled out one *Croton* that struck us as being out of the common, and one that should be largely grown instead of such a number of the variegated forms. It is the old *C. discolor*, which we had begun to think had been banished to botanic garden collections. It is really a handsome plant, quite distinct from any other *Croton* both in foliage and habit. The leaves are bronzy green on the upper surface, but of bright crimson-red on the under—a striking contrast. When well grown it is of a spreading, bushy habit, and well adapted for placing in high positions, so that the beautiful undersides of the leaves may be seen. It is a plant that Messrs. Dicksons ought to propagate largely. Another pretty plant for the stove is *Paulinia thalictrifolia variegata*, a twiner of quick growth, and particularly desirable for clothing a pillar or rafter. The beautiful old *Dipladenia boliviensis* is largely grown for cutting, for which the large pure white, yellow-centred blossoms are valuable. *Hibiscus rosa sinensis* is grown largely and in great variety for cutting, particularly the double kinds, which last so much longer than the single. A deep crimson double sort is specially noteworthy, as is also one with brick red-coloured flowers. It is a pity that these shrubs are not more grown than they are in private gardens, seeing that they are so useful, particularly in autumn.

Coleuses of the commoner kind are not made much of here, but there is a collection of seedlings raised from imported seed which contains without doubt some of the finest sorts that have yet been seen. There are a dozen or so of varieties, amongst which four at least are exceptionally fine. Two have the largest foliage we have ever seen in a *Coleus*, each leaf measuring some 6 in. or 7 in. long and nearly as much broad. The colours, too, are bright; one has a pale golden yellow ground margined with crimson; the other has more crimson than yellow. We hope Messrs. Dicksons will grow these two well, and show them in London next year in full colour and beauty; though we are nearly surfeited with *Coleuses* already, we predict that the Floral Committee will distinguish these. Among other seedlings are some with striking foliage, distinct in colour from that of any we have seen.

Tropæolum Hermine Grashoff, the double *Nasturtium* figured in THE GARDEN some time ago, is found to be valuable for cutting, and, judging by the quantity grown, it is made free use of. Another class of flowers cultivated largely for cutting is double *Primulas*, and in a fine houseful of them we noticed the old double white, still unsurpassed in its way, and Stewarti, a beautiful double sort with a deep milk colour. As might be expected, where cut flowers are much in request there is always an equivalent demand for Ferns to supply greenery, and here housefuls of Maiden-hairs are grown for cutting. There is an excellent

fernery, the back wall of which is charmingly clothed with Selaginellas, Ferns, Begonias, and other plants. The general collection of Ferns includes some fine examples of tree kinds, particularly *Dicksonia antarctica* and *Cyathea Burkei*, one of the noblest of the genus in cultivation.

Florists' flowers.—The outside department of this nursery is devoted chiefly to these, such as Pansies, Violas, Phloxes, Carnations, Pinks, and Pentstemons, which, as may be imagined, are all grown on a very extensive scale, and the climate seems to be well suited to them. Particular attention is paid to the improvement of the different races of hardy florists' flowers, and for this work the firm has Mr. Grieve, an enthusiastic florist whose name in connection with florists' flowers, particularly Pansies, Pink, Phloxes, and Pentstemons, is well known. To these popular hardy flowers alone a great portion of this nursery is devoted, to say nothing of crowds of frames and pits in which they are propagated by thousands. Need it be wondered at, therefore, that florists' flowers here have made rapid strides during the last few years. This firm is now paying especial attention to border Carnations and Pinks, and are endeavouring to perfect a race of dwarf varieties, several examples of which have been sent to us this year. To these a large area is devoted, a circumstance which shows how thoroughly work of this kind is carried on. Some of the finer kinds of hardy herbaceous plants, too, are grown numerously, as, for instance, *Anemone Honorine Jobert* and Christmas Roses, which latter are particularly noteworthy, as they are grown on a large scale, especially for cutting. For this purpose quantities of plants are placed in cold houses, which induce early flowering, and consequently a continuous supply is maintained throughout the winter and spring. The *maximus* or *altifolius* variety is that which is most grown.

Hardy Heaths are abundant, and breadths of them in full flower just now are very pretty. *Himalayan Primroses* are grown here extensively; never before had we seen such numbers of the beautiful *P. capitata* as were growing in a cool house, in which, too, several hundreds were in bloom. It was interesting to observe the great diversity there exists among these as regards depth of colour, some being much finer and deeper toned than others. Of the new *Veronica subsessilis* or *Hendersoni*, the finest of all the hardy *Speedwells*, we have never seen such a fine specimen as was here; it was fully 3 ft. through and bore quite a sheaf of flower-spikes. Messrs. Dicksons could not do wrong in growing an acre of it, for good plants of it are badly wanted in the south. Another good plant grown largely is *Senecio pulcher*, amongst which there is at least no disease here, notwithstanding that this year the fungus which attacks the leaves has been so prevalent in the south. Perhaps the cool Scotch climate suits this plant better than a warmer one. Some flowering specimens of it were carrying several fine flower-heads.

The **Redbraes Nursery** occupies one of the prettiest sites we know of among nurseries. It adjoins the Water of Leith, which flows past it, and in the centre of it is a pretty lake with two well-wooded islets, and the water is studded with white and yellow Water Lilies now in full flower. One almost fancies oneself in a beautiful garden instead of in a nursery where stiff formality usually and of necessity prevails. This spot the late Mr. Alexander, a partner of the firm, selected for his residence. The house overlooks the nursery and embraces a wide panoramic view of Edinburgh; beyond it the nursery is richly stocked with a great variety of ornamental trees and shrubs, both evergreen and deciduous, and the planting is carried out with good effect, that is so far as in a nursery it can be. Some grand old Beeches with ponderous grey boles, which it contains, are a great gain. Winding paths traverse the ground, and now and then one comes upon a huge mass of *Tritoma Uvaria*, a grand plant at this season. In another part we noticed more of this and of other varieties of *Tritoma* in full bloom, the effect of which may well be imagined. Among trees and shrubs which we singled out

specially was *Salix tricolor*, a variegated Willow with leaves almost as large as those of the *Kilmarnock Willow* and beautifully variegated with white and green and flushed with red. We had not previously seen it, and think it a most desirable shrub for general use. Another uncommon shrub of which we took note was the golden-leaved Chestnut (*Castanea chrysophylla*), a Californian tree widely different, however, from the common Chestnut (*Castanea vesca*). As it grows in this country it is a dwarf, dense growing bush, copiously furnished with small leathery leaves, deep green on the upper and golden yellow on the under surfaces. The specimen in this nursery is about 4 ft. high and bears several fruits, a sure indication that it is quite at home. It is standing in the open, and receives no protection or particular attention. The collections of Hollies, Ivies, and Conifers are very rich, as is also that of deciduous trees and shrubs, which are as fine as we have seen in any nursery.

In the nursery adjoining the Pilrig Park is grown the principal stock of hardy fruit trees; Apples on the Paradise, Pears on the Quince, Plums on the Myrobalan, may be seen in abundance here, and their sturdy growth and symmetrical habit indicate that the Scotch climate is favourable for hardy fruits. Messrs. Dicksons, we find, continue to grow cordon-trained Apples largely, a proof that their value is recognised.

Forest tree rearing is carried out in this nursery extensively, and for this purpose the chief part of the branch establishments at Logie Green and Bonnington is devoted, besides many acres rented for the same purpose on a farm at Liberton, some three miles distant. The trade in Larch, Spruce, and Scotch Pine in Scotland is very considerable, but for all that one cannot but help wondering where the thousands, even millions of plants that are raised annually find a market. The chief outlet, we are told, is in the Highlands, where vast areas are planted yearly, and where economic forestry is carried out scientifically.

The Larch appears to be in the greatest demand, judging by the quantities raised. There are two forms of it, one raised from seed imported from the Tyrolean Alps, the other from Scotch seed, and between the two sets of seedlings, even in the seed beds, there is a great difference, the native being the most robust, while on the other hand they are thinner in the bed; the Tyrolean is of a paler green, and the seedlings are crowded in the beds, thereby indicating that the Tyrolean seed germinates best. Great attention is paid with regard to the ultimate treatment of the seedlings so as to produce a healthy stock; they are transplanted from the seed beds into close lines, and the first or second year every other row is removed, so that there is then free scope for the light and atmosphere to play upon the remaining plants, and thus inducing a sturdy growth. Larch may be seen here in all stages, from this year's seedlings up to strong plants three, five, and more years old.

The Scotch Pine is grown on an equally extensive scale, and in this, too, there are two forms; one, considered the choicest, being what is called the true Highland Pine raised from seed obtained from a particular locality, one of the few where *Pinus sylvestris* is a true native. This is considered superior to other forms of the stock; therefore is thought much of. Of course the rearing of all the deciduous classes of trees as well as evergreens is carried out largely, there being vast areas of Birch, Spanish Chestnut, Beech, and other trees.

Rotation of crops is carried out strictly, for it is found from long experience that a change of crop is absolutely necessary as regards the successful cultivation of forest trees. Hence large tracts are put under green crops after they have been occupied for some years by trees, *i.e.*, cropped with either a root or a Grass crop, preferably the latter, and the Italian Rye Grass is found to be the most profitable. Dairymen rent the plots or buy the Grass, and also return to the land liquid manure, a reciprocal process found to answer admirably. Without good land to begin with and

this systematic rotation of crops, the rearing of forest trees could not be carried on with remunerative results.

THE LAWSON COMPANY'S NURSERIES.

THE nurseries founded by the late Mr. Peter Lawson are of world-wide celebrity, and though not so extensive as they formerly were, still sustain their reputation in the hands of the Lawson Nursery and Seed Company, Bangholm Nursery, the principal one, and the branch establishments, New Golden Acre, Granton Road, and Windlestrawlee, are all near Edinburgh, and within a short distance of each other. Probably no nursery in the United Kingdom commands such a unique prospect as does the Bangholm Nursery, which covers a very extensive area. It is one broad gradual slope towards the town, and from the long walk which runs for several hundred yards through its centre may be seen all the principal buildings, backed up by the Calton Hill, Arthur's Seat, and Salisbury Craigs, a rich panoramic view seldom met with. Each nursery is devoted to one particular branch; for instance, the Bangholm is entirely devoted to hardy trees and shrubs and their propagation; the Windlestrawlee to forest trees, fruit trees, &c.; while that in the Granton Road contains the bulk of the plant houses.

The Bangholm is a beautiful nursery, quite unique in its way, for in few other nurseries can be seen such fine specimens of Coniferae, to many of which quite a historic interest belongs. For example, here is the original specimen of *Cupressus Lawsoniana* from which the thousands, indeed one might say millions, of plants disseminated about the country had their origin. We had long wanted to see this interesting specimen, now a comparative veteran and a scrubby bush compared with the magnificent examples there may now be met with about the country. Its trunk is of considerable girth, and at a rough guess we should say the top is about 20 ft. high. From top to bottom it looks as if it had times out of number been denuded by the propagator's knife, and no doubt a very respectable fortune has been made from this one tree. There is, however, probably not a more variable species amongst the whole family of Conifers than this, an instance of which may be seen in this nursery where there are no fewer than twenty-one named forms more or less distinct, and these probably do not embrace all raised in gardens. Everywhere about this nursery one sees grand specimens of Coniferous trees fast attaining maturity, while vast breadths in a juvenile stage may also be found, so that a thorough study of the Coniferous tribe may be made here. The collection of Coniferae here is, indeed, as one might expect, an exceptionally rich one; there is scarcely a species or variety unrepresented either by small or large specimens. We observed thrifty examples of *Torreya myristica* doing well quite in the open, also *Salisburia adiantifolia*; but what impressed us most were the vast masses of such kinds as *Picea nobilis*, *Nordmanniana*, *concolor*, and *cephalonica*, which, when seen about 2 ft. or 3 ft. high, have a strikingly beautiful effect, so different from seeing them as isolated specimens. Throughout the nursery there are dense tall hedges composed chiefly of Yew; these enclose spaces a few rods square, so that by this means ample shelter is provided in an otherwise very bleak situation. The nursery is traversed in all directions by good, wide, dry walks, margined by borders containing small and large specimens of choice trees and shrubs, so that a profitable and most enjoyable hour or so may be spent in this nursery without leaving the paths. One of the particular features of this nursery is the exceptionally rich collection of *Rhododendrons* which it contains, and which includes some grand examples of many years' growth, amongst them being some highly interesting hybrids. For instance, Mr. Syme, the company's general manager, pointed out to us some crosses between *R. Aucklandi*, one of the grandest of all the North Indian species, and *R.*

campanulatum, one of the hardiest of the Himalayans. The results of this cross are fine bushes, which appear to be luxuriating in the Edinburgh climate, and if they flower freely they must indeed be beautiful. There are many other interesting hybrids between the common hardy kinds and the tenderer Himalayan species, and of course the collection of the ordinary hybrids of ponticum and catawbiense is a rich one. Bamboos grow admirably here; the hardiest are found to be *B. Metake*, *mitis*, *arundinacea*, *Fortunei*, *gracilis*, *viride*, *glaucescens*, and *Simoni*. One would hardly expect to see the Japanese *Acers* (*A. polymorphum* and its varieties) thrive as they do here, though, of course, not so well as they do with us in the south. Speaking generally, we think it a mistake for our Scotch friends to pay much attention to them, seeing that as good effects may be had in ornamental planting by the judicious use of such handsome Maples as the varieties of the common *Sycamore* or *Plane*, as it is called in Scotland, the variegated *Negundo*, and the beautiful forms of *A. platanoides*, particularly *Schweedleri*. The collection of other deciduous trees is a very rich one, as may be surmised from the bulky catalogue issued by the company, and the evergreens, particularly *Ivies* and *Hollies*, are in like manner fully represented. Among the latter we noted the neat little *I. crenata*, a species one does not meet with in every nursery. Its compact habit of growth and its dense foliage render it distinct from any other *Holly*, and its extreme hardness greatly increases its value. The houses in connection with this nursery are devoted chiefly to propagating trees and shrubs of the choicer class, and here it is where *Clematises* and similar things are manufactured by the thousand, and where seedling *Coniferae* are raised on even a larger scale. As an instance of which, there is in the propagating department at the present time something like 10,000 seeds of *Aracaria imbricata* in various stages of germination, a quantity sufficient, one would think, to stock the whole of Europe.

The **Granton Road Nursery** contains, as we before remarked, the majority of the glass-houses, a score or so in number, all filled with a great variety of plants required in a general nursery trade. The principal kinds grown on a large scale are *Caladiums*, *Begonias*, *Ficus elastica*, *Ferns*, *Dracenas*, *Crotons*, *Cordylines*, and particularly *Palms* which are raised and grown by the thousand, *Cocos Weddelliana*, *Areca rubra*, *Chamærops Fortunei* being specially remarkable for large numbers. A large amount of glass is devoted to plants for supplying cut flowers, especially *Tea Roses*; and among other less common subjects for cutting purposes we noted *Dipladenia boliviensis*, the blossoms of which are particularly useful at this season. They are about the size of a crown-piece, funnel-shaped, and pure white with an orange-yellow centre. If grown well, as it is here, this *Dipladenia* produces an abundant and continuous crop of bloom. Another plant, quite out of the ordinary way, was *Anopterus glandulosa*, a shrubby plant with large, evergreen foliage something like that of the broad-leaved *Holly* (*Ilex latifolia*). It bears erect racemes of creamy white blossoms, which have a pretty effect in a greenhouse. It is said to be quite hardy in the warm southern counties, such as Devon and Cornwall. Another interesting plant we took note of here was *Cupania filicifolia*, a shrubby plant with very elegant foliage, resembling that of some *Ferns*; *Doryanthes excelsa*, too, we saw here, though seldom found in nurseries grown so well. It makes quite a noble plant, its long spreading foliage particularly fitting it for vase decoration.

We had no time to see the forest tree nursery known as *Windlestrawlee*, where many scores of acres are devoted to the raising and nursing of all kinds of forest trees, a branch of trade which in most of the Scotch nurseries is carried out on a large scale. We, however, saw enough in other departments to assure us that the contents of this establishment must also be well worth a visit by all interested either in forest or ornamental planting.

MESSRS. METHVEN'S NURSERIES.

THIS firm, whose headquarters are in the Leith Walk, has three branch nurseries, viz., Warriston, Inverleith, and Gogar. The Leith Walk department is of considerable extent, and is traversed throughout its length by a path which cannot be far short of a quarter of a mile. Skirting this path on either side are borders of choice shrubs, chiefly evergreen, and amongst them an extensive collection of *Hollies* and *Aucubas*. The *Hollies*, indeed, form one of the chief features of this nursery, and certainly they are uncommonly fine—good, symmetrically grown specimens in the best of health, ranging from 1 ft. to 6 ft. or 8 ft. high. In a large collection like this it is interesting to observe how a few varieties predominate, plainly showing that they are in the greatest demand. For example, among the green-leaved varieties *Hodgensi*, a well known and deservedly popular *Holly*, and *Shepherdii*, otherwise called *nobilis*, are more largely grown than any other green kinds, of which there are about thirty. Among other varieties specially noteworthy was *latispina*, a kind remarkable for its handsome broad foliage and the peculiarity of having broad based spines. Mr. Hugh Fraser, Messrs. Methven's manager, directed attention to a small-leaved sort named *myrtifolia*, a neat growing kind, dense in foliage, and admirably suited for planting where compact growing subjects are desired. There is likewise a golden-leaved variety of it. Out of about three dozen variegated kinds there are a few that are in much greater demand than others, and these appear to be *Regina*, or *Golden Queen*, *Watereriana*, *Handsworthensis*, *Lawsoniana*, and *Moonlight*. These are all extremely handsome, and now established favourites everywhere. Of species, other than *Aquifolium*, we noticed *I. balearica*, *Dahoon*, and *opaca*, all of which appear to thrive well about Edinburgh. The common *Holly* is grown largely for covert planting and for shrubberies, the plants varying in height from 1 ft. to 2½ ft. or 3 ft., and all are subjected to a systematic course of transplanting.

Rhododendrons are grown extensively in this nursery, both the finer varieties and the common *R. ponticum*, seedlings of which are raised on an extensive scale for covert planting. Of course one cannot see *Rhododendrons* grown in Edinburgh as at Knap Hill or Bagshot, for the soil is not at all peaty; nevertheless, we observed in one quarter several large bushes which were evidently near relatives of some of the Himalayan species, such as *R. campanulatum*, *Hookeri*, &c., and they appeared to thrive capitally in full exposure. What the flowers of these are like we cannot say, but, judging by foliage and habit, they must be at least distinct. *Cotoneaster buxifolia* and *Simonsi* are other shrubs extensively grown for coverts, for which they are evidently admirably suited, being of quick and dense growth, and, moreover, berry-bearing shrubs. *Berberis Aquifolium*, *Pernettya mucronata*, *Leycesteria formosa*, *Snowberry* (*Symphoricarpos racemosus*) are also grown largely by this firm for covert planting besides the commoner shrubs, such as *Laurel*, *Juniper*, *Aucuba*, *Box*, *Dogwood*, *Spurge Laurel*, *Portugal Laurel*, &c. Every available square yard of ground in this nursery is occupied by thrifty stocks of the various classes of trees and shrubs, particularly those used for forest planting, a branch of business largely carried on by this firm. Fruit trees are also grown on an extensive scale, *Peaches*, *Nectarines*, and similar trees being trained on high walls, which cross the nursery transversely.

The houses are, as one might expect, filled with a variety of plants, which for the most part are well grown, perfection being given to those that may be relied on for a good yield of cut bloom, which is here, as in other Edinburgh nurseries, in continual demand. Among plants in bloom out of the ordinary run were the pretty little *Sollya linearis*, every plant of which bore wreaths of tiny Bluebell-like flowers; *Beaufortia purpurea*, a shrubby Australian resembling the *Bottle Brush* in its mode of flowering, but the "brush" in this case is purple instead of red. Among *Heaths* none were finer than *E. cerin-*

thoides, a bright red flowered species often recommended in THE GARDEN as a good autumn greenhouse plant, and we also noticed *Rose Little Pet*, the small white flowers of which are produced so plentifully even on small plants. *Crotons*, *Caladiums*, *Camellias*, *Azaleas*, and particularly *Chrysanthemums* are likewise grown well, nor must we omit to note the housefuls of pot Vines, which appear to be one of the specialties of this firm.

The **Warriston Nursery** is in the Inverleith Road, opposite the entrance to the Botanic Garden, and is under the management of Mr. Mackenzie. This branch establishment contains the greater part of the ornamental *Coniferae*, all of which are displayed to the best advantage. On either side of the central path is a series of crescent-shaped beds, filled entirely with small specimens, arranged so that one mass either contrasts or harmonises pleasingly with that adjoining. A striking effect is thus obtained, and under this kind of treatment the visitor is enabled to see at a glance the respective merits of the different varieties. All the smaller growing kinds, such as *Retinosporas*, many of the *Cupressus*, *Junipers*, *Thujas*, and *Taxus* are grown extensively in a small state for window boxes and for planting in small beds in winter, which in summer are occupied by tender plants, and we know of no better plan to obviate the unsightliness of bare beds during winter and early in spring than filling them with small *Conifers* arranged as in this nursery, not in rows of this and rows of that, but in bold masses, so that each variety may produce an effect in itself. The collection of *Coniferae* here is apparently a large one, and, besides all the commoner kinds which one expects to find in every large nursery, there are numerous rare and uncommon sorts. Among these we notice the very handsome *Abies polita*, a Japanese *Fir* that will doubtless form an important feature in gardens and ornamental plantations in future years. It attains a firm growth in this nursery, and shows its ornamental character admirably. The true *A. ajanensis* and its near ally, *A. Alcoquiana*, we found here, as well as *A. Parryana* and *Engelmanni glauca*, both among the most select of ornamental *Firs*. The *Douglas Fir* (*A. Douglasi*), *A. Albertiana*, and *A. Menziesi* are also grown largely for planting in numbers, and are kept in breadths consisting of various-sized specimens. *Picea nobilis* and *Nordmanniana* likewise find favour among Scotch planters, judging by the quantities grown, and the same may be said of about a dozen other kinds. *Picea nobilis glauca* we saw here more distinct from the ordinary type than elsewhere, and certainly it is a highly ornamental variety very unlike any other. Some specimens of *Thujaopsis dolabrata* are exceptionally fine, and a singular fact we noticed is that the variegated form of it is more robust than the green—just the reverse of the usual order of things. Of *Retinosporas* no fewer than a score of varieties may be found here, and they form quite an attractive feature in themselves, so neat and compact in growth are they and so diverse is the tinting of the foliage. Besides *Coniferae* there are hosts of other ornamental trees and shrubs, both deciduous and evergreen, and all, like the *Conifers*, well grown.

Glass structures.—There are numerous houses in this nursery, nearly all of which are occupied by plants for supplying the incessant demand for cut flowers. In one of the houses we observed some scores of *Pelargoniums*, chiefly consisting of the market and decorative varieties, all of which were of good size and admirably flowered for the season. These, one of Mr. Mackenzie's specialties, are as good as any in some of the large florists' establishments about London where the *Pelargonium* receives especial attention. Most of these *Pelargoniums* formed the chief part of Messrs. Methven's group at the great show, and, being so distinct from anything else in the exhibition, they attracted plenty of admirers. Another house is occupied entirely by *Ferns* for cutting purposes, and others are filled with *Dracenas*, *Palms*, and such like plants for table adorn-

ment. Tea Roses for cutting occupy another house, the kinds being chiefly Niphetos, Maréchal Niel, and Gloire de Dijon, all planted out. The Eucharis amazonica is grown extensively for cutting, planted out in free soil in beds in a small house, and this plan, Mr. Mackenzie assured us, answers admirably, a profuse crop of flowers being obtained in this way almost throughout the year, and by a system of checking growth by lowering the temperature and withholding water the plants may be induced to throw up a crop of flowers at any given season. It would be interesting to know more about this system of planting out Eucharis, for it is by no means a common practice; indeed, this is the first instance in which we have seen it carried out largely. Chrysanthemums, another great source of cut flowers, are grown abundantly the well known Elaine and Rosinante varieties being depended on chiefly for the earliest bloom. Early flowering varieties are also numerous grown for cutting during August and September, and are found to be most useful. The new variety, La Petite Marie, for which Mr. Ware was awarded a certificate at South Kensington some time since, is highly spoken of here, and is much appreciated. It is very dwarf, not more than 6 in. or 9 in. high, and flowers so profusely as to form quite a mass of white bloom. Heliotropes, including the new White Lady and President Garfield, two of the very finest sorts, double flowering Primulas, both pink and white, Dendrobium nobile, and Tree Carnations are also all cultivated extensively here for supplying cut bloom. W. G.

FRUIT GARDEN.

APPLES AND RED SPIDER.

WHILE making an examination lately of some orchards and gardens I had my attention called to the prevalence of red spider on the Apple trees growing in a very old garden, while in a large orchard close by the trees were almost free from that pest and at the same time nearly destitute of fruit, while almost every tree in the old garden was loaded, though evidently they had suffered from spider. Three-fourths consisted of a kind much resembling Stirling Castle (a variety gaining favour every year) named Seaton House (probably a local name), which is said to bear heavy crops every year, whether there are Apples elsewhere or not. The late gardener evidently had taken the trees in hand the few years they were under his charge, and I have no doubt from the results of his labours he would have got them into perfect health, but his death put an end to the important work he was so successfully carrying out. This veteran cultivator did his work skillfully. He cleared all the surface soil from the roots, gave them a good soaking of manure water, placed a good coating of fresh soil mixed with strong manure over the roots, and over this spread the natural soil. The system is old enough, but little good often results from its adoption because of the imperfect way in which it is carried out. The manure is frequently placed round the collars of the trees instead of at the tips of the roots, grown far out into the surrounding soil, where they have consumed all the food within their reach and are matted together in a subsoil almost inert. When these roots get abundance of food, solid and liquid, applied to them, the effect on the foliage and fruit is obvious. The large, dark green leaves and large, well-swelled highly-coloured fruit afford evidence of a change for the better. For example, there is a Stirling Castle in the garden referred to that was operated on in the way described. The trunk is old and gnarled, and has been cankered severely at some time, but the foliage is large, dark, and glossy, and the fruit is hanging in clusters all over the branches. It averages from 12 in. to 13 in. in circumference, and is of a fine colour considering the northern district in which it is growing. An application of manure to the trees in this garden, and an orchard of 7 acres or 8 acres in extent, might be considered by some to be a waste of labour and means; but if one is to realise results even less than those just recorded,

it would, in my opinion, be work which would well repay itself, and worthy of the consideration of proprietors of orchards in many of the fruit-growing districts in England where the trees are decaying from starvation. The climate good, but the roots neglected. M. T.

RESTRICTION AND EXTENSION TRAINING.

I AM pleased to hear Mr. Groom's expression of belief in extension training, but he generally qualifies it by doubts. I am aware he has had opportunities of both seeing and practising fruit tree culture on an extensive scale, and I am surprised he does not go in for extension altogether. I have no objection to training and pruning in the fanciful way advocated if I could see any good in it, but I cannot; but when I speak of extension or naturally grown trees, I do not mean wild trees, as some seem to think who write on the subject, but have clearly either never read what they criticise, or, having read, do not understand it. I quite agree with Mr. Groom that "unpruned trees are not always fruitful." Nobody has ever said they were; but what I maintain is, that they will bear as often, and better, and sooner than those trained fanciful pyramids and other shapes that cost so much time to produce, prune, and keep in order. If I am right on this point, would Mr. Groom advise me to prune and otherwise keep the trees in order? Herein lies the kernel of the whole matter. Nothing that either Mr. Groom or I can say will alter facts, and I think that with a little close investigation into the question we might arrive at a mutual understanding. I may, I think, be allowed to say that I am so confident, from accurate observation on the subject, that the extension system is the best in the case of Apples, Pears, Plums, Cherries, Peaches, &c., that I would, without a moment's hesitation, undertake to test it against the most accomplished cultivators and systems on the other side, and beat them quite in the matter of time and quantity of fruit, and be equal as regards general good quality otherwise.

Mr. Groom says if I had given another man a restricted tree, and enjoined him to keep it confined to a limited number of shoots, he 'would have been equally gratified with the result. That is not the question at all. The chances are that the man would have spoiled the tree; but I deny emphatically that the results would have been equal, for the very good reason that the restricted tree could not by this time have had the size and capacity to bear the same quantity of fruit. You cannot put a gallon of water into a pint pitcher. But, even supposing the results to have been equal, can Mr. Groom advance that as a reason for pruning the restricted tree? Surely as a business man he would not spend money and time in performing perfectly needless work. If the restricted tree would bear twice as much fruit as the extension trained one, there would be reason in the system; but this does not happen, but the reverse. I say the extension trained tree can be grown with a tithe of the labour bestowed on pyramids, &c., that it bears better, and that anyone, whether skilled or not, can grow it successfully. Unless Mr. Groom can controvert this, his case fails. I have often had shoots like the prolific one I mentioned, but this year crops are almost a failure. I showed the identical shoot and tree, with the Apples on them, to a member of the staff of THE GARDEN the other day.

I admit that the extension trained tree bears a little farther "from home" than the restriction trained one, and that the larger and more fertile shoots are sometimes broken by the weight of the crop they bear unless supported, but surely those who plant orchards do not grudge the trees the extra air and room. It is the nature of an Apple or Pear to grow thinly; it only gets crowded with shoots when we use the knife. Mr. Groom's statements, to the effect that "so long as there are all sorts and conditions of gardens, so long will there be need for systems which best suit special requirements," I cannot see the purport of; but if he means by it that some gardens and

conditions suit the extension system, and others the restrictive, I join issue with him, and say that wherever restriction succeeds extension will succeed as well or better. This much is obvious in the very nature of things. It is not the climate or soil, but the training and pruning that is the question. I can also believe all he says about Barham Court, but that is simply begging the question. Has the other plan been tried as fairly there, and has it failed? Nor must Mr. Groom confound "dwarf" with "restricted" trees, which he seems to do. A dwarf tree is as amenable to the extension system as the largest one. It is only a question of stocks, but there is a vast difference between the tree on a dwarf stock, that is also pinched and pruned almost to death, and the tree that is allowed to grow and develop its head freely. The two do not admit of comparison. The whole matter is almost a question of top growth. I condemn the restrictive trained tree, whether it be on the natural or the dwarf stock, and this should be borne in mind. The small trees not long since planted at Chiswick, or in some of the market gardens and elsewhere, are not restrictive trained trees, but grown on the plan recommended by extensionists, and have been produced with the least amount of trouble and expense, and are most prolific. I want to make this clear to Mr. Groom and others, so that in future we may be able to discuss the question strictly on its own merits. J. S. W.

Classification of Peaches.—Although the general appearance of Peach trees in outline, foliage, and growth is very similar in all varieties, yet pomologists have been able to arrange them into classes and sub-classes, which enable the grower to distinguish varieties. First, Peaches may be classed as pale, or white-fleshed, or as yellow-fleshed. This constitutes a very important distinction. White-fleshed Peaches as a rule are less firm than the yellow, and consequently do not bear removal as well, neither are they so profitable for drying. It must also be said that they are more subject to the leaf-curl than the yellow varieties. There are, however, exceptions to the above rule. Second, Peaches are classed as free or cling-stones. This also is a very important distinction, and one that is probably to exercise a material influence upon Peach production. The cling-stone Peach is especially suitable for drying, and will probably be largely grown for that purpose in the near future. Still another classification or sub-division is founded upon the peculiar formation of the leaves. The leaves of some varieties are deeply notched or serrated, and have no glands or knobs on the foot-stalk or leaf. Others have leaves much less deeply notched, and have glands on the foot-stalk. Some varieties have round or globose glands, and some have kidney-shaped or reniform glands. This last sub-division, as founded upon the formation of the leaves and foot-stalks, is important, because it has been fully demonstrated that those varieties which have serrate, glandless leaves are lacking in constitutional stamina, and are especially liable to become mildewed.—*Pacific Rural Press.*

SHORT NOTES.—FRUIT.

Fruitless trees.—I have a Mulberry that never bears fruit, though more than thirty years old; also a very good Green Gage Plum tree and some Pears that bear an abundance of blooms, but no fruit. The roots have been cut in, and last year the bark of the trees was cut or slashed, still no fruit. Can anyone suggest a remedy?—L. E.

Large Peaches.—Mr. Brittain, Lannoweth House, Penzance, planted two years ago a Walburton Admirable Peach. It was two years old when he purchased it. This year it has borne sixteen Peaches, the weight of the heaviest eight fruits varying from 10½ oz. to 17½ oz., and measuring in circumference from 11 in. to 12½ in.

Unfruitful Vines.—I have a viney containing some fifteen six-year-old Vines, two or three of which have never done well, and I have made up my mind to remove them. Would it be better to replace them with young canes or train a lower shoot from the Vine next them to form a cane in their place?—H. W.

Peach Thames Bank.—This appears to be a good late Peach, judging from some which I saw the other day at Redland Lodge, Bristol, on the back wall of a Peach house. The fruit was yellow on the shaded side, and deep red where exposed to the sun, something in the way of Noblesse, only much redder. It comes in just before Walburton Admirable; the tree is a good grower, sets well, and is hardy. This is said to be a good Peach to plant to succeed the early kinds. It was raised by Mr. Rust at Broom House, Fulham.—J. C. Farnham.

KITCHEN GARDEN.

SHALLOTS AND GARLIC.

THESE esculents are in every way so nearly related, that cultural notes given in reference to the one may safely be taken as suitable for the other. Except in rare instances, however, their cultivation is somewhat neglected, a circumstance owing no doubt to the fact that there is not much demand for them. That, however, ought not to be accepted as a reason for neglecting their culture,



1. Common Shallot.

for though we may be required to grow but few, it is surely worth while to grow those few well. The most suitable soil for them is a strong loam that has been manured the previous autumn and left to mellow under the winter's frost. This should be broken down smoothly with a rake early in February, and the bulbs should be planted in rows 15 in. from each other, and 9 in. apart in the row. No dibber should be used; the bulbs should be pressed into the ground with the fingers only. As soon as they begin to make roots it is



2. Jersey Shallot.

necessary to give them another press down, or the roots will upheave the bulbs out of the ground. Beyond hoeing to keep the surface of the soil open, little else in the way of culture is needed to

insure success. In order to obtain handsome produce, select the finest and best shaped bulbs for planting. As regards varieties, they are not numerous, and what there are vary but little in any respect except in colour and size, the quality of all being about alike, and all are no doubt more



3. Garlic.

improved by constant selection of the finest for reproduction than by seed. The ordinary pale red-skinned (Fig. 1) is perhaps the most profitable kind to grow; it is certainly far more productive and harder than the larger deep red-skinned Jersey variety (Fig. 2). There is also a good silver-skinned kind in cultivation, which from the appearance of the bulbs might easily be mistaken for Garlic, though it is somewhat longer than the bulb shown in Fig. 3, which is the common English variety of Garlic, and the only kind that need be grown. W. W.

Lettuce-destroying insects (*S. R. Ware*).—The grubs you forwarded are the caterpillars of the Heart and Dart moth (*Agrotis exclamationis*). The means you have used to destroy them are very good. Watering the earth well round the plants with soap and water, 1 lb. to 16 gallons, will bring them to the surface quickly. Lime or soot laid thickly on the ground and dug in will keep them away.—G. S. S.

Keeping Celery.—Pitting Celery is, I apprehend, unnecessary in this country to keep it till the end of spring or into summer. In the severest of winters I never found it difficult to keep it as late as the times just named. If such dwarf kinds as Turner's Incomparable are grown, or any of its many aliases, a little dry litter thrown over the crop during severe frost, and removed when a thaw sets in, will keep it through the season into May. I have had it as late as June. Last year being mild, Celery was not easily kept, as the plants ran quickly to seed; but even then we had no difficulty in keeping the crop till April.—M. T.

SHORT NOTES.—KITCHEN GARDEN.

The Mummy Pea.—I am much interested in the Mummy Pea. It is a great favourite here, not only for its culinary, but for its decorative properties. It is so beautiful as a cut flower, that that is the only use we put it to. I should like to know its history.—P. H. N.

—Mr. Archer-Hind's Mummy Pea is, I apprehend, but the old Bunch Pea, curious, but worthless.—A. D.

—The Mummy Pea which I grow here is quite white when ripe; the flower is also quite white. I may add that Mr. Ellacombe has forwarded me two pods of his Mummy Pea, and so far as I can see it is the same as mine.—GEO. CARPENTER, Rydens, Walton-on-Thames.

Laxton's Earliest of All Pea.—I noticed the remarks on this Pea by Mr. Ward (p. 232), and as I have grown it for two seasons, I can speak confidently in its favour. It is the earliest really good Pea we have ever had. I compared it with William I. It is earlier than that variety, and has more Peas in a pod; I found eight, while William I. had only six. It is of a good colour, and when cooked excellent in flavour.—J. DOUGLAS.

TREES AND SHRUBS.

A TREE LAND.

Puget Sound.—Professor C. S. Sargent, of Harvard College, has made an attempt, on behalf of the United States census, to compute the length of time during which the timber supply of the country will last at the present rate of consumption. The result of his inquiries will soon be made known; but enough of the labour of tabulating his statistics has been already performed to indicate that the white Pine will be gone in twenty years. Other varieties are fast becoming extinct. But it has also been discovered that there are valuable kinds of timber which exist in such quantity as to defy the ravages of the woodcutters for several generations of men to come. The most magnificent body of timber on the continent has as yet been scarcely touched. It grows on the land penetrated by Puget Sound and the Columbia River, in the extreme north-west of the United States. So enormous is the quantity of valuable building timber standing in virgin forests in that region, that it is estimated to be equal to the whole sum of the wood cut in the United States from the first settlement of the country down to the present time. It would not be fair to credit Professor Sargent with this glowing estimate. The statement originated in the mind of a clever writer, who recently prepared a description of the far North-West on behalf of a great railroad corporation, which is now constructing an overland line of travel, and which has lands for sale to immigrants. Nevertheless, it is apparently not far from the truth. The whole of the Pacific coast from the 42nd parallel to the 49th, and beyond, and from the edge of the ocean for about 125 miles inland—that is to say, to the Cascade Mountains—is covered with incomparable timber.

The region is full of other wonders; but to one who, like the writer, has just returned from a long investigation of its varied resources the vision most frequently recurring to his mind is that of the enormous extent of its gigantic and singular forests and the extraordinary quantity that grows upon each acre of the land. If all the timber cutting in the United States were instantly transferred to the shores of Puget Sound (whose sinuosities create a coast line 1800 miles long), the forests of that region alone would supply all the demands of the country for a period of thirty years at least. And the Puget Sound forests do not comprise one-fifth of the whole quantity of available timber. Fifty and often eighty available trees grow upon an acre of ground. The lumbermen disdain to establish a logging camp in any tract that will not yield 25,000 ft. of square logs to the acre. The average yield is from 30,000 to 50,000 ft. It is not unusual to find 200,000 ft. of good available timber upon an acre. The principal tree in these forests is

The yellow Fir, but there are three kinds of valuable Cedar and three of Pine trees to be found scattered among the Firs, with Hemlock, Spruce, Oak, and Laurel in small quantities. The trees all attain great height and size, owing to the mildness of the climate and the excessive rainfall. The majority of the States of the Union are blessed with a precipitation of from 30 in. to 40 in. of rain every year. Along Puget Sound the fall is from 50 in. to 73 in. every year. Fog and rain are so prevalent in the winter time that a visitor will often spend a fortnight in the little towns along the Sound without once catching a glimpse of the splendid scattered peaks which lift their snow-clad tops very often 14,000 ft. above the level of the forest-covered plains below. The moisture makes the big trees. The Firs grow from 5 ft. to 9 ft. in diameter and from 150 ft. to 280 ft. high. Occasionally one is felled which measures 300 ft. in length. Cedars average 5 ft. through and 120 ft. in height. Pines are a little larger and taller. The forests clothe the country to the very edge of the ocean and to the shores of Puget Sound, and they inspire all who see them with singular enthusiasm.

The Fir of Puget Sound came to the notice of the officers of the United States Navy more than thirty years ago. One or two war ships were sent in there to protect a little company of settlers who had pushed into that country somehow and were menaced by the savage Indian tribes of the Sound. Word was sent to Washington that it seemed desirable to test the qualities of the timber for shipbuilding. Admiral Farragut caused a lot of it to be sent to the Navy Yard, near San Francisco, for examination. Afterward special tests were made with a view to ascertaining the sizes of scantling required to construct a vessel of Fir having the same strength as though it were built with eastern white Oak. Specifications for the sloop of war *Manzanita* were prepared from the results of these experiments. The Fir was found to be a satisfactory material for wooden vessels, owing to its toughness and buoyancy. It was as strong as white Oak and much tougher, and it weighed only 43 lb. to the cubic foot, while Oak weighed 56 lb. Several navy vessels and a large number of merchantmen have been built of Fir in consequence of these experiments. Not the least of the fascinations of the timber to the shipbuilders has been the fact of its great cheapness. Ship-timber on the Atlantic coast costs from \$35 to \$50 per thousand board feet, but the Puget Sound builders can buy all the stuff they want from the sawmill, in whose vicinity they establish their yards, at a price not to exceed \$10 a thousand feet. In purchasing the lumber to construct vessels of 1800 tons register they save \$20,000 from the sum which would have to be paid in an eastern yard for the white Oak and Pitch Pine for the same vessels. Were it not that they have to pay excessively high wages—often \$4 and \$5 a day—they would in ten years' time make Puget Sound the cheapest market on the continent for the purchase of wooden vessels. In spite of all disadvantages, the seven or eight shipyards on the Sound have already put an end to the construction of wooden vessels in the east for use upon the Pacific coast. The length of the yellow Fir is also a point in its favour for shipbuilding. On the Atlantic coast and along the northern lakes the average length of frame timber and planking is 40 ft. It is rare that sticks of 60 ft. can be obtained for any purpose. The Puget Sound shipbuilder uses scarcely anything less than 90 ft. in length, and squared logs 124 ft. in length have been employed as keelsons. The long flexible rod of wood which the designers of vessels lay upon the floor of their draughting-room and bend to pass through certain points in order to draw the true curves of the water-lines is often 100 ft. long among the builders of the Sound.

Duration.—These forests are the more likely to last, inasmuch as they constitute an almost impenetrable jungle. The woods are full of fallen timber. The trees are so tall, that the leverage brought to bear on their tops by a gale of wind is enormous. Every storm causes a number of gigantic trunks to fall to the ground, and the big trees lie at the feet of their surviving sisters, crossing one another in every direction in inextricable confusion. There is almost as much timber lying prostrate on the ground in these forests as there is left standing. Roadways are made through these thickets and natural barricades with extreme difficulty, and a road once opened is invariably closed again for several days by every gale. The Fir forests consequently present an almost impassable barrier to the progress of the settlement of the country. Timber cutting must begin from the outer side on the shores of the ocean and the Sound and go in towards the heart of the country gradually. The land is poor, and when once cleared is not worth cultivating; and there will be no danger, therefore, on any account of companies of settlers penetrating the wilderness in advance of the logging camps and establishing villages and towns away inland. There will be no inducement, therefore, for the locomotive to enter into the heart of the forests, and the burning down of large tracts of timber by fires kindled by the railroads, now so common in the East, is a calamity from which the Puget Sound country will probably be spared. In the East forest fires

vie with the lumbermen in destroying our supplies of timber. On Puget Sound it will be saved for the use of man.—*Times*.

WHITE IRISH HEATH.

(*MENZIESIA POLIFOLIA ALBA*.)

ST. DABEOC's or the Connemara Heath is a tolerably well-known shrub in English gardens. It is certainly a neat and beautiful little plant, Heath-like in growth, and during several weeks in autumn it is profusely loaded with tiny purplish bells. Of these there are several varieties, of deeper coloured than the type called *atropurpurea*;



White Irish Heath (Menziesia polifolia alba).

a second dwarfier called *nana*; a third, *bicolor* or *striata*, with flowers both white and purple; and a fourth (*alba*) pure white, than which one could not name a lovelier little shrub. The accompanying engraving is a good representation of a spray of an exceptionally fine form of it, with larger bells than usual, and somewhat different in shape. Their pure waxy whiteness, contrasted with the rich green foliage, produces a pleasing effect, and the slender sprays look well when cut and loosely tossed into small glasses, in which they last in good condition for a considerable time. Like the original Irish Heath, it is a good plant in any part of the garden, but it looks particularly well in broad masses, not mixed with other varieties, but by itself, where the purity of its flowers can be seen

to advantage. Good spreading bushes of it are admirable when well placed in the rock garden, and as a marginal fringe to a choice shrubbery of *Rhododendrons* or other peat-loving shrubs it is likewise excellent. In every case it must, however, have a good peaty soil to grow in if good, healthy plants are desired, and the situation must be moderately dry, but if the soil is very sandy it will succeed in even a damp situation.

W. G.

RHODODENDRONS AND AZALEAS.

OCTOBER is probably the best month in the whole year for transplanting these plants. Intending planters should therefore make any such preparations as may be necessary at once. In some cases this means a good deal; in others where the soil is favourable to their growth it is a comparatively easy matter to make ready for any number of plants. For my own part I do not consider the undertaking very formidable, even in cases where the soil has to be made for them, because I believe there are many gardens in which they would grow in the natural soil of the place if they were only fairly tried, and there are still many more where they would grow freely without any great outlay of time or money in the preparation of the soil. In deciding what preparation is necessary there are two things to consider—the capacity of the roots and the nature of the soil. I think it will be readily granted that the capacity of the roots of *Rhododendrons* is somewhat limited. Their silk-like character renders them incapable of grappling with any harsh or lumpy substances. In a suitable soil the roots multiply at a great rate; therefore, in selecting a soil for them it is evident it should be one that is made up of minute particles, such as peat and the friable loams in which they do so well; and in preparing a compost in which neither of these forms any part it is plain they must be imitated as nearly as circumstances will permit in order to ensure success. To assist the inexperienced in preparing a suitable compost, I may be allowed to say that I consider it to be altogether erroneous to suppose that they will only thrive in a peaty soil. Here acres of them grow in the most luxuriant manner in loam, such as I have just described, and there are gardens in which they thrive in a prepared soil in which neither peat nor loam exist to any appreciable extent. The preparation consists of turf cut from a pasture 2 in. or 3 in. thick according to its composition, and then stacked in a heap for six months before using. It is then cut up rather fine with a spade, and an equal quantity of thoroughly decomposed leaf-soil is added to it and well mixed together. In districts where sand is plentiful, one-fourth part of that may be added with advantage. The depth and breadth of space given to the roots is of considerable importance. In well-drained positions a depth of 3 ft. of soil is not too much, but experience shows that the actual depth is not of so much consequence if there is sufficient breadth. In a well drained soil they will work downwards if the soil suits them, but if they cannot find what they want below, they will extend in all directions on the surface and thrive equally well, assuming always that each plant is able to find fresh feeding grounds in an unexhausted state. This is an advantage to the cultivator who can apply fresh material as the roots extend. This I have proved in practice to be a good plan. Having to deal with a very large specimen belonging to the arboreum section, the roots of which had extended to the outside of the position assigned to them, and as it was inconvenient to make an extension for the roots on either side, it was decided four years ago to see what a surface-dressing would do to restore the plant to its usual health. For this purpose two cart-loads of soil were brought and spread on the surface immediately over its roots, and the change in the condition of the plant for the better has surpassed my expectations. It is now as vigorous in growth as at any time previous, and I feel sure if the top

dressings is continued at intervals of every five years, the plant will go on for an indefinite period. This, I think, is sufficient to show that the first outlay need not be of a prohibitive character. In the first preparation of the beds, however, a depth of 2 ft. is absolutely necessary for the future well-being of the plants, and in damp, low-lying situations it is a good plan to raise the beds a few inches above the surface, but not otherwise.

The disposition of the plants will depend in a great measure upon the space at command. In large gardens it is important that the effect to be created should be bold and pleasing. The outlines of the beds should be graceful and easy. Anything like imitation will be fatal to their appearance when the plants have attained a good size. Where there is a large space of ground surrounding them, clumps of three or four plants of one variety should be planted, so as to create bold effects. The colours also must be arranged, so as to contrast well with each other. For small beds one plant of each kind is sufficient to create variety, and for single specimens those of neat habit should be selected, as there are some so loose in growth that they are unsuitable for standing in prominent positions singly. In forming new plantations of Rhododendrons where expense is a consideration, I do not fill the whole space with the choicest kinds. It answers just as well to put in those that are intended to remain permanently at such a distance from each other as will ensure their having sufficient room in which to develop themselves to be effective, and then fill up the intervening space with the common Pontic kinds. In three or four years these can be removed, or as soon after the permanent plants require the room as possible. This is a much better plan than after a few years having to take up the whole or a great portion of the plantation, and rearrange it, because removal means a serious check at least for one year.

In the selection of varieties everyone will be guided by their own taste, but there are so many good and distinct kinds, that there is really no excuse for growing inferior sorts. As a type of each distinct colour I should select Kate Waterer for a crimson; Helen Waterer, white; Concessum roseum, rose; and Joseph Whitworth, purple. If I wanted to make up a dozen of the best, I should add to these John Waterer, rich carmine; Brayanum, vivid crimson; Lady Eleanor Cathcart, bright rose; Nero, bright purple; Minnie, white with orange spots; Everestianum, lilac; Eclipse, chocolate-crimson; and Maculatum roseum, dark rose. These, I feel sure, will not disappoint anyone; the only difficulty is out of so many to pick the best to please the varying tastes of different individuals. J. C. C.

THE BLACK WALNUT.

I AM pleased to see that Mr. Berry recommends planting this as a useful and profitable timber tree. It thrives remarkably well in many places in this country, growing as quickly as any of the common forest trees. Here at Highclere it succeeds well on a clayey flinty soil about 2 ft. or 3 ft. in depth, resting on the chalk formation. One specimen here is 74 ft. high, and the diameter of its branches is 84 ft. The girth of the stem at 4 ft. from the ground is 9 ft., and the stem is about 11 ft. in length. It then divides into four boughs, the average girth of each of which is 6 ft. It is said that Grass or shrubs will not grow under it, but here Grass luxuriates beneath it, and also Rhododendrons. One thing in favour of planting the Black Walnut as a forest tree is that rabbits do not injure it. I have known them to bark Tulip trees, Magnolias, and others close by, but not touch the Walnut, and even of the Grass which grows under it they do not seem fond. The Black Walnut does not ripen its fruit at Highclere, but I believe it ripens it in France and Germany, although it is not so large as that produced on its native soil in N. America. At one period this tree was found indigenous over a vast extent of the Eastern States,

and in good soil it often attained a girth of 16 ft., and some specimens have been known to exceed 24 ft. The value of its timber has made it almost disappear from its native habitats. Apart, too, from its value as a timber tree the Black Walnut ranks high as an ornamental tree; the graceful spreading form of the branches with their furrowed bark has a very pleasing effect when seen through the light green elegantly-pinnated foliage, and the feathery-looking leaves contrast finely with the dense foliage of the Spanish Chestnut, Tulip tree, and Magnolias with which this Walnut here is associated. S. ROSS.

Highclere Castle, Newbury.

A variegated Oak. In the park which surrounds Salton Hall, Haddingtonshire, there are many fine trees, and among them a variegated Oak which I never saw before. It is about 30 ft. high, well furnished with branches and leaves, and the latter are about as beautifully variegated as the foliage of *Acer Negundo variegatum*. I would be glad to know if this variety of Oak is rare?—CAMBRIAN.

Broad-leaved Laurel.—The finest-leaved Laurel (*latifolia*) we have ever seen has just been brought to us by Mr. Stevens from his garden at Byfleet. The shoot he brings has enormous leaves, one of which measures 10½ in. in length by 3½ in. wide. The shape of the leaf is that of the ordinary form of Laurel, and of a bright shiny green. This is the handsomest Laurel we know, and if it is as hardy as the Colchic or round-leaved varieties, it will indeed be an acquisition.

Fuchsia Riccartoni.—The Fuchsias mentioned by "G. B." (p. 244) as measuring from 6 ft. to 8 ft. high, and from 8 ft. to 10 ft. through, are no doubt large as compared with the ordinary growth in England. But it may be interesting to you to know that here, in the island of Valentia we use the Fuchsia Riccartoni for garden hedges, kept down yearly to the height of 5 ft. Fuchsia bushes of the size that "G. B." mentions are common. Our largest is 18 ft. in height, with a circumference measuring 200 odd feet.—K. K.

The Douglas Fir.—As I understand this Fir is being somewhat extensively planted in England as a timber tree, it may be of interest to know something of our experience here as to its durability. I use nothing else now in the construction of greenhouses for the parts that are likely to decay. In 1863 I had some posts of it set for a fence in low bottom clayey soil, and they are today, so far as I can see, as sound as when put in. They were sawn from a large tree. The white or sap wood is not durable, and will rot in the ground in two or three years, but the red wood seems almost indestructible.—DANIEL WITTER, *Denver, Colorado, U.S.A.*

The Euonymus as a seaside shrub.—If anyone were sceptical as to the merits of the Euonymus for seaside planting, a ramble through Gosport, Portsmouth, Southsea, and along the adjacent coast would convince them, for one can hardly find a garden, however small, without some member of the genus. As pot plants they are used in unlimited quantities; and wherever the State lands around the fortifications are laid out or kept as dressed grounds, the Euonymus forms the most conspicuous of evergreens for beds, hedges, and as single specimens. There are numerous forms of variegation in the Euonymus, but for hedges the plain green kind is the best. A beautiful, cheerful green it is, and all the more conspicuous when contrasted with the bruised and weather-beaten foliage of almost every tree that rears its head a few feet above the ground: for the ruthless winds, even in what are not exceptional gales, leave their mark on nearly all kinds of vegetation at all exposed to their fury; and when highly charged with briny particles they soon settle the fate of such trees or shrubs as are not suited to the locality. The Euonymus is certainly by far the most weather-proof of the limited number able to stand the full force of the sea breezes that at times threaten to tear up the trees or shrubs exposed to them by the roof. It

is not, therefore, surprising to find that, in proportion to top growth, a very large quantity of roots is necessary to keep them steadfast in the soil, and the Euonymus is a vigorous and abundant rooter.—J. GROOM, *Seafield, Gosport.*

INDOOR GARDEN.

Tacsonia blooms dropping.—What is the cause of this? My plant was planted out about eighteen months ago and showed blooms freely this summer, but they dropped just before opening. We have no inside borders, but have pits all round our conservatory, so I have built a space off inside the pit to form a border. The latter is well drained, and I have watered moderately—sometimes with manure water. A *Cobæa* planted with it is doing well. Our roof is glazed with plate glass.—J. B.

Lygodium scandens in a cut state.—This beautiful East Indian Fern makes an excellent subject for decorative purposes. I recently saw it in beautiful condition at Normanhurst Court, Sussex, the residence of Sir T. Brassey, whose gardener, Mr. Allen, grows it finer than I have ever before seen it. The back wall of the vineries is somewhat lofty, and there it is trained up some wires strained perpendicularly. To these the fronds cling, and make surprisingly fine growth, the fertile portions of which are always the most beautiful, and thus treated they are displayed to great advantage. When required for use in a cut state the requisite quantity can easily be secured when trained in this manner. For entwining around large epergnes, glass stands, or the stems of slender Palms, no better climber exists; for lightly arranged arches, too, it is excellent. It is somewhat liable to thrips, but when these attack it, ply the syringe vigorously, which will generally keep them in check. Trained on a balloon trellis, it makes a first-rate exhibition Fern. We have found it to do well in a mixture of peat, leaf soil, a little loam, and a liberal quantity of sand.—J. H. G.

Glass structures at Craig-y-nos Castle.—The winter garden here is a costly building, in which there is a representative collection of Palms, Tree Ferns, and other choice fine foliaged and flowering plants. The pillars are covered with *Tacsonia Van Volkemi*, *ignea*, and other creepers, and the body of the house is laid out in oblong beds and circles, in which different styles of arrangement are carried out according to the size and space at command. The oblong beds are well filled with *Camellias*, *Chamærops excelsa*, *Seaforthia elegans*, Tree Ferns, Orange trees, and other plants. The circles are planted with *Dracæna australis* and *Araucaria excelsa*, both of which are making vigorous growth; they are surrounded with ornamental foliaged and flowering plants. The back wall is covered with *Lapageria alba*, *Plumbago capensis*, and *Cobæa scandens*, planted amongst *Asplenium*, *Pterises*, and other Ferns on rockwork. Passing along the corridor into the conservatory, we notice well grown plants of *Coleus*, *Fuchsias*, *Begonia Weltoniensis* and *fuchsoides*, and *Balsams*. The conservatory is a handsome structure, having creepers trained over the pillars and the roof, *Lapageria rosea*, *Tacsonia exoniensis*, *Cobæa scandens variegata*, *Clematis indivisa*, *Passiflora palmata* are all here in a fine flowering state. Next we come to the range of forcing houses, which is in four divisions. The first is used for growing stove plants for table work; the second and third are employed for growing Melons and Cucumbers; the fourth is used as a Tomato house; and then there is a vinery 91 ft. long, divided in the centre, one end being devoted to Hamburgh and the other to Muscat Grapes. Considering the age of the Vines, they are in excellent condition and are carrying fair crops.—H. G.

Cinerarias. Mr. Roberts' interesting letter (p. 284) confirms the hint I gave that his *Cinerarias* had caught the disease from Groundsel. Even under glass the air may be saturated with the *Trichobasis* germs; they penetrate anywhere and everywhere. F.

ORCHIDS.

Vanda cœrulea.—Mr. J. B. Field, Stanley Hall, Bridgnorth, sends a fine spike of this lovely Orchid, carrying eleven expanded flowers and four buds, and representing one of the best varieties. Some of the flowers have pure white lips, while others are of the normal deep purple hue—an uncommon occurrence. Mr. Field says that this spike was cut from a plant growing in an intermediate house where it thrives admirably.

Ansellia nilotica, a very fine variety of the well known *A. africana*, is one of the brightest ornaments just now in the Orchid house at Kew. Both flowers and raceme are not only larger than those of *A. africana*, but the colours are more pronounced, and therefore it is very distinct from the older kind. This variety, which has been for years at Kew, has only lately been named by Mr. Baker. It seems to be scarce, for we have not seen it elsewhere, but it is a plant well worth the attention of orchidists.

Orchids at Clovenfords.—When at Tweed Vineyard the other day I was much struck with some *Odontoglossums* which I saw there coming into flower. One *O. Alexandræ* had four branching spikes, bearing in all 103 flowers; another of the same variety had forty-five flowers on one spike. A plant of *O. Andersonianum* had two strong spikes, one with twenty-five flowers on it, and the other promised to be equally good. I never saw so many *Odontoglossum Alexandræ* bearing branched spikes in one house before.—D. K.

Indian Crocuses, as the beautiful *Pleiones* are popularly called, are now among the gayest occupants of Orchid houses. At Kew they are already in full bloom, both *P. lagenaria* and *maculata*, and in order to prolong their beauty they have been placed in the vestibule of the Orchid house, where the air is cool; hence the flowers last longer and are seen to the best advantage. Among other Orchids in flower of special interest are *Ionopsis paniculata*, *Spathoglottis Fortunei*, *Lælia monophylla*, all of which we noted some time ago; while amongst commoner kinds there are good specimens of *Aerides suavisimum*, *Cattleya elegans* (now called *Bletia*), *Vanda cœrulea*, *V. suavis* and *tricolor*, various *Cypripeds*, *Odontoglossums*, and a host of kinds possessing botanic interest only.

Odontoglossum grande.—As an instance that this truly grand Orchid can be grown to perfection without much attention, we may mention that at present Mr. Soper has in his garden in the Clapham Road a small plant of it with ten fine flowers upon it in a small house amongst a miscellaneous collection of Orchids and stove plants. The house in question is kept at rather a high temperature, but there is abundance of moisture always in the atmosphere; consequently the plants are healthy, free from vermin, and all the other ills to which plants are subject. We have frequently alluded to the successful way in which Mr. Soper grows and flowers his Orchids, yet he has been taught solely by his own experience. There is too much mystery still attached to Orchid culture, and the sooner people see that most of them can be grown easier than many other plants, the sooner will they become popular.

NOTES OF THE WEEK.

OSBORN'S NURSERIES.—We understand that Messrs. Osborn's nurseries at Sunbury, Fulham, and Hampton are to be disposed of by auction at the Mart, Tokenhouse Yard, on Thursday next, and that the plants contained in the nurseries will also soon be sold in the same way.

COLEUS OUT-OF-DOORS.—Why do people put these out-of-doors? If one wished to typify all that is sickly and wretched looking among garden plants, one could not do better than point to them as now out of doors, even in good soils in the south of London. *C. Verschaffelti* used to produce

rich effects out-of-doors in the London parks; but these new *Coleus* seem to have no life in them and worse than no colour out-of-doors.

DRACÆNAS OUT-OF-DOORS.—These look very sickly and very bad out-of-doors in the London district—we mean the new hybrid kinds. No doubt one or two of the New Zealand sorts are pretty hardy, but the majority of the stove kinds should never be seen out-of-doors.

GARDENERS' BENEVOLENT INSTITUTION.—At the garden fête lately held in Lord Henniker's garden at Thornham Hall, Eye, Suffolk, for the benefit of this institution, the receipts amounted to £74. The weather was unhappily unfavourable, or the receipts would doubtless have been greater. The fête, we believe, was organised chiefly by the exertions of Mr. Perkins, Lord Henniker's gardener.

EXPLOSION IN THE HULL BOTANIC GARDEN.—About ten o'clock on Monday night last a sad accident occurred during a pyrotechnic display in this garden. It was called "The Bombardment of Alexandria," and there were thousands of spectators present. During the final part of the exhibition a 3-in. iron mortar, used for firing off shooting stars, exploded, and a boy, twelve years of age, was frightfully injured, and died in about twenty minutes. Another boy, son of a Hull Town Councillor, had a leg blown off, and is believed to be dying; and a youth about sixteen was also seriously injured in the leg. One of the pyrotechnists had his thumb blown off. It is believed, too, that other persons were injured, though less seriously.

PROPOSED SALE OF THE BRENTFORD EYOT.—The general feeling of the people of Richmond, Kew, Isleworth, Brentford, and Chiswick is manifestly condemnatory of the proposal of the Commissioners of Woods and Forests to sell Brentford Eyot. It is practically a waste of 2 acres, but contains some good forest trees, including several beautiful Willows, which undoubtedly add to the beauty of the river and hide the gloomy, dirty surroundings of the gasworks. It appears that the Government have made several vain attempts to sell it. It is being fast washed away by the tides. Old Brentford inhabitants notice that it has materially diminished in area within the last thirty or forty years, and it is urged that it will take several thousand pounds to check the inroads of the water, which, it is considered, will be best done by building a wall round it. If it is to remain an ornament to the river it is obvious that this must be done soon. The Government authorities see this, and hence, it is said, their desire to dispose of it.

SOCIETIES.

NORTHAMPTONSHIRE SEEDLING POTATO SOCIETY.

In connection with the Northamptonshire Agricultural Society an exhibition of seedling Potatoes has been established, the object being to encourage the production of new *bonâ fide* seedling varieties of good quality and disease-resisting powers. The first exhibition was held at Northampton on Tuesday last. Prizes were offered for the best white and coloured kidneys and white and coloured rounds. A champion prize of £10 was also offered for the best variety, to be awarded after a three years' trial in various localities. There was a good competition in each of the four classes, especially in that for white kidneys, for which no fewer than twenty-five dishes were staged, the total number of entries in all the classes being forty-six. Several eligible looking tubers in each class were selected by the judges for cooking, and the following prizes were awarded: In class A for white kidneys, Mr. J. Hughes, of Eyden, Byfield, was first with a seedling from Patterson's Victoria; Messrs. F. & C. Myatt, Offenham, Evesham, second with King Offa, a seedling from Myatt's Prolific Ashleaf; Mr. Cole, gardener to Earl Spencer, Althorp Park, third with Cole's

Prolific, and Mr. C. Ross, Welford Park, Newbury, with Welford Park Seedling. In class B for coloured kidneys, Mr. R. Fenn, Sulhamstead, Reading, was first with a pink seedling from Snowflake; Mr. W. Kerr, Dargavel, N.B., second with Sir Garnet, a bright red seedling, broadly striped with white; and Mr. J. Hughes third. In class C for white rounds, Mr. Fenn was first with a sport from Woodstock Kidney, lightly marked with purple; Mr. W. Horley, Toddington, Beds, second with a seedling from Giant King; Mr. T. W. Hill, Durwards, Witham, Essex, third with a seedling of the Champion race; and Mr. Ross fourth with Sir Walter Raleigh, raised from American Excelsior. In class D for coloured rounds, Mr. John Waugh, Castle Hill, Lochmaben, N.B., was first with a pink flattish, round seedling; Mr. R. Roe, of High Street, Northampton, second; and Mr. Edward Simons, Harlestone, Northampton, third with a small reddish round. The arrangements were carried out by Mr. W. Farr, gardener to Sir R. Knightly, Bart., Fawsley Park, and it is proposed to repeat the exhibition yearly in connection with the meeting of the County Agricultural Society, which is held annually in different towns in the county.

Hardy flowers in Trinity College Gardens.—It is only just now since my return from a horticultural sight-seeing trip my eye caught the interesting article of "J. D.'s" (p. 248) on "Gardening in the London Parks." Everything on the subject has an interest for me; and the interest becomes enhanced when treated by a writer like your correspondent, who evidently understands practically what he writes about. With his permission and yours I would supply an omission—where can the curious see a large collection of hardy plants of the best varieties well arranged and well grown? I know the Paris gardens and London parks well, and, everything considered, I give the palm to Trinity College Botanic Gardens, Dublin.—W. J. M., *Clonmel*.

New Potatoes.—At the late Potato show at the Crystal Palace we noticed that the new sorts sent out by Messrs. Sutton & Sons, Reading, during the last seven years were very prominent. There were fifty dishes of Sutton's Magnum Bonum, forty-seven of Woodstock Kidney, thirty-one of Reading Russett, twenty-six of Reading Hero, thirteen of Prizetaker, and twelve of First and Best.

D. C. O.—All editorial queries should be addressed to the Editor of THE GARDEN; by directing to individuals delays are incurred.

Correspondents who wish fruit to be accurately named should send several specimens of each, showing the fruit in various stages. We cannot undertake to name more than four kinds of plants or fruit, and these should be numbered.

W. P.—Send three specimens of each of the four varieties you fail to name, showing the variation in size and character of each variety, and then we shall have the means of really identifying each, if they are anything more than "local" sorts.—*G. D.*—3, Louise Bonne; 4, Brown Beurré. The others indeterminate.—*Alpha*.—Unknown in Covent Garden. Possibly, as you say, a seedling; evidently a good culinary Apple.

Names of plants.—*T. E. D.*—1, *Plumbago rosea*; 2, *Eupatorium Wendlandii*; 3, *Cestrum aurantiacum*; 4, *Mesembryanthemum (species)*; 5, *Senecio pulcher*; 6, *Hibiscus syriacus*.—*F. T.*—1, *Bupleurum fruticosum*; 2, *Salvia Grahami*.—*Reader*.—*Acalypha tricolor*.—*W. B.*—*Odontoglossum gloriosum*.—*J. Emery*.—1, *Davallia Tyermanni*; 2, *Aspidium falcatum*; 3, apparently *Asplenium strigosum*.—*Tahiti*. Next week.—*M. W.*—1, *Sedum carneum variegatum*; 2, *Ficus repens*, other not recognisable.—*R. E. P.*—Apparently *Eriotheca tetraptera*.—*C. M. O.*—1, *Geranium Wallchianum*; 2, *Statice*-like plant is *Trachelium cœruleum* (Campanulaceæ).—*Z. S.*—1, *Blechnum occidentale*; 2, species of *Blechnum*; 3, *Adiantum macrophyllum*; 4, *A. hispidulum*.—*Anon.*—1, *Aster laevis* *minimus*, otherwise *A. formosus*; 2, *A. Novæ-Angliæ*; 3, *A. Amellus*.—*A. R. M.*—1, *Eriobotrya japonica*; 3, *Sedum spectabile*.

COMMUNICATIONS RECEIVED.

Delta.—*W. G. L.*—*M. J. S.*—*A. D.*—*E. M.*—*R. W. P.*—*F. E. D.*—*R. J. L.*—*J. O. B.*—*M.*—*N.*—*W. W.*—*G. J.*—*E. B.*—*S. J.*—*D. B.*—*Cambrin*.—*J. D.*—*G. B.*—*D. G.*—*J. G.*—*J. G. J.*—*S. W.*—*W. E. G.*—*W. J. M.*—*L. E.*—*E. J. M.*—*A. B.*—*Miss O.*—*D. K.*—*D. Bros.*—*J. E.*—*E. J.*—*W. W. F.*—*K.*—*C.*—*W. T.*—*F. M.*—*S. R.*—*G. E.*—*R. D.*—*A. D.*—*D.*

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"This is an Art
Which does mend Nature : change it rather : but
THE ART ITSELF IS NATURE."—*Shakespeare*.

ORCHIDS IN JAMAICA.

"PEREGRINE" remarks (p. 349 of THE GARDEN for May, 1882), "It is an open question whether the kind of compost used for potting Orchids is a matter of so much importance as some think. No doubt Orchids must have some kind of rooting medium, but what it is they subsist actually upon nobody seems to know. . . . It cannot be right under our dull skies and artificial conditions to put such plants in a spongy mass of peat and Sphagnum, in which nine out of every ten Orchids are potted, resulting in ill-ripened and barren bulbs, of which one hears as many complaints. . . . A bulb set upon a bare board, covered by a thin coating of Sphagnum moss, seems as much at home as anywhere else, and is much better under command both at the growing and resting periods." From somewhat extensive observations on the habits of Orchids in Jamaica, I have reason to believe that much truth is embodied in these quotations, as the bulk of the evidence presented in the following notes will show. It may be well to state at the outset that while Jamaica in a general way is subject to heavy rains, it does not follow that the Orchids, even of the higher mountains, are always saturated with moisture. They are frequently subjected to protracted droughts. The rainy seasons of the year extend through the months of May and October, with frequent, but uncertain showers between.

Our species of Orchids, generally speaking, do not like deep shade, certainly not those that possess large attractive flowers; the exceptions to this rule are probably not worthy a place even in an extensive cultivated selection. They like plenty of diffused light, such as is to be had on the skirts of the forest or on mountain ridges and ribs, where the trees are seldom so dense but that the direct rays of the sun strike them for a longer or shorter time daily. I never find epiphytal Orchids growing naturally where moisture in any great measure can possibly lodge long, or at any rate so long as to affect the plants prejudicially; not even when they become sub-epiphytal in their habits and affect rocks or banks, for when on the latter there is usually only a sufficiency of soil overlying the subjacent rock bed to cover their horizontally creeping stems and roots. But wherever these epiphytes are growing, whether on the vertical bole, horizontal branches, or in their forkings, there are to be found little stay points or crevices in the rifted bark, or under Mosses, Jungermannias, and Lichens where a lodgment is given to particles of decayed vegetable matter that are during rains washed from the higher reaches of the trees, and in these crevices the Orchid roots not only find welcome sustenance, but also partial protection from the glare of the sun. We have here species which seem to court direct exposure to the sun's rays, while others are obviously happy on a north aspect on the boles of usually much isolated, sparsely branched trees. Other species there are, but confessedly of rather small dimensions, which affect the twigs or smaller branches of trees, and especially luxuriant and numerous

are they on decayed twigs, which are held in position by hinges formed of the Orchid roots passing splint-like backwards to the live branches, of which until lately the decayed portions formed extensions. Thus bound, these decayed twigs last and dangle there doubtless for years. The Orchids seated on them are for the most part composed of one or two full-grown fertile plants and numerous tiny seedlings, which latter have germinated since decay not only commenced, but when it was well advanced in the tree twigs, so that we have here an instructive lesson to the effect that well decayed vegetable matter, however small in quantity, in all probability contains the essential food of such plants.

Orchids on trees and rocks.—In my peregrinations after plants I frequently come across trees that are almost completely covered, trunks and branches, by a promiscuous collection of Orchids and Bromeliads, and by way of spreading undergrowth Mosses, Jungermannias, and Lichens. Such trees are almost invariably stunted and less vigorous than their fellows, as shown by their short growth and sparse foliage. This starved condition might be attributed to the effects produced by such a motley host of squatters; but I prefer to consider it otherwise, and attribute the presence of the Orchids, &c., to their finding a suitable nurse bed and resting-place on trees whose vegetative vigour was, for some time previously, lowered by the effects of hurricanes or the premature giving out of their food supplies. I have also observed that there are very few of our so-called epiphytal Orchids but what frequently find a befitting roothold on rocks, and I am further enabled to state that in a general way such plants are seemingly more "at home" than are affiliated members on the most suitable trees. This is especially true of plants that are established on fossiliferous limestone rocks. This system of rocks has an extensive range in Jamaica, and where exposed gives to the region a most singular aspect. They are known as honeycomb rocks, from the curious structure of the cells, often of considerable size, composing the mass. They seldom present a smooth surface, but nearly always a series of pockets of variable diameter and depth, which not infrequently extend quite through the block. In the interior ranges of the island, at least, the system, since its formation, has been much disturbed and shattered. Over the irregularities and into these innumerable cells the Orchid roots eagerly wander and dip, where vegetable mould, formed by the decay of leaves from the overhanging trees, is in store for them. Besides which the probability is great that, assisted by the influences of the elements, the Orchid roots in some measure dissolve and assimilate the fertile limestone as food. Some such action as this and some such tissue-rearing food supply only can account for the literal acres of unusually large and luxuriant plants of such species as *Epidendrum cochleatum* and *Brassia maculata* as I have seen growing in communities on these rocks. The first of these species, when growing on trees and ordinary rocks (in contradistinction to the limestone), almost invariably develops two leaves to each pseudo-bulb or branch, so that it is a characteristic vegetative condition. But, curiously enough, it is broken through in the case of the plants growing on the honeycomb limestone referred to, inasmuch as these generally produce three, and not infrequently four, leaves to each branch. Setting aside for the

moment inferences of a more practical kind, have we not in these limestone-reared plants of *E. cochleatum*, with their branches terminated by three or four leaves instead of two, the initial, yet perhaps incipient, step towards the creation of a local variety? There is in plants what may be termed a specific vigour, which is embraced in the general port and average dimensions attained by the specific community, and these characteristics are doubtless impressed on the species by the moulding power of the surrounding conditions of life. Although several species of tree Ferns, whose trunks are beset with prickles and portions of stipes which persist for years, offer what, to one's imagination, ought to be a good and safe roothold for Orchids, it is nevertheless true that I have seldom seen Orchids of any kind take advantage of it. I think I am not wrong in stating that ninety per cent. of the tree Ferns growing here do not harbour Orchids.

Orchids muster in such small quantities anywhere (in other countries, I am led to believe, as well as in Jamaica), that it is doubtful if there is ever any competition for existence amongst them such as we see going on amongst the members of other families of plants. Neither can it be said that there is competition between epiphytal Orchids and the members of other families; they seem to have no vegetable enemies or rivals, unless it be parasitical fungi. Their comparative paucity is probably owing, in the first place, to the fact of only a few seeds germinating, and, in the second, to the ravages of slugs and beetles, and to the disadvantages generally under which the young seedlings labour to obtain roothold and subsistence. I have been struck with these disadvantages to which the plantlet is subject as compared with the adult of the same species. The climatic and other conditions must be very favourable to its growth, or it will soon perish. Not so the old plant, whose most recently formed roots generally penetrate close to their junction with the stem the mass of old and effete roots, and bury themselves beneath them in contact with the tree trunk or branch, thereby not only living under their shelter, as well as that afforded by the stems and leaves, but actually in a great measure subsisting on the welcome material formed by their decay. No wonder, then, that old plants, whose vitals are thus usually so well protected, should be able to survive, as we frequently see them do, periods of protracted drought to which the very young of the same species would in all probability succumb.

I have now indicated the general conditions under which the majority of epiphytal Orchids live and thrive in a wild state in Jamaica. It will thus be seen—and especially if the habits and the conditions of life of the epiphytal Orchids of other regions of the globe are similar to those of this island—that "Peregrine's" remarks on "Orchid composts," quoted at the outset of this paper, are sound and reliable. In conclusion I need scarcely suggest that beneficial results are likely to follow from treating epiphytal Orchids to rain water that has filtered through a body of leaf-mould. Nor, perhaps, need I point out that pieces of porous limestone might probably be beneficially substituted for ordinary crocks and layers of Sphagnum for many of the Orchids cultivated at home. Even irregular blocks of such limestone might advantageously take the place of clay pots in many instances.

GEO. SYME.

Botanic Garden, Jamaica.

NOTES ON ORCHIDS IN FLOWER.

AT the Royal Exotic Nursery, Chelsea, the chief attraction of the Orchid houses is a fine display of the lovely blue *Vanda* (*V. coerules*), of which there are numbers of plants in flower representing, we imagine, every form of this variable species. The growth, too, is fine, for on some of the spikes we counted as many as twenty-two blossoms. Such a mass of delicate colour as this is a charming sight, and one that can only be seen at this season when this Orchid is in flower. *Cypripediums* in flower are numerous, as usual. Among them are the exquisite new *C. Spicerianum* which has been the subject of so much comment. It certainly is a lovely *Cypripedium*, the chief attraction of the flower and one that distinguishes it from all others being the erect white dorsal sepal, which is curved in a beautiful way and so firm in texture as to look as if it were chiseled out of marble. Scarcely too much could be said in extolling the refined beauty of this Lady's Slipper, which no doubt will become an established favourite. Another very rare Lady's Slipper, which is in fine bloom just now is *C. Fairrianum*. We hardly know which to admire most, it or the *Spicerianum* plant. It is so exquisite both in form and colour, the chief point of beauty being also the dorsal sepal, which is handsomely tessellated with reddish purple on a white ground. There is also such a fly-away look about the flower which no other *Cypripediums* possess. In one of the early numbers of *THE GARDEN* (1874) an excellent woodcut engraving is given of the plant. It is a pity that such a gem should be so rare, and that its native habitat should be so obscure. But perhaps it is just as well, or probably we should soon have such a glut of it, that we should not appreciate its beauty so much as now; and besides, there is a certain amount of pleasure derived from seeing a thing that is uncommon.

To **hybrid *Cypripediums*** Mr. Seden has lately added another, called (somewhat inappropriately, we think) *C. cardinale*. It is one of the *Sedeni* type, of which there are now about half-a-dozen, through all of which there runs a strong family likeness. The new form is a cross between *C. Schlimi* and *C. Sedeni*, the latter itself a hybrid, and, what is remarkable, *C. Schlimi* is one of its plants. This *C. cardinale* is, we consider, by far the finest of all the set, and the nearest approach to the clear colours possessed by the hardy *C. spectabile* that has yet been obtained. Indeed, at first sight the semblance between it and the *Mocasson* flower is very strong. Comparing it with the well-known *C. Sedeni*, we should describe it as being rather smaller, the pouch more globular, the sepals shorter and narrower, and of a clearer vinous purple colour, while the pouch is a very deep shade of the same colour. It is in truth a beautiful flower, and, provided it be a good grower and free flowerer, it must supplant the others, for it is obvious that we are getting rather confused with this particular type of hybrid Lady's Slipper, but if each successive hybrid is more beautiful than the last it will be a gain. Among other hybrid Lady's Slippers in flower are *C. Arthurianum*, which has *C. Fairrianum* and the old *C. insigne* for its parents, and a very handsome descendant it is; *C. selligerum*, *calurum*, *conchiferum*, and *C. microchilum*, a curious little plant, a cross between *C. Druryi* and *C. niveum*, though it does not rival the last.

Cattleya fausta a cross between *C. exoniensis* and *C. Loddigesi*, is beautifully in flower, and a welcome October Orchid it is, for its beauty shines out all the more prominently, as there are few others to compare with it. The flower is almost as large as that of *C. exoniensis*; the sepals are of a uniform rich rose-lilac, while the labellum is a resplendent amethyst. On one plant there were three flowers from one sheath, and it is said to bear even more. Another beautiful hybrid is *Lelia Philbrickiana*, a cross between *C. Aclandiae* and *L. elegans*. The sepals are dark, which gives a stronger contrast to the brilliantly-toned labellum. *C. Brabantiae*, with *C. Leopoldi* as one of its parents, is not so handsome as the latter, which in the same nursery bears a stately spike with

half-a-dozen fine blooms. Among choicer Orchids we noted *Pachystoma Thompsonianum*, which two years ago was certificated and illustrated. Seen in its present state, about twice the size it was then, it is, indeed, a beauty, the narrow, grotesquely curled sepals affording a strong contrast to the rich violet-purple of the horn-like labellum. When described previously it was likened unto a *Pleione*, but that comparison would have to be modified now that the plant has reached its adult state. It is one of the "coming" Orchids. Another plant we were somewhat fascinated with was *Compactia rosea*, or what some call *C. macroelectron*. Which name is right matters but little so long as it is a beautiful plant. It is a light, airy-looking Orchid of small growth, and bearing long graceful spikes carrying several flowers with abnormally long spurs, which no doubt gave rise to its alias. Its particular beauty is in the large labellum, which is of an exquisite rose-pink, traversed by veins of a deeper hue, and is poised horizontally. It is an Orchid different from the ordinary stamp, and one that everybody, Orchid specialists or not, would like. The various warm compartments contain a variety of plants in bloom, among which we may particularise *Phalenopsis violacea*, *Galeandra Devoniana*, various species of *Aerides*, *Vanda*, *Saccolabium*, &c., while the cool house teems with blooms of lovely *Odontoglossums*, especially varieties and forms of *O. crispum*, *Pescatorei*, and the noble old *O. grande*. *Oncidium Forbesi* may be seen in all its variation, from what is called a poor thing to such handsome large varieties as are not inappropriately named by some (not here) as *grandiflorum*. *Masdevallias* help to create a display, and among these are singled out the new *M. Chelsoni*, a hybrid between *M. Veitchi* and *M. amabilis*, which greatly improves by culture, or at least by age, for it is twice the size it was when we first made its acquaintance. W. G.

Platanthera radiata.—Herewith I send you a flower of this Japanese terrestrial Orchid, which has puzzled us very much in growing it for years. We have tried it in all our houses, but never succeeded in getting a flower. This year we planted a quantity near the river with *Cypripedium spectabile*. The result is a complete success; every tuber has a flower-spike.—F. H. [An elegant hardy Orchid with a large three-lobed and much fringed labellum of snowy whiteness, and with a long curved spur.]

Stanhopea florida.—A flower of this extremely rare species comes from Mr. Peacock's rich Orchid collection at Sudbury House, Hammersmith. It is very handsome; in size it equals *S. tigrina*; the sepals are of a transparent waxy white texture, copiously spotted with purplish brown. The curious horn-like appendages to the lip together with the irregular outline of the flower render it very grotesque. Unlike most other *Stanhopeas*, the odour is pleasantly aromatic and not too strong.

Descriptions of Orchids.—I refer to this subject to point out a rather unusual form of *Dendrobium formosum* mentioned in a monthly contemporary a little while back, and described as producing its flowers from the points of its leaves—"flowers from the point, and also from the axils of the leaves," are the words used. The variety in question is also described as producing bulbs "an inch in diameter," which is nearly twice as thick as any ever seen. We have plants ourselves several inches taller than the maximum height given by the same writer, but we are weak in girth.—OBSERVER.

The *Odontoglossum* houses in Messrs. Shuttleworth, Carder, & Co.'s establishment, Park Road, Clapham, are at present gay with many fine varieties of *O. Alexandræ*. The faultless shape of the flowers and the richness of their markings proclaim beyond doubt that this firm has found the right ground to import from. Some very interesting cross-bred varieties are also in bloom, two of them being very remarkable. The one has

rather small spotted flowers of the true *O. Alexandræ* shape, but borne on the twiggy branched spike of *O. odoratum*; when well grown this will be very handsome. The other is like *O. Ruckerianum* without the pink tint; it has a delightful Hawthorn scent, and reminds one of a large branched spike of the favourite *O. madrense*. Each month brings us some new beauties out of that elastic section *O. crispum* (*Alexandræ*), and well may amateurs so readily purchase importations of it, the worst of which on flowering are sure to be beautiful, and some new and valuable. Little did they who fancied they had completed the varieties of *O. crispum* a few years ago by the purchase of Blunt's spotted variety and Weir's white variety dream what a wealth of beauty was to be obtained from future importations of it. The supply of novelties in this section of *Odontoglossum* is likely never to be exhausted so long as it can be found in new districts.—JAMES O'BRIEN, *Harrow-on-the-Hill*.

INDOOR GARDEN.

TREE CARNATIONS.

AT Mr. Howard's Market Nursery, Southgate, the culture of the Tree Carnation, to ensure a large supply of flowers every day in the year, is carried out on an unerring plan. The main supply is furnished by a span-roofed house, in which the Carnations are planted out about a foot apart, and this house is never without abundance of bloom. At present the middle beds are in full vigour, blooms, buds in all stages, and coming young flower-spikes ensuring plenty of flowers at least until this time next year, when the summer growths will place them in a like position to go on for the next season. As it is natural that this perpetual blooming must cause the plants to fail in time, Mr. Howard makes provision for their replacement by growing large beds of sturdy plants in the open air to take the places of such as fail in the houses. In a short time the whole of the wide border running round the Carnation house is to be planted anew with these vigorous plants, which will be in full bloom at some future time when the centre beds are past their best. The supply is, moreover, supplemented by large beds in the open air which have just done blooming, and by plants in pots which are now coming in. In short, the culture of Tree Carnations is worked here systematically and well. Many have no faith in perpetual blooming Carnations, but if the right sorts be obtained and properly managed, they will bloom themselves to death if allowed to do so. Mr. Howard has been a raiser and grower of these plants for many years, and he cultivates principally his own seedlings, but also many of the best named kinds, *l'Hermine* (white), *Miss Jolliffe* (blush), and *A. Allegatiere* (scarlet) being among his favourites. At the same nursery is a wonderful stock of the best variety of white *Lapageria*, there being plants sufficient to fill three large houses. There are also thousands of coloured *Dracenas* in all stages, from thrifty little plants in 2½-in. pots plunged in frames on bottom heat to handsome specimens ready for sale; immense quantities of *Ficus elastica*, *Palms*, *Pandanus*, &c. A houseful of *Aspidistra lurida* variegata, another of *Adiantum farleyense* and *Caladium argyrites* for cutting, and several of *Adiantum cucuatum*, and other market Ferns. One large house contains *Gardenias* in pots well budded, and in another they are planted out. I also saw quantities of *Eucharis*, and a variety of things on trial in large quantities, while the bustling activity around points to the fact that the place is devoted to commerce, and not to pleasure. JAMES O'BRIEN.

Harrow-on-the-Hill.

Greenhouse plants and aquatics.—

What would be the most suitable plants to grow on the side stages of a small greenhouse, on the centre stage of which it is proposed to place aquatics in flat dishes? The house stands north

and south, is very sunny, and would not have to be shaded at all. Would the new Japanese Maples do there? I am tired of the general run of greenhouse plants and want something rather uncommon. Can *Nelumbium speciosum* be grown in a tub if the water is kept at 80°?—A. J. M.

THE PELARGONIUM AND ITS CULTURE.*

Pelargoniums under glass.—This kind of culture is now becoming more and more general, the newer varieties having flowers so fine that they can scarcely be excelled by those of any other flowering plants for effect, a circumstance which at the same time causes them to be less suitable for outdoor work, the large heavy blooms being so easily destroyed by storms of wind or rain. If the plants are intended to bloom from June to Christmas, the cuttings should be put in about the end of August, four in a 4-in. pot, in sandy soil, and plunged in ashes or Cocoa fibre in the open air, where they will not require attention for three weeks. They should be taken under glass before there is any danger of frost, potted off when ready, and kept gently growing through the winter in a light position near the glass, to prevent drawing. The temperature should not be too high, or the growth made will be weak; about 45° to 50° will be sufficient. About the beginning of March they will be ready for a move into 6-in. pots, in which size they may be bloomed successfully, but if larger plants are required they may afterwards be potted in 8-in. pots; the plants in the smaller size will, however, produce more bloom in proportion to their size if well fed. The best compost for potting is prepared by stacking up, about six months previous to its being required, some good turf from an old pasture, the sub-soil of which is good loam—neither clay nor sand; as the heap is made, a good sprinkling of stable manure should be spread between each layer of turf. When required for use it simply needs cutting up and the addition of sand or road grit. I have not stated any proportions, as they, of course, vary according to the density of the soil used. Treated in this manner, the plants will commence to flower freely about the beginning of June, and, if well cared for, will continue to do so until Christmas. The best house for zonals through the summer is one with a north-west aspect, as in that position the sun does not shine upon them until about two or three o'clock, doing away with the necessity of shading, always an evil with this class of plant. If, however, the house in which they are grown faces full south, a little shade should be given in very hot weather, or the centre of the trusses will fall before the outer pipes have time to expand properly.

For winter flowering, zonals require somewhat different treatment. The cuttings should be struck in spring, from the middle of February to the end of March. About the beginning of June the plants should be potted in 6-in. pots (not larger, the object being to produce hard, short-jointed wood; for the same reason the soil used should not be so rich as that prepared for plants intended to bloom in the summer), then plunged in ashes, in a position fully exposed to the sun. Summer culture will consist in careful attention to watering, and the removal of the buds as fast as they appear, until a short time before they are removed to their winter quarters under glass. Care should be taken that they are not left too long exposed to the autumn rains, as I have known a fine batch of plants spoil from this cause, the soil becoming sour, full of worms, and most of the fine roots decayed; after which, of course, success is hopeless. Ventilation should be given freely until the plants become accustomed to their change of quarters, or they may lose a quantity of foliage. If these directions be followed, and the plants placed not too far from the glass, in a light sunny house, where a temperature of from 40° to 45° by night, and 45° to 55° by day, and running up to 60° with

sun-heat, can be maintained, with proper choice of varieties, as fine a display of bloom may be looked for as can be obtained through the summer months, and which will be appreciated even by the few who do not care for the Pelargonium, on account of the scarcity of brilliant colour, amongst our other winter flowering plants.

As to stimulants, the Pelargonium, both zonal and show, is as much benefited by them as any other class of plant if applied with discretion to a healthy plant having its pot well filled with roots. I have seen a splendid batch of plants, which had been treated with guano alone, just enough to colour the water being given every other time they were watered. Soot and cow manure make a good stimulant, and also several of the artificial manures so freely advertised; but the best, in my opinion, is the one now largely used by several of the chief London growers for market, namely, the drainage from a cow-house. This should be carefully mixed, as it is strong enough to kill any plant if carelessly used; but, in the proportion of one pint to two gallons of water, it may be given liberally. It has the advantage of causing the plants to bloom more freely, instead of running them into growth like some other manures.

Insects.—One great recommendation of the Zonal Pelargonium being its freedom from insect pests, there is not much to say on that head. It is never troubled with thrips, mealy bug, scale, and only an occasional unhealthy plant is found infested with green fly or red spider. The only insect ever found really troublesome is the caterpillar, and for that the best remedy is hand-picking, and killing the parent moths when seen. As the latter are unknown to many even of the best gardeners, through lack of time or inclination to become good etymologists, I may say that the three principal kinds infesting the Pelargonium are the Gamma, or Silver moth, the Angle Shades, and the Dot. The first is easily known by the silver mark from which it takes its name; the second (much the rarest of the three in Nottinghamshire) when once seen is not difficult to recognise, as its markings are quite distinct from those of any other moth with which I am acquainted; the same remark applies to the Dot.

Show Pelargoniums.—Most of what I have said about the zonals will also apply to the large-flowered, or show Pelargoniums. The compost used is the same in both cases, and the general treatment very similar; in fact, but for one reason, they might be most successfully grown together, which is, that the regular fumigation necessary to keep down green-fly on the show Pelargonium is detrimental to the zonal, often causing the foliage to turn yellow. Cuttings of show Pelargoniums will strike pretty freely any time between March and the end of July; but perhaps the best time is when the plants have done flowering, about the middle of July, as the cuttings at that time will strike in a cold frame, and afterwards, if well treated, make good flowering plants the following summer. The cut-down plants should be placed out of door on ashes, and will require no attention until they begin to grow again, except to turn them on their sides in case of heavy rains. When growth has commenced they should be shaken out and re-potted, using smaller pots than the ones they were turned out of, after which they should be placed under glass, where the treatment required will be pretty much the same as that recommended for zonals, except that they will require fumigating occasionally to keep down green-fly. This should be done as soon as any flies are seen, and not left until the plants are smothered, when they will be injured, and two fumigations required to clean them where one would have sufficed if applied earlier. It is a good plan to fumigate on two successive nights, just before the plants commence blooming, when they will be thoroughly cleaned, and pass right through the flowering period without the necessity of repeating the dose. The reason for this is, that a strong fumigation while they are in bloom will cause nearly all the expanded flowers to fall, and

spoil the show for some days. It is difficult to have the show Pelargonium in flower during the shortest days of winter, but they may be well bloomed in November, and again in February, in an ordinary greenhouse temperature. To do this some of the young plants should be selected in spring from the batch, struck as recommended in July, and potted on, as they require it, through the summer; if treated well they will require a 10-in. pot for the last shift. A cold frame will suit them best from the middle of June until September, during which time every bud should be picked off as soon as it appears, as, if allowed to bloom at all during their natural season, they will refuse to do so when required during autumn and spring. If treated as above, the show Pelargonium will bloom freely in November, and perhaps into the beginning of December, if the weather be bright and sunny, after which they will stop flowering for a while, unless a very high temperature is kept up, which is a mistake, as it causes the plants to become drawn and weak, and infested with insects, added to which the flowers produced are not so good as those grown with more sunlight. In ordinary greenhouse temperature the plants will commence to bloom freely again in February, and continue to do so until joined by those which have been managed in the ordinary manner. An objection is often raised against the use of Pelargoniums, both as cut flowers and otherwise, on account of the fugitive character of their blooms; this may be easily remedied by dropping a drop of florist's gum (to be procured at any seedsman's) into the eye of each flower, when they will last until completely withered.

Varieties.—The following is a select list of Pelargoniums, arranged for summer and winter flowering, &c.: *Zonals for bedding.*—White Clipper, white; Corsair, Vesuvius, and Havelock, scarlet; Rev. Atkinson and Henry Jacoby, crimson; Mrs. Holden, pink; Mrs. Turner, lilac-pink; Miss Kingsbury and Rosamond Wright, white-leaved; William Sanday, tricolor; MacMahon and Impératrice Eugénie, bronze-leaved. *Zonals for winter flowering.*—Beatrice, pale rose; Edith Pearson, rosy salmon; Corsair and Vesuvius, scarlet; Eureka and White Vesuvius, white; Mrs. Leavers, pink; Mrs. Strutt, lilac-pink; David Thomson, crimson; H. H. Crichton, crimson, white eye; Titania, salmon, tinted pink; Henry Jacoby, dark crimson. *Zonals for conservatories.*—Atala, scarlet; Sophie Birkin and Kate Farmer, salmon; James McIntosh, crimson, white eye; Rose, salmon-scarlet; Mrs. Gordon, shaded magenta, white eye; Constance, rosy pink; Metis, dark scarlet, white eye; Dr. Orton and Henry Jacoby, deep crimson; Miss Hamilton, blush white; Bianca and Eureka, white; Lizzie Brooks, salmon-scarlet; Lady Sheffield, lilac-pink; Aphrodite, rose; Burns, scarlet, white eye; Egeria, scarlet, suffused magenta. *Show Pelargoniums.*—Atalanta, lilac; Captain Raikes, scarlet; Digby Grand, white, rose spot, fringed; Duchess of Bedford, white fringed; Emperor of Russia, dark purple; Kingston Beauty, white, purple spots; Lady Isabel, violet-purple; Lord of the Isles, crimson, dark blotch; Maid of Honour, rose, white throat; Mrs. Ballard, salmon-scarlet; Prince Arthur, crimson, edged white; Queen Victoria, scarlet, white edge; Triomphe de St. Mandé, magenta; and The Abbot, scarlet, upper petals dark. *Fancy Pelargoniums.*—Lucy, crimson-lake; Mrs. R. Hole, blush white, blotched rose; Nelly Fordham, pale pink; and Princess Teck, white, pink spots. *Show Pelargoniums for winter flowering.*—Duchess of Bedford and Duchess of Edinburgh, white fringed; Digby Grand, white, rose spot; Hercules, crimson, dark blotch; Prince Arthur, crimson, edged white. *Try-leaved Pelargoniums.*—Anna Pfitzer, rosy pink, double; Emilie Galle, double white; Gloire d'Orléans, magenta, double; Madane Crousse, salmon, double; Jeanne Wouters, rose, veined carmine, double; L'Elegante, silver-edged foliage, white flowers.

Lapagerias.—Either as pot plants or climbers on a large scale Lapagerias, when in bloom, are sure to be admired, and in a cut state no one can

*Extracts from an essay on "The Pelargonium and its Culture," read by Mr. C. E. Pearson, of Chilwell, to the members of the Nottinghamshire Horticultural and Botanical Society.

ever have too many of their charming blooms. Of the red variety there are a good many shades, some being very pale in colour, while others—the best—are rich and deep in hue. Good plants of the white variety are still scarce, but both succeed well under the same kind of treatment, and they look best when intermixed. Both kinds may now be seen in excellent condition in the end of a cool greenhouse at Drumlanrig. The white kind starts from one corner and the red sort from the other; both spread out wide and meet and mingle over the doorway, and no combination of flowers could be more lovely.—CAMBRIAN.

Seedling Coleuses.—I send you leaves of some new Coleuses raised this season by Mr. Fergus, our most skilful amateur, who has cultivated Coleuses for the last ten years, and I do not think anyone has obtained so many beautiful varieties. He grows Coleuses 9 ft. high, with leaves 12 in. long and 7 in. broad, in one season. I am sorry I could not add leaves of the most beautiful and delicate varieties, which were too young.—D. GUIHENEUF, *Nantes*. [The leaves sent include several sorts similar to those commonly cultivated in this country, but there are some that are quite distinct, notably one with leaves half deep claret colour and half creamy white, a striking contrast; others, again, are remarkable for large size, one in particular being 9½ in. long and 7 in. broad.]

ROSE GARDEN.

ROSES AT EDINBURGH.

PERHAPS never has a great undertaking been more liberally devised or successfully carried through than the splendid show held at Edinburgh on the 13th and 14th ult. Fruit and plants were treated with lavish liberality in the matter of prizes, and the result was such a muster of both as have seldom or never been seen before. But though Roses in the middle of September could hardly be rare in Scotland, especially in this, on the whole, late season, it will hardly be credited that the only entries in the prize schedule for Roses were class 126 for twelve cut blooms, £1 and 15s., and class 156 for twenty-four blooms, £2 and £1, that is out of, say, in round numbers 500 prizes offered for other produce, four only were offered for Roses; or out of £1000 offered for fruit, vegetables, plants, and other flowers, £4 15s. was set apart for Roses. Were Roses not the sweetest of flowers and rosarians the most gentle of men, assuredly this glaring disparagement between merit and reward had called forth some bitter remonstrances. But as if to prove how far above monetary considerations true rosarians are, the best Roses at the show came all the way from Belfast on the one hand, and Stranraer on the other—the first prize for twenty-four being taken, as already stated, by Mr. Hugh Dickson, of Belfast, and the second by Mr. Thos. Smith, of Stranraer. Places so widely apart as Dunkeld and Rothesay carried off all the honours in the class for twelve, the first prize going to Mr. H. Gray, Dunkeld; the second to Mr. John Kidd, Rothesay. The judges also awarded a third in this class, which also went to Rothesay, Mr. David Wallace being the winner.

Looking at the wide geographical area covered by these prize winners, and at the excellence of the blooms exhibited, it is impossible to doubt that many more Roses might have been shown had the prizes been more liberal and more numerous. Notwithstanding the high character of the show generally, who but would have willingly had say a table of plants the fewer to have had a whole table or even two devoted to Roses. Had £50 or even £100 been devoted to Roses, instead of less than five, doubtless one of the finest autumnal Rose shows ever held in this country might have been seen at Edinburgh on September 13 and 14. It is to be hoped that the suggestion of holding an autumnal Rose show worthy of the occasion will not be lost sight of at the great International Exhibition, whether that be held in the metropolis, Manchester, Glasgow,

Edinburgh, Birmingham, Liverpool, or Dublin. No cut flowers are so well worthy of encouragement as Roses. They impart a character to a show that nothing else can give, and no exhibits can match them in popularity. Put up 500 stands of Grapes or other fruit and as many stands of Roses, and the greatest crush in any of our great centres of population will be around the Roses. It was so throughout the great show at Edinburgh. It was my happiness to be in the Waverley Market at the close of the exhibition, when the excitement and interest, instead of having flagged, were at their height, and while it was easy to get near most of the fruits and plants, it was almost impossible to get close enough to the Roses to see how they had stood the ordeal of the two days' show. Such great shows would also afford rare and valuable opportunities of comparing Roses from widely separated localities and noting how the same or different varieties conducted themselves, shall I say, in various places and countries. In this way it would be easy to compare Roses grown in Scotland, England, and Ireland, and to find which were the best adapted for each. There was for the most part little novel in regard to varieties shown at Edinburgh, though the following are comparatively seldom seen in winning stands in the south, and a few of them are hardly known: Madame Thévenot, François Courtin, Albert Page, Mrs. Jowitt, Reine du Midi, Madame Nachury, Barthélemy Joubert, Marquise de Ligneris, Mons. A. Lepere, Gaston Lévêque, Léon Renault, Marie Louise Pernet, Sophie Coquerel, and several others.

The following better known and more popular varieties were also remarkably well shown. Some of these, in fact, had such a freshness and delicacy of colour for September, as to make one closely examine them to see if they were true to name: Lælia, Alfred Colomb, Baroness Rothschild, Beauty of Waltham, Prince of Wales, Madame Marie Rady, Madame Charles Wood, Paul Neyron, La France, Duc de Rohan, Souvenir de Victor Verdier, Sénateur Vaisse, Bouquet d'Or, Dr. Andry, Jules Finger, Comtesse de Serenye, Gloire de Dijon, Duke of Edinburgh, Elie Morel, Charles Lefebvre, Marquis of Salisbury, Louis Peyronny, Dupuy Jamain, Reine du Midi, Le Havre, Baron Hausmann, Maréchal Niel, Abel Carrière, La Brillante, François Lacharme, Fisher Holmes, Annie Laxton, John Keynes, Marie Baumann, John Stuart Mill, Marguerite de St. Amand, Sir Richard Wallace, Souvenir d'un Ami, Madame Faloot, Pierre Notting, Earl of Beaconsfield, Niphetos, Comtesse de Paris, Marquise de Castellane, Xavier Olibo, Madame Marie Verdier, Jean Ducher, Maréchal Vaillant, and many other kinds well known to all Rose growers.

From this it will be seen that the Roses shown were thoroughly representative, skimming off much of the cream of our most popular show varieties north and south, while also dipping pretty deeply into new and probably local varieties as yet but little known to private growers in general.

D. T. FISH.

ROSE A. K. WILLIAMS.

THIS Rose well deserves the place of honour given it in last week's GARDEN. I quite agree with all Mr. B. R. Cant says about its free growth with him; but when he says he gives no credit to its growing weakly or dying outright after being transplanted in some, it may be many other places, I must join issue with him. Only last season we had several examples of this kind here, and reports were frequent of its failing to grow in other places. Whether this arose from change of site, soil, or treatment, it may be difficult to say. But of the facts there can be no doubt whatever, and nothing is gained by ignoring them. No one could see the fine growth of this splendid Rose without admitting that it can be made to grow freely, and it do grow freely, under his skilful treatment. But so do many other rather weakly Roses; therefore the Colchester standard must not be too sweepingly applied, few places possessing all the advantages of that favoured locality.

Mr. Frettingham's estimate of the growing capacity of A. K. Williams is probably nearer the average than that of Mr. B. R. Cant. Probably, too, part of its weakness, or unwillingness, or inability may arise from its being over-worked, with the view of meeting the large demand for it. But unfortunately this theory, plausible and potent though it may be, will hardly account for the strong and vigorous plants of Mr. Cant's refusing to budge more than an inch or two after being carefully planted in new positions. Doubtless Mr. Cant might be able to throw some useful light on this matter. It can hardly be an affair of grafting or budding on particular stocks. As Mr. Cant's experience on this matter is so extensive, that his assertion "that it does well as a standard and also on the Manetti, but I am inclined to think the Brier is the best stock for it," must be accepted as conclusive. I think the bulk of Mr. Cant's fine and vigorous stocks of it seen last summer on his Rose farm were on the Brier. Has he or anyone else tried A. K. Williams to any extent on its own roots, and with what results? Would that some one would or could tell us how to make it grow like Duke of Edinburgh, Marie Rady, or Sénateur Vaisse, and this not here and there, but everywhere, as no one questions its extreme beauty and all other good qualities. The only difference of opinion relates to its capacity of growth and its widely different behaviour in this respect in different localities.

D. T. FISH.

BEST AUTUMN-BLOOMING ROSES.

To have a succession of Roses until cut off by autumnal frosts is the desire of all rosarians. After the worry and bustle of the exhibition season is over one has time to note how many of our favourites, now that the days grow short and grey, continue to furnish a bountiful supply of bloom. Where is Madame Hippolyte Jamain now?—one of those which charmed us so much early in the season, with its fine form and sweetly pink-tinted, snow-white flower. Madame Gabriel Luizet, with its soft shade of satiny pink, likewise refuses to bloom in autumn (except a stray bloom on a batch of maidens). Annie Laxton, too, one of the first to bloom in such grand form, leads one to exclaim, "Surely this cannot be the same Rose which we saw in such splendour in the latter end of June!" But, on the other hand, have we not a good array of Roses which do not assume their full dress until the temperature becomes low and autumn fogs appear? Among these, the most worthy to be named are the following: Annie Wood, a perfect gem now, colour and form unique, but who ever saw this variety good earlier? Madame Sophie Fropot, a soft, light Rose, as it comes now is almost too beautiful to describe. Paul's Victoria, though old, is yet good in the autumn, form fine, colour fleshy white. Souvenir de la Reine d'Angleterre, notwithstanding its long name, is a variety which we still think worthy of a place in our Rose beds; colour not unlike that of Duchesse de Morny, form good, one of the most reliable of autumn Roses. And, lastly, that Rose which many of our Nottingham people call Tichborne, viz., Paul Neyron, in summer it is too coarse, but now it is a great acquisition if kept poor and grown on its own roots. But, withal, have we not among the multitude of varieties we now boast of Roses which may be described properly as "good always?" To this the answer is, yes. And first and foremost comes that good old Rose, Gloire de Dijon, the first to appear and to cheer us in spring, and the last to bloom, as if it dared to defy even cruel frost, the only thing that gives a check to its blooming. La France, Marie Baumann, Sénateur Vaisse, Duke of Edinburgh (perhaps better now than earlier), A. K. Williams, Duchess of Bedford, Madame Victor Verdier, Baroness Rothschild, Dr. Andry, Duke of Wellington, Lord Macaulay, Dupuy Jamain, Auguste Rigotard, Comtesse d'Oxford, Xavier Olibo, General Jacqueminot, Monsieur E. Y. Teas, Charles Darwin, Louis Doré, Prince Camille de Rohan, Mabel Morrison, and others are those which are thoroughly perpetual. To amateurs having limited

space the foregoing list is theirs; but in the case of others whose grounds are extensive, I say grow all that are worthy of a place, and each in its proper season will amply reward any cultural attentions bestowed on them.

Beeston, Notts.

W. H. FRETtingham.

Root disturbance.—A "Rose Grower" (p. 296) may have drawn light, but hardly imbibed sweetness, from his Roses, otherwise surely his criticism had been more gentle, as well as more just. My Rose notes are simply the result of experience, and of them it may be emphatically said that I write what I know, and testify to a little what I have seen and handled in Rose culture. Possibly a "Rose Grower's" knowledge and experience may be different, but that neither affects my facts, nor disproves my inferences. Nor am I very careful to uphold my consistency. Rosarians, as well as statesmen, are ready to admit that circumstances may alter cases, and a wider knowledge modify opinions. It is impossible for any one to sit long at the feet of the Rose anxious only to learn all that it has to teach without not only learning rapidly, but unlearning a good deal. Full of the love of the Rose, and only anxious to interest and instruct rosarians by repeating the latest lessons the Rose teaches, or seems to teach me, possibly the lessons of to-day may vary somewhat from those of last year, or week for that matter. A "Rose Grower" is, however, unfortunate in his examples of inconsistency. I still adhere to the two statements that root disturbance at one season quickens root activity, and that root disturbance at another results in a temporary suspension of the absorbing functions of the roots. I will also go further, and agree with a Rose grower that it is possible so to move Rose roots in the autumn that they shall rot not at all till the spring. And yet none of these statements are contradictory. This will probably be rejected by a writer who asserts that root pruning, root disturbance, and transplantation are identical. Most readers of THE GARDEN will, however, doubtless see that the three may in practice be widely different. A "Rose Grower" is fortunate in seeing no careless planting of Roses. I regret to say I have seen my representations verified to the letter again and again. Did a "Rose Grower" never enter a Rose nursery in the height of the lifting season and see heaps of Roses with their roots in the air? and did such air-dried roots never fail to grow when planted by a "Rose Grower"? If so, he has been far more fortunate than most of us, and should welcome plain, strong writing anent such matters in mercy to the Roses we both love so well.—D. T. FISH.

PLANTS IN FLOWER.

MECONOPSIS WALLICHI.—How fine this noble Himalayan Poppy is in autumn! I had the pleasure of seeing a fine tall plant of it in Mr. A. R. Wallace's garden the other day, and it now carries many pale blue blossoms and many brown buds.

MILLA BIFLORA.—A flower of this beautiful bulbous plant comes from Mr. Ewbank, St. John's, Ryde, who has had it in flower for a long time this season. The flower is about 3 in. across, and the pure white sepals are arranged in a star-like manner. It is, as Mr. Ewbank says, one of the most beautiful of all bulbous plants. It is unfortunately very scarce in gardens.

ESCALLONIA FLORIBUNDA.—I was much pleased with the look of an evergreen bearing the above name, and having many pretty trusses of pearly buds just opening. I never saw a more promising little bush as it grew in Mr. Alfred R. Wallace's garden on a hill top near Godalming.—V.

HELIANTHUS MULTIFLORUS.—The double variety of this showy Composite is common enough in gardens, especially about London, but not so the typical plant with single flowers. The latter is, however, really a handsome plant, and by some preferred to the double sort. There are two forms

of the single—one called major, the other maximus, the latter having blooms much larger than those of major, itself considerably larger than the double. The major form grows from 3 ft. to 5 ft. high, while maximus is a foot or so taller. Both are very floriferous and bright yellow, and therefore very showy. In several gardens about London they may now be seen finely in bloom, notably in Mr. Ware's nursery, Tottenham, and at Mr. Parker's, Tooting.

LILIUM AURATUM.—I send you a bloom of this Lily picked from a bed of Rhododendrons, amongst which I grew it.—MARK LOCKWOOD, Lt.-Col. Coldstream Guards. [An uncommonly pretty bloom of the true *L. auratum*, charmingly spotted, and with the golden band in each petal unusually bright and conspicuous.]

DESMODIUM PENDULIFLORUM.—This is most graceful against a low wall in Mr. Wallace's garden. I have long known the plant, but never saw it so good before. It is a good addition to autumn hardy flowers where placed as above, especially in the Surrey or southern district; in the north it would not flower in time.—V.

SINGLE DAHLIAS.—Among a large collection of these, numbering about fifty sorts, from Messrs. Jefferies, Oxford, there are a few with distinct colours named W. H. Baxter, deep crimson with a conspicuous ring of yellow at the base of the florets; Miss Maud Watson, delicate rose-pink; Mrs. Jefferies, fine deep cardinal; and Distinction, pale purple.

RHODOCHITON VOLUBILE.—This is always pretty as an out-door plant over wall or verandah; it is so quaint and distinct and so graceful too. Mr. A. R. Wallace grows it against a covered way, and it forms a very pretty curtain now all over flower.

DAHLIA DR. PEGENSTEKER. Under this name we have received a very beautiful single Dahlia from Mr. W. Crowe, Boleyn Nursery, Upton. It is in the way of Paragon, but the colour is of a different shade, somewhat lighter, and pleasingly blended with the margin. Another seedling, though small, possesses strikingly rich colours—crimson-maroon, edged with deep carmine. Both are worth naming.

VIOLA PEDATA ALBA.—The first blooms we have seen of this pretty Bird's-foot Violet we saw the other day in the rock garden in the Hale Farm Nursery, Tottenham. It differs in no way from the original, excepting in the flowers being pure white instead of deep mauve. Of this Violet we have now two distinct varieties, viz., bicolor and alba. Of the first a coloured plate will shortly be given in THE GARDEN.

ZEPHYRANTHES TREATLE.—This newly introduced Zephyr flower proves to be quite equal to the description sent from North America with it. It is in the way of the common Atamasco Lily (*Z. Atamasco*), but the blooms are larger, open wider, more erect, and of a purer white. Some plants of it in the Tottenham Nursery in a cool pit are now in flower and finer than we have hitherto seen them. It is said to be quite as hardy as *Z. Atamasco*.

VERONICA CORYMBOSA is of all the Speedwells the best for autumn bloom. Just now it is in perfection when few if any other Veronica is to be seen. It is a variety of *V. spicata*, differing in the flower-stem being much branched in a corymbose manner. It grows about 9 in. high, and its feathery clusters of blossoms are a rich purple. Being a good grower in almost any soil, it may be said to be a plant for everybody. It is beautifully in flower at Ware's, Tottenham.

VERONICA LYALLI is a neat little plant which grows about 6 in. high, dense and compact. The stems are closely furnished with small leaves, and intermingled with them are to be seen at this season numerous tiny pale mauve coloured blossoms. It is a little New Zealander, but whether it will withstand our ungenial winters or not remains to be seen. A good many plants of it are now flowering freely in the open border in the Tottenham Nursery.

ACONITUM AUTUMNALE ranks amongst the most prominent hardy plants of the season. It is of taller growth than that of the ordinary *A. Napellus*; the spikes are longer, and the colour deeper. Its chief value, however, is its autumn-blooming character, a precious gain when so few other plants of a similar stamp are in flower. It is a strong grower, like all its tribe, and in good soil attains a height of 6 ft. It is now finely in flower at Mr. Ware's nursery.

AUTUMN FLOWERS.—From Trinity College Gardens, Dublin, come blooms of *Anemone coronaria* (several sorts), *Venidium calendulaceum*, a very handsome Marigold-like plant, with bright orange flowers; Carnations, early Chrysanthemums, shrubby Veronics, various Michaelmas Daisies, *Primula japonica*, Pansies, *Grindelia squarrosa*, *Polyanthuses*, *Lindelia spectabilis*, various Lilies, *Eryngiums*, and Primroses, all of which afford sufficient proof that the open borders there are not barren even in October.

HEDYCHUM GARDNERIANUM.—From Mr. Field, the gardener at Stanley Hall, Bridgnorth, we have received two uncommonly fine spikes of this handsome old plant, measuring quite 1 ft. in length, and composed of a profusion of bright yellow blossoms which emit a delightful fragrance. The broad, healthy foliage sent with the flowers indicate that Mr. Field knows how to cultivate this plant to perfection. He says in his note, "I wonder why this plant is not more frequently met with in gardens. It is a plant that can be very easily grown by anyone in possession of a viney or cool greenhouse."

LARGE COCKSCOMBS.—In THE GARDEN (p. 288) you give the measurement of a large Cockscomb. During the present week I saw in the houses of Col. Cross, Red Scar, near Preston, some very fine specimens of the plant in question. One of them was measured in my presence, and was found to be 33 in. long and 17 in. across, thus being larger than the one you notice by 6 in. and 4 in. respectively. This plant is growing in a 7-in. pot, and the top of the comb is only 7 in. from the pot-rim. Mr. Gould (gardener to Col. Cross) informs me that this is about the usual size to which he grows these plants.—C. P., Preston.

SEDUM SPECTABILE PURPUREUM.—Until the other day we were not aware that there existed such a distinct and superior form of this handsome *Sedum* as this is. It is named *purpureum* on account of the flowers being of a much deeper colour than that of the ordinary form, but it can nevertheless be scarcely called purple. When seen side by side there is a great difference between the type and the variety, and the latter will inevitably supplant the type in time. It seems to differ in no other way than in colour. At the Hale Farm Nursery, Tottenham, the two forms are just now very finely in flower.

AMARYLLIS AUTUMN BEAUTY.—This lovely autumn flowering variety is a great gain, as it invariably flowers at a season when there is a dearth of bloom both indoors and out. It is a hybrid between the beautiful, but shy-flowering *A. reticulata* and one of the large flowering varieties. It has the soft, pleasing, pale rose colour of *A. reticulata* and the characteristic veining of deep rose-pink, while it possesses better form and is of larger size. It flowers freely and lasts a considerable time in beauty. It is now in flower in the Royal Exotic Nursery, Chelsea, where it originated, and for several weeks past there has been a succession of flowers from several plants.

THE BEST ASTERS.—In addition to the list of Michaelmas Daisies selected from the Kew collection, and named in THE GARDEN last week (p. 288), there are a few in the Hale Farm Nursery well worth attention. These are *A. versicolor pumilus*, a compact growing dwarf variety, differing from the type in being only about 15 in. high. It is an abundant flowerer, and just now very attractive. *A. Amellus latifolius* is different from *bessarabicus* or any other form, the flowers being large and the growth taller. Another form of *Amellus* not named is remarkably distinct, its

colour being suffused with red. *A. sericeus*, *Nova-Angliæ ruber* (probably the same as *roseus*) are likewise worth noting for a selection.

Bible Flower Mission.—I am glad to see this mission brought before the readers of THE GARDEN by your correspondent "J. C. C." (p. 274). I cannot speak from personal knowledge of the pleasure the flowers give to the patients in hospitals, but from what one hears from those who can, the delight of the recipients is very great. One can easily understand how grateful a patient shut up in a hospital must be to receive a bunch of fresh flowers. No one need think that large quantities of rare or costly flowers are required. Many of the bouquets are not larger than large "button-holes," and the commonest and even wild flowers are often the most acceptable, as they are so frequently old favourites of the patients. In winter bunches of Holly, Lavender, *Laurustinus*, or anything in the way of a flower gives great pleasure and is better than nothing. I know several persons who devote a morning or an afternoon a week to tying up flowers for the flower mission. Those who live near together choose the same day and pack their flowers together, which saves trouble and expense in forwarding them. Many persons have a spare corner in their gardens in which they could grow flowers particularly suitable for this purpose. (Perhaps some competent person would give a list of plants whose flowers would travel well and be most useful for this purpose. If they would, I am sure they would earn the thanks of many a sufferer.) I do not see why plants should not be grown in churchyards for these missions where there is any difficulty in obtaining them from gardens. "God's acre" could scarcely be better employed than in ministering to the relief of "suffering humanity." When these bouquets are accompanied by a text card they are often the means of affording more permanent pleasure than the perishable flowers alone can give.—G. S. S.

FLOWER GARDEN.

PERMANENT BULB BEDS.

THE season of bulb planting has again come round, and one would think from the prominent position they occupy in catalogues, auction sales, &c., the whole country would soon be a reflex of the Haarlem bulb gardens, yet it is no exaggeration to say that bulbs are nearly unknown in many gardens, or, at least, the hardy section that live from year to year, and increase rapidly—if they get the chance. Unfortunately, the system of lifting and replanting everything in gardens now-a-days does not give bulbs a chance to perfect even one season's growth; consequently there is no help for it, as long as this system prevails, but to treat bulbs as annuals, of which they are figuratively the most short-lived examples we have. The demand always appears to centre on the tender pot kinds of *Hyacinths*, double *Tulips*, &c., and these in their season make a brilliant, but short-lived display under glass, and in some few cases out-of-doors where spring gardening in the true bedding-out or massing style is carried out, but this is too costly a luxury for the many, and is really the most costly branch of flower gardening, considering the time it lasts of anything now practised in English gardens. By comparison, even the brief display of our summer bedders is a lengthened one.

Much as I admire bulbs in connection with other spring flowers, I cannot say that I find them so satisfactory by themselves, for their very habit of growth seems to suggest that they should spring from a carpet or groundwork of some dwarf, spreading foliage to compensate for their somewhat meagre leafage, and in beds of *Myosotis*, *Silenes*, &c., where their blossoms rest as it were on their dwarf companions the effect is very pleasing when the bulbs are well arranged; but here the ever restless desire for novelty and change steps in before the blooms are half faded or the growth of bulbs half completed, and they are ruthlessly torn

up to make room for the next lot. No wonder that only the earliest flowering section is sought after, for there is no spot in comparatively large gardens safe from the fork or spade. Yet there are other ways in which many beautiful bulbs may be not only grown, but enjoyed for years without a tithe of the labour or expense of the system called the bedding one, viz., by permanent planting of such kinds as really do grow and increase in positions where they can remain and become naturalised, increasing in beauty the longer they remain and the larger the clumps or masses become. The best positions of any I have yet found for a permanent bulb garden is under the partial shade of deciduous trees, such as Limes, Elms, &c., or where the Primrose naturally selects its home, for where these flourish the hardy section of bulbs are sure to do well. In many parts of the kingdom the wild *Hyacinth* forms an excellent example of the effect that may be produced by this branch of flower gardening if rightly carried out. But it takes many years to overcome old customs and prejudice, and because bulbs and all other cultivated plants in our gardens have been planted in beds of bare dug earth, I have heard many cultivators express grave doubts of their succeeding in any other way. But in the few cases where this system has had a fair trial it has exceeded all expectations, and as this is the season for making a commencement by planting the bulbs, I would advise all who love their gardens to lose no time in beautifying waste and semi-wild corners, where the shade of overhanging trees causes the Grass to grow thin and weakly, to plant the following sorts for trial. If they are not well satisfied with the results, I shall be greatly surprised, for the most suitable kinds are by far the cheapest of any on the list, and the only trouble or preparation for planting is to take out a spadeful of the hard soil and replace it with good loam and manure, in which to bury the bulbs, the old soil being spread on the surface; or if any turf has been removed it can be replaced over the bulbs. I find

Golden Aconites the earliest of all bulbs, and they make a brilliant display on a bank or any raised position where they can catch the faint rays of the early spring sunshine, or rather that of winter, for they anticipate the spring with their gay petals, and it is more the rule than the exception to get a considerable amount of wintry weather after these golden harbingers of spring unfold their blossoms. Closely following these come the best of all spring-flowering bulbs, the chaste and delicate

Snowdrop, which, when seen in well-established masses on mossy banks or dells, is not at all like the same flower when splashed and soiled in beds of freshly dug earth, and put in at regular intervals, for these bulbs do not conform to prim orthodox flower gardening, and if you would get the maximum of beauty from them avoid all straight lines or the appearance of edgings, and go in for irregular groups that look as if they had grown up spontaneously without any fixed method or arrangement. The single *Snowdrop* is perhaps the best of all, but all the varieties of this family should find a place in the most limited garden. Then there are the

Daffodils and Narcissi, that follow the preceding in the breezy month of March, and I need hardly give a more striking proof of their suitability for naturalising on Grass than the fact that the site of many an ancient garden is still marked in meadows and orchards by the masses of golden *Daffodils* that spring up every year with renewed vigour, and in some cases have nearly covered the turf. A great many varieties of this numerous family succeed equally well as the common one familiarly known as *Lent Lilies* in many rural districts.

Tulips are so gay and varied in colour that they are indispensable in every collection of bulbs, but not the heavy-headed double sorts, as they break down before a gale of wind. Try the single old gay border kinds that are able to take care of themselves when once planted.

Crocuses in their varied colouring are only seen in perfection when left undisturbed for years in the soil. Single lines look meaningless compared with a sheet of blossom, and I find that mice do not molest the bulbs left in the soil as they do freshly-planted ones. I have had them almost cleared out of the soil when replanted, while the old groups close by were not molested; possibly the hard unbroken soil protected them.

Squills, *Anemones*, *Dog's-tooth Violets*, and many others may be added to the list, but I feel sure that anyone making a trial of the above mentioned will soon wish to try a more extensive assortment, as a maximum of pleasure may be by this system be reaped for a very trifling cost.

Seaford Nursery, Gosport.

J. GROOM.

Florida Yellow Water Lily (*Nymphaea flava*).—It will be remembered that a few years ago Mrs. Treat re-discovered this new and rare Water Lily in Florida. As soon as she found it she sent plants of it to the Botanic Garden, Cambridge, Mass. They blossomed in the spring of 1878, and were the first yellow Water Lilies ever bloomed outside of Florida. Since then, however, the plant has been extensively introduced and disseminated, and it has blossomed at many places in this as well as in other countries. Again I am happy to record another triumph with it; it is now blossoming with us as a hardy plant. Having plenty of plants, and to spare, in the fall of 1880 I planted out two big roots of it in a small pond. They came up and grew well last year, but did not blossom. This year, however, they have formed plants some 8 ft. or 9 ft. wide, and as many as three and four flowers have been open on each at one time. The flowers are larger than those we got from pot plants; they rise some 6 in. to 9 in. above the water, open about 8 to 9 o'clock in the forenoon, and close between 3 and 5 o'clock in the afternoon. They open again on the second day, but not after that. Our pond is small, about 3 ft. deep in summer, and a little more in winter, and fed by drain and surface water only. In summer the water in it gets quite warm, and in winter it does not freeze to the bottom. Our fragrant pond Lily of the East, and big tuberous Lily of the West, grew into full-sized plants before the yellow Lily threw up a leaf. Indeed, it did not begin to grow in earnest until the middle of July, thus showing plainly that warm quarters are its natural home, and a spring-fed pond or cold lake may be unfitted for it in the North.—*Country Gentleman*.

SHORT NOTES.—FLOWER.

Single Dahlias.—They seem interesting in some of the purples and rose kinds, and would be worth comparing with kinds in the fullest collections.

Seedling Single Dahlias (*M. & Co.*).—Your seedlings, amongst which are some strikingly bright colours, are all worth cultivating, but we doubt if they are distinct from named kinds already in cultivation.

Summer flowering Chrysanthemums.—Are there any crimson or yellow dwarf hardy summer flowering *Chrysanthemums* as free flowering and with as large flowers as *Mme. Pecoul*, *indicum*, and *Souvenir d'un Ami*?—H. B. C.

Stocks and Mimulus (*J. Hunter*).—The *Stock* sent is certainly an uncommon one, and being pretty is well worth perpetuating. There are quite a deep coloured kinds of *Mimulus* as that you send, but yours is a good one, and worth preservation.

Rare Daffodils.—Allow me to state in reply to "F. W. B." that I obtained *Narcissus minimus* (true) from Messrs. Backhouse, of York. *N. cernuus* fl.-pl. used to be in Mr. Barr's list, but this year it is omitted. *Bicinctus* I do not know.—T. H. ARCHER-HIND.

Campanula pyramidalis.—It is seldom one sees this fine Bellflower doing well in the open air, but in a cottage garden at Farleigh Castle, near Bath, a few days ago I saw some grand plants of it finely in bloom; some of the spikes were from 3 ft. to 4 ft. high, and covered with blue bells, thus showing that under favourable circumstances it may be grown and flowered in perfection out-of-doors.—J. C., Farnborough.

LILIUM LEICHTLINI.

WE frequently hear complaints from cultivators as to the behaviour of this beautiful Lily, which appears to be somewhat eccentric; some seem to grow it well without much trouble, while others expend a deal of time and patience without good

well drained and richly made herbaceous border, also facing the south, have done best. A good amount of sand was placed round the bulb when planted. New bulbs are formed at some distance from the old; therefore great care must be taken if it is necessary to disturb the border. As to cultural

perience of it. As I happened to be passing his garden lately I asked him regarding its hardiness, when he informed me that he could not remember its origin, but that he had grown it regularly for upwards of thirty years in the open border without protection of any kind. He stated that in severe winters some of his plants are killed, but that there are always plenty left to keep up the stock.—ALEX. FRASER, *Canonmills Lodge, Edinburgh.*



Lilium Leichtlini.

results. One of the most successful cultivators seems to be Mr. A. Kingsmill, of Eastcott Cottage, Pinner, who brought us some few weeks ago a beautiful flower of it, of which we give a Dallas tint illustration. In his note Mr. Kingsmill says, "It always surprises me when this Lily is spoken of as requiring any special treatment. Some years ago I planted in a rockery facing the south one small bulb (sent direct from Japan, with several other Lilies); from this bulb I have now several, which have been planted in various positions; those in a

directions, my advice is plant the bulbs in good well drained soil and leave them alone."

Calceolaria sulphurea splendens.

In your notice of this plant you ask if anyone else besides Mr. Munro has tested its hardiness. I got a plant of it recently from a friend who states that he has found it to be hardy for several years. Mr. Crawford, market gardener, Stenhouse, Liberton, near Edinburgh, however, from whom my friend, and I believe all others in this neighbourhood, got the plant, has had most ex-

BEST NEW DOUBLE BEGONIAS OF 1881-2.

DURING the summer now drawing to a close I have again continued on the same extended scale as previous years the culture in the open air of all the varieties of new hybrid tuberous-rooted Begonias sent out by the principal Continental raisers, and am more convinced than ever that especially for moist and sunless climates, such as ours unfortunately is in this corner of the south of Ireland, there is nothing to come anywhere near these brilliant and beautiful plants for the effective and continuous decoration of the summer and autumn garden, while many of the smaller plants if now lifted into pots from the open ground will continue to adorn the conservatory for two months yet to come. My last notes contributed to the columns of THE GARDEN appeared in the issue of February 19, 1881, on pages 217-18 of Vol. XIX., and consisted of brief descriptions of the principal new varieties, both single and double, sent out during the previous year, 1880. Among the former of these was described Messrs. Thibaut and Keteleer's splendid variety Countess of Kingston, which for brilliancy of colour, immense size, perfect shape, and great substance of flower left absolutely nothing to desire, and has, in fact, reached the acme of what I conceive it possible for a single-flowered variety to attain to; certain it is that none of those that have come under my notice in 1881 or 1882 come anywhere near it. I therefore propose in the following notes only to describe some of the best double flowered kinds sent out by the leading Continental raisers during the present and immediately preceding seasons, as in them I am happy to be able to note a considerable advance towards perfection, both in fulness and perfection of duplicature, and in pleasing variety of shades and colour. The most striking set of novelties sent out in 1881 were those raised by Monsieur E. Lequin, of Clamart, near Paris, and distributed by Messrs. Thibaut & Keteleer, the well-known nurserymen of Sceaux, who also distributed at the same time two fine varieties raised by that veteran florist, M. G. Malet, of Plessis-Piquet. The names of M. Lequin's varieties were as follows: 1, Eugène Lequin; 2, Souvenir de Monsieur Thiers; 3, Mrs. Wise; 4, Duchesse de Galliera. M. Malet's two varieties were Mozart and Eugène Boissy.

EUGÈNE LEQUIN is a fine, vigorous-growing variety, producing enormous fully double male flowers of an orange-scarlet shade, assuming, when fully developed, quite the proportions of a Hollyhock. This is certainly one of the finest double Begonias. SOUVENIR DE MONSIEUR THIERS is a large flower of fine deep rose colour, with large, flat-guard petals, and fully double centre. MRS. WISE is a very pretty free-flowering variety, with medium-sized, very double, rose-coloured flowers. DUCHESSE DE GALLIERA, a fine robust-growing variety, with very double globular blossoms of a bright orange-red. MOZART is an upright-growing variety, producing freely large, fully double, solid, globular blooms, of a peculiar deep-shaded red colour; this is a really fine variety. EUGÈNE BOISSY is a dense-growing, tufted habited variety producing handsome, fully double, well-formed blooms of a most pleasing shade of deep rose colour.

Monsieur Crousse, of Nancy, sent out five new varieties in the autumn of last year; but, though I got two tubers of each of them from him, only two varieties bloomed with me, named respectively Madame de Dumast and Madame Leon Simon. The former is a low-growing and spreading habited variety, producing with great freedom

beautiful Camellia-like blossoms of a pleasing shade of light salmon, a really lovely variety. The latter is a slender upright growing kind, producing with great freedom medium sized, fully double, globular blooms of a light salmon flesh colour. The names of this raiser's other three varieties, which unfortunately failed to grow with me, but which I hope to be more fortunate with next season, are *BLANCHE JEANPIERRE*, *MADAME COMESSE*, and *MATHILDE GIRAUD*.

MADAME MARIE, by a new raiser named M. Alexandre, but sent out by Messrs. Thibaut and Keteleer, of Sceaux, is a fine vigorous growing variety of upright habit of growth, producing large, handsome, fully double Camellia-like blooms of a bright rosy pink. This is a really first-class sort.

M. Lemoine, of Nancy, sent out three fine varieties: *AMBROISE THOMAS*, a compact growing kind with very fully double blooms of a pale rose colour shading to white in the centre, which is of conical form, resembling that of the same raiser's fine variety *Mignonette*. *ETNA*, a low growing kind, producing on stout footstalks large and fully double blooms of an intense orange-scarlet in the way of the same raiser's fine variety, *Edouard Morren*. *BOUCHER DE PERTHES*, a low growing sort of tufty habit of growth, bearing on stout footstalks well raised above the foliage most exquisitely folded, fully double Ranunculus-like blooms of a vivid orange-scarlet. This is a really fine and most distinct variety. *MADAME HACHETTE* (Malet) is a slender growing variety of upright habit of growth, producing freely medium-sized fully double blooms of a rich rosy purple shade. A very pretty kind. The first set of Dutch double Begonias in ten varieties was sent to me by M. Krelage, of Haarlem, out of which four only seem to me worthy of special notice, but of these two at least are of first-rate excellence. *MONSIEUR DUIJVENE DE WIT* is a vigorous, upright-growing, freely-branching variety, producing abundantly enormous fully double, many faceted flowers of a most pleasing rose colour, shading off to pure white in the centre; this is a truly splendid variety, and quite the best of the set of which it is a member. *PRINS HENDRICK* is a strong, upright growing kind, producing large and fully double blooms, of a light rosy purple. *PROFESSOR OUDEMANS* is an erect growing variety, resembling the last named, but with blooms of a deeper shade. *ALEXANDER VON HUMBOLDT*, an erect growing kind of rather more slender habit of growth than the last named, and producing handsome, fully double blooms of a richer and deeper shade of rose colour. *AGNES SOREL* (Lequin) is a low growing variety, producing enormous fully double blooms of a deep shade of rosy blush; an exceedingly fine kind. Two older varieties of M. Crousse's raising, but now blooming with me for the first time, are of sufficient merit to be noted here, they are: *MONSIEUR LANGLOIS*, a low growing variety, producing large, Camellia-shaped blooms, much resembling Lemoine's *MONSIEUR VARROY*, of a brilliant orange-scarlet. *MADAME MOREAU*, a tufty growing variety, producing handsome deep salmon coloured blooms, somewhat resembling in shape those of an Oleander. Of all the new single flowered varieties that have come under my notice during the last two seasons only one can be considered as any decided improvement on its predecessors; this is named *Salmonea Magna*, sent out this year by Messrs. Thibaut and Keteleer, of Sceaux.

W. E. GUMBLETON.

Exhibiting Chrysanthemum blooms.

—Will someone give an intending exhibitor of cut Chrysanthemums some plain instructions as to making stands and boxes in which to show them? Where can I get cups and tubes at a reasonable price? In a schedule now before me a prize is offered for twenty-four cut blooms—six large, six Japanese, six Anemone, and six Pompones. Ought the latter to be exhibited in six threes or individual blooms? Any hint on the subject will be gratefully received.—IGNOTUS. [It would be

most convenient to have two stands for twenty-four blooms. Each stand should be 24 in. long and 18 in. wide, with holes 6 in. apart from centre to centre. When the stand is placed on the exhibition table it should be 6 in. high at the back and 3 in. in front. Any tinsmith could make the tubes of zinc, and any carpenter could turn the cups. They should be made like wooden egg cups and be 1 in. deep, and from 1 in. to 1½ in. wide, inside measure; they should fit easily into the tubes, which should be ¾ in. wide and 3 in. deep. Pompones ought to be exhibited in threes, but if the schedule says six Pompones, you must not show eighteen. Judges must be guided by the schedule. The stands should be made of ¾-in. deal and be painted green.—J. DOUGLAS, *Ilford*.]

SHOW DAHLIAS.

It is not to be wondered at that the fine distinction between tipped show and tipped fancy Dahlias is only imperfectly understood. In the class of show Dahlias we get three distinct types, though two of them (the self-coloured and the shaded flowers) run very much the one into the other, according to the age of the blooms and the prevailing weather. All flowers intended for exhibition are more or less covered, and kept from the sun by the exhibitors. The edged, tipped, or laced Dahlias require a good deal of shading, in order to get a pure ground colour and distinct edge or tip. The more delicate the flowers are, the more closely and the longer do they require to be shaded. The following is a good selection of true self Dahlias: *Cardinal*, rich scarlet; *Celestial*, French white; *Comet*, deep red; *Crown Prince*, nankeen or pale buff; *Duke of Albany*, rich crimson; *James Stephen*, bright orange-scarlet; *Joseph B. Service*, fine rich yellow; and *Miss M. Batchelor*, beautiful bright scarlet. These are all new varieties of the present year, and having seen them growing, I can vouch for their general excellence. Of older self-flowers, the most trustworthy are *Acme of Perfection*, primrose; *Adelaide*, clear yellow; *Canary*, deep yellow, a flower of the highest quality; *Chris. Ridley*, bright glowing crimson; *Criterion*, delicate rose; *Drake Lewis*, rich bright scarlet; *Emily Edwards*, blush white, a fine flower when in its best character; *James Cocker*, purple, large and fine; *James Service*, dark crimson; *John Neville Keynes*, yellow; *John Standish*, bright red; *John Wyatt*, crimson-scarlet; *Joseph Green*, bright scarlet-crimson; *Julia Wyatt*, creamy white; *Leah*, golden yellow; *Mr. J. C. Reid*, bright orange; *Mr. Spofforth*, crimson; *Mrs. Boston*, lilac, a flower of the finest shape and quality; *Mrs. Henshaw*, white, large and full; *Perfection of Primroses*, primrose; *Prince Arthur*, beautiful clear yellow; *Revival*, rich crimson; *Rosy Morn*, clear rose; *Thomas Goodwin*, very dark maroon; *Vice-President*, bright orange, a good and useful old flower; and *Walter H. Williams*, brilliant scarlet, and a very handsome and full reflexed flower.

Another group can be formed of the shaded flowers. These are generally of a bright colour, shaded with crimson, purple, maroon, or black, though sometimes a dark flower is shaded with a brighter hue. Of the new flowers of the present year the following come under the denomination of shaded varieties: *Critic*, lilac, suffused with white at the base of the petal; *Pioneer*, rich glossy black, a little brighter in some parts than in others; *George Dickson*, chestnut-brown, shaded with red; and *George Rawlings*, very dark maroon, shaded with black. Of older flowers we have *Alexander Crامond*, maroon, shaded with crimson; *Arbitrator*, buff or fawn, suffused with purple; *Burgundy*, rich dark puce, shot and suffused with light purple; *Champion Rollo*, orange, with pale edges, distinct and fine; *Frank Rawlings*, purple-magenta; *John W. Lord*, orange-buff, shaded with red; *Joseph Ashby*, orange, shaded with crimson; *Lady Wimborne*, deep pink, heavily shaded with rose; *Ovid*, rich puce and purple; *Prince Bismarck*, puce, shot with purple; *Prince of Denmark*, dark maroon, shaded with

crimson; *Rev. J. Godday*, maroon, shaded with purple; *Royal Purple*, purple, with distinct lilac shade; and *William Rawlings*, crimson and purple.

There yet remains the edged or tipped flowers, a numerous and attractive group. Of new flowers there are *Duchess of Wellington*, white, tipped and edged with purplish crimson; *Admiration*, yellow ground, edged and mottled with lake; *Charles Liddard*, rich deep yellow, with well defined crimson edge; *Constancy*, yellow, deeply edged with lake; *Cremorne*, yellow, tipped with red; *Ethel Britton*, blush white, edged with reddish purple, a charming flower; *Flag of Truce*, white, occasionally tipped with lilac, though often shown as a white self; *Goldfinder*, yellow, tipped with red; *Harriet Tetherill*, blush, margined with dark purple; *Henry Walton*, yellow ground, heavily edged with vermilion; *Herbert Turner*, French white, with soft tinge of lilac, when closely shaded a good white self; *H. W. Ward*, yellow, heavily edged and shaded with crimson; *John Bennett*, yellow, broadly edged with scarlet; *Lady Gladys Herbert*, white, heavily edged with crimson; *Mrs. Harris*, white, edged with lilac; *Mrs. John Downie*, light ground, heavily edged with rosy purple; and *Royal Queen*, pale ground with heavy purple edge.

The list of Dahlias here given, as well as that of fancy varieties given in *THE GARDEN* (p. 266), includes all the varieties best adapted for exhibition purposes. They are indeed selections from the kinds that appeared on the exhibition tables at the recent Dahlia Show at the Crystal Palace.

R. D.

ANTI-RHINUMS AND THEIR CULTURE.

ANTI-RHINUMS may either be grown as annuals or biennials. As annuals the seed should be sown early in February in pots or pans filled with light soil, consisting of loam, leaf mould, and plenty of sharp silver sand to keep the whole open. Fill the pots or pans half full of crocks broken rather small, cover them over with some rough material, and then fill up with the soil, leaving room to cover the seeds and to hold sufficient water to keep the soil moist. Sow thinly, cover with some fine mould, and then water with a pot furnished with a fine rose. If placed in a warm house or pit, the seeds will soon germinate. As soon as the young seedlings are large enough to handle, prick them out 1 in. apart in pots or boxes, using light soil such as that just named. Place the pots in a house or pit in which there is a temperature of 50° to 55° until they make plenty of roots and are growing freely, when they will do best in a cool pit for a time where they will get hardened off. Some time in April prepare a bed of light soil in some sheltered corner of the garden or nursery ground, and in that plant the young plants 6 in. apart; then soak well with water and shade for a few days until they get established, when they will require but little attention, beyond being watered on dry days, until they are planted out permanently in the end of May or the two first weeks in June. If well attended to after being planted out, they will commence flowering early in August, and will continue to yield an abundance of bloom until frost cuts it off.

Where choice named varieties are grown, or if any of the seedlings are thought to be worth preserving, that may be done by using the young side shoots as cuttings. They may be taken off any time in September. Prepare some light soil as before, and fill the pots or boxes as recommended for seed. Pot the cuttings, which may either be taken off with a heel or cut below a joint, closely, firming them well in; then place them in a cold pit in which they can be wintered, and early in the spring they will be ready to pot off singly in small pots, or they may be pricked out under hand-lights in a piece of prepared ground in a sheltered place. There they may remain till they get well established, when they may be planted out permanently in May or early in June. After being planted out they will soon commence to flower, and will continue in bloom until late in the autumn.

Some of the best spikes of flower should be kept for seed, which may be saved either in distinct colours or mixed, as may be desired. When the seed is ripe cut the spikes and lay them upon sheets of paper to dry; when perfectly dry rub the pods between the hands, clean the seeds and put them into small glass bottles, and cork the bottles closely. They may be kept for a number of years, using a few for sowing as may be required. The following are a few of the best varieties, viz., Album perfectum, Contrast, Dubois, Fascination, Glory, Kate Wallace, Pleasing, Sulphur Queen, Snowball, Talma, William Johnson, and White Swan. WM. CHRISTISON.

Bromley Common

GODETIA DUCHESS OF ALBANY.

At the last summer show of the Royal Botanic Society, Regent's Park, flowers of a lovely white Godetia were exhibited which everybody admired, and the judges were so impressed with its beauty



Godetia Duchess of Albany.

as to award it a first-class certificate. This new Godetia was exhibited by Messrs. Daniels, of Norwich, who named it Duchess of Albany. Those acquainted with the beauty of Lady Albemarle Godetia have but to imagine it spotless white in order to obtain a correct idea of what this novelty is, for the flowers are just the same in size as those of the Duchess of Albemarle. The following is Messrs. Daniels' description of it: "It grows about 1 ft. high, branching from the bottom, and forms a handsome pyramid, producing large clusters of flowers of a beautiful glossy satiny white, each when fully expanded measuring 4 in. across, and so profusely borne as to hide the foliage. This will be found a most valuable addition to hardy annuals, being perfectly hardy and withstanding the severest winters in the open border without protection." What could one wish for more? As it proves to be so hardy, the best way in which to get good strong flowering plants of it is to sow the seeds in September and allow the plants to remain out all the winter, when they will gain strength and produce a much finer crop of bloom than spring-sown seedlings. The Godetias like a light, warm soil, not too rich, and a sheltered, but open, situation in order to develop fully. Last week

Messrs. Daniels sent us flowers of this new white kind and of several other varieties of Godetia, some possessing lovely colours, thus showing how continuous they are in blooming.

GOOD THINGS.

"F. W. B." is right in saying that "what amateurs prefer to know is the best kind of culture and arrangement for what are the most generally beautiful of plants." This is just the kind of information we want; it is only by comparing notes and describing successes and failures that a general good cultivation of hardy plants can be arrived at. To speak for a moment of my own requirements, does any reader of THE GARDEN grow Fortune's yellow Rose successfully, or, as Mr. Fortune described it as growing in China, one mass of bloom? or has anyone a good healthy plant of the old yellow Cabbage Rose, and under what conditions of soil, culture, and exposure? Has anyone succeeded in establishing *Iris iberica*, *Iris Pavonia major*, and *Iris Kämpferi* as border plants? These are all good things which present nuts to crack in the way of cultivation, and in which the kernel is worth a great deal of trouble. With regard to hardy florists' flowers, information as to successful cultivation in open borders is very meagre, although instructions as to cultivation in pots may be had *ad nauseam*. The bedding system has contracted the popular idea of a garden so much that it is possible to find trained gardeners competent to manage bedding plants and all kinds of glasshouses who do not know even the names of the majority of hardy flowers. Only this week in a leading gardening paper English and Spanish Irises, flowering in June, are recommended as good early spring [flowering] bulbs to associate in open borders with Scillas, Roman Hyacinths, Crocuses, &c. The gardening papers are full just now of instructions as to planting, culture, and arrangement of the few spring flowers which will make a respectable show in open beds, and yet can be pulled up to make room for the bedders, but not a line, except from amateurs, of the multitude of good things which cannot be so treated, or of those equally good things which flower in May or June. In how many first-class gardens in the country has a good lot of Carnations been planted this month, or show Pinks, Bearded Iris, English and Spanish Iris, *Iris persica*, *Iris pumila*, or *Iris reticulata*, border Auriculas, Polyanthus, Daffodils, Hepaticas, or the beautiful double and single varieties of the common Primrose? How many gardeners have the early Phloxes, Saxifrages, and Sisyrinchiums in any quantity? and how many grow *Dielytra spectabilis* well in the open border? How many have well established clumps of the dwarfed Anemones, florists' kinds and others, the Ranunculi, the Dog's-tooth Violets, and the American Cowslips? These are all good things, far more worthy of a prominent place in every garden than beds of Hyacinths and Daisies, *Silenes* and *Aubrietias*, but to obtain detailed information about their cultivation one has to go back to books published before 1860.

The best advice that can be given to all possessors of gardens is to buy good things and grow them well; do not be satisfied with admiring A's Auriculas, B's Bearded Iris, C's Carnations, or D's Daffodils, at South Kensington or Regent's Park, but buy and plant them and cultivate them. Do not "nibble at the cheese of good things" by timidly buying a few second-rate plants or a pig-in-a-poke cheap collection, but select and plant the many good things which are easy to cultivate, and afterwards those which are more difficult. After you have bought the good things, do not plant them in starved edgings in front of shrubs or in raised mounds or sloping beds where they will get parched, or crowd them together in out-of-the-way parts of the garden without regard to the soils and positions which they require, or you will assuredly make them rubbish. Do not plant them in beds on the Grass amongst staring blue, yellow,

and scarlet bedders and arrange them in stripes, figures, or alternate arrangements, but keep the bedders out of the same garden landscape, or only use a few to succeed spring flowers, and let these assume their natural habit; and, above all, do not expect hardy plants to show what they are made of the first season after planting or even the second. Let your Gentians, Hepaticas, Anemones, Primulas, Irises, Scillas, &c., form clumps and sheets before you draw a comparison between them and bedding plants. Give everything good, honest cultivation, and we shall soon have plenty of good things in our gardens.

Apropos of good plants being rubbish when planted in unsuitable places, the varieties of *Pyrethrum roseum* have been anything but satisfactory with me owing to dry springs, but this year two or three plants placed in a shady border, where the sun could only touch the flowers up till 10 a.m., produced many large and finely coloured blooms, the plants remaining in flower for six weeks, each bloom keeping in a presentable state twice as long as those in sunny borders. I have just moved the plants, and find them twice as large as those which have been growing in the sun. Another success is Dahlias without stakes. I very much dislike staked flowers, and tried these without them. The result is as satisfactory as anyone could wish. The plants are about 2 ft. 6 in. high and 3 ft. across, round and bushy, and with a sturdy branching growth like *Pæonies* or *Marvel of Peru*. They have had plenty of wind, but have not been injured in any way; they are not bedding Dahlias, but show varieties. J. D.

Worms in lawns.—These are a nuisance, and in a lawn tennis ground a great nuisance, as their casts when the roller or the mowing machine have passed over them form little muddy patches that dirty the balls. How are they to be got rid of? A weak solution of mercury bichloride will kill many worms in a lawn, but it seems also to poison the grass, while other worms seem to find nothing nasty in the lawn a few months later, Soot, as a top dressing, has the disadvantage of dirtying the balls for months after its application. Would a layer of well burnt ashes under the turf form a permanent obstacle to worms? and if so, how thick must the layer be? and how deep must the turf over it be? As people frequently have to lift the turf of a lawn to make a lawn tennis ground, advice on this point might be of considerable practical value.—S. A. M.

A new Clematis.—I send you cut specimens of a new seedling Clematis, sweet-scented, named *Flammula hybrida* now in full beauty. Messrs. Cripps intend to distribute it next spring. It is a cross between *C. Viticella rubra* and *Flammula*, the latter being the seed parent. It is a pretty hardy climbing plant, forming masses of flowers, and suitable for covering summer houses, rustic work, pillars, &c. It will probably prove to be the parent of a new race of Clematises possessing both scent and colour. Clematis *Jackmani* *superba*, already noticed in THE GARDEN, is flowering freely here. Messrs. Cripps selected and sent out this fine variety. Clematis *Gipsy Queen*, a variety of superior merit, is also one of their selection from a large number of seedlings of their own raising. The colour is a bright velvety puce.—D. DARTNALL. [The new seedling is a very curious one, bearing numerous flowers, but these are scarcely pleasing in colour.—ED.]

The Flame Nasturtium.—A correspondent, I observe, complains that he has not been able to establish this beautiful herbaceous *Tropæolum* here in the south. I noted the other day that it was doing remarkably well in Messrs. Hooper & Co.'s nursery at Twickenham, where Mr. Bruckhaus has been most successful in establishing it in the corner of a wall and on its north side. Here in a cool, moist position it was running up some spray and flowering profusely. There may be cases, perhaps, in which it would be better to get portions of the fleshy roots to throw up growth in pots before planting out into some permanent

position. Cool, moist corners are in the summer months peculiarly favoured by slugs and other troublesome vermin, and should these eat the shoots as they attempt to push through or beneath the soil the roots may be incapable of further effort. It is to be deplored that so lovely and yet so hardy a creeper is so seldom seen.—A. D.

Buttercups in lawns.—These are a great nuisance in lawns on clay soils, like mine, and rape dust, which I find the best stimulant of the grass, seems rather to encourage them. Is there anything which will kill them short of the Daisy sands, which, so far as my experience goes, are ruinously expensive?—S. A. M.

CLYST ST. GEORGE.

LONG ago before the present revived taste for herbaceous plants began, indeed before the rise of modern English gardening, before even Tom Thumb was invented, or the numerous tribe of bedding plants sprang into existence; when golden Pyrethrum was unknown, and persons had not even thought that a bed arranged something like a Persian carpet, and trimmed almost as closely, was the perfection of English gardening, the venerable rector of Clyst St. George had made the vicarage garden at Bitton famous. There he had collected upwards of 1500 species of plants and shrubs, a list of which, I believe, appeared in THE GARDEN some time ago; and when some thirty-two years ago he removed to his present rectory at Clyst St. George, being then past threescore, he set to work to gather round him many of his old favourites, for to him has been given to reach the wonderful age of ninety-four; and those who are for ever taking the pessimist view of life, who are asking "is life worth living?" would do well to see the picture of old age that is presented to them by the rector of Clyst; to see one who at an age when most men think their work is done, and that they might retire quietly from the world's obtrusive gaze, set himself to restore his church, to renovate his house, to lay out his grounds, and now to be able at the age of ninety-four, in the possession of sight and memory and hearing, to look round and see one of the most charming spots in the charming county of Devon, of which he can justifiably say that it is the gem of the diocese.

Clyst St. George is situated about six miles from the city of Exeter, and about the same distance from the residence of an eccentric, but munificent lady, to whom the Church of England is largely indebted for the foundation of the see of Truro, to which she gave £40,000, and of whom many strange tales are told, one of the most characteristic being that which befell a gentleman who had been asked to spend a week there. On the first morning at breakfast he was expatiating to his hostess on the pleasant walk that he had had, and how he had admired the pinetum. "But how did you get in?" "Oh," he said, "I got over the fence." Nothing further was said, but at eleven o'clock the butler came to him and said, "Your carriage is at the door, sir." "My carriage! I never ordered any." "No, sir, but my lady has." And so, perforce, he had to pack up his things and be off, he having committed a terrible sin in breaking bounds. On the way you pass by the beautiful grounds of Mr. Dixon, of Winslade, whose fine collection of conifers and generally excellent garden are well known. Nothing can be more pleasant than the situation of the vicarage and church, for they and the garden are all in one. It was not to be expected that any formal laying-out of beds would be found here; it is what Mr. Ellacombe calls his wild garden, but it is a wilderness that is very beautiful. There are a few specialties of which Mr. Ellacombe is very fond, and of which he has collections, and not selections. The Rose, single flowered species; the Aster, Willow, Sedums are some of these, while the favouring climate of Devonshire enables him to grow things which in some other parts of England it would be hopeless to attempt; thus, in one part of his garden he has grown a little jungle of Bamboos,

which seem to thrive well. The lawn in front of the house is planted with Daffodils in patterns, but, of course, at this time of the year these had all died down, and the Grass was something rough, but I have no doubt from my own experience of a few in my front paddock that they must look very well. I was much struck on entering by a large yellow flower which I had not before seen; it is a common one, but I think by far the best of the yellow, autumn-blooming flowers we have—I mean *Telekia speciosissima*. It is much more elegant than either *Rudbeckia Newmanii* or *Harpalum rigidum*, the tasselled character of the petals giving it a very graceful appearance. At the bottom of the lawn there is a large bed containing many varieties of the Rose, amongst which were *Rosa ferox*, the red Burgundy Rose, *Rosa pinellifolia*, *Rosa moschata*, *Rosa Nathkini*, *Rosa villosa pomifera* (the apple-bearing Rose), *Rosa rugosa* and *rugosa alba*, and many others; indeed, I believe at one time Mr. Ellacombe had as many as 150 species. In Asters, too, there was a fine collection, upwards of 100 species, which will continue in flower for a long period, and although I daresay many of us would rather grow a selection of these, yet it is always pleasant to meet with a large collection like this, and to be able to compare the different species, and perhaps obtain names of some which have hitherto puzzled us. Then there is a large collection of Sedums, and scattered up and down in beds or in the borders of the kitchen garden are a variety of plants, many of which one does not meet with often. Several of the beautifully foliaged *Acanthi* are here in excellent order, mollis especially, from which it is said the capitals on the Corinthian columns were taken; *A. spinosus*, prickly, but not so much as *Acanthus spinosissimus*, a formidable-looking plant; *Potentilla formosa* was very pretty. *Verbascum Lychnitis*, a native plant, was worth a place in a garden like this, where good things are cherished, no matter from what source they come. *Verbascum nigrum* was also fine, while a *Rudbeckia*, which I have marked purplea, called also *Echinacea purpurea*, was showy. The *Eulalias*, as might be supposed, were in flourishing condition, and there are few prettier things in this way than *Eulalia japonica* and *japonica zebrina*, the pretty shrub *Garrya elliptica*, which some find a difficulty in cultivating here doing well. *Elecampane*, which grows wild near Bitton, has been transplanted here, and is doing well. *Lathyrus Sibthorpei*, Mr. Ellacombe speaks highly of; it is a delicate rose-purple, early flowering, while *L. latifolius*, the Everlasting Pea, rosy purple and white, puts in a claim for a place in every garden. *Saxifraga peltata*, requiring a moist, boggy situation, is unquestionably a very showy plant. There were a large number of plants scattered up and down, but I was not able to do more than note a few of them, for my time, as is alas too often the case, was very hurried. Mr. Ellacombe welcomes any of the novelties of excellence which are from time to time added by the zeal and energy of collectors to our gardens; he is not so wedded to the past as not to recognise the additions made of late years.

And yet after all said and done, and after the garden has been gone over and the church visited, the most noticeable of all is the venerable rector himself; and I know nothing that has shown me more forcibly how all the events of our lives are bound together than my visit to Clyst St. George. Mr. Ellacombe is, perhaps, our highest living authority on the subject of church bells, on which he has written much and concerning which he is consulted from all parts of the country. It is now forty-five years ago, when in a distant part of the county of Donegal, in Ireland, where I was staying in the house of a dear old friend of my father's, that a young Frenchman came down to make some drawings of a famous bell which was in his possession, and in which, I was told, an English clergyman was much interested, and when some two or three years ago I was writing to Canon Ellacombe, at Bitton, I asked him if he were the great bell man. "No," was his reply, "but my father is; and if you can

talk to him about bells he will be delighted." I wrote to him and he very kindly sent me sheets of a work he had published, in which was an account of the bell in question as taken from the drawings I had seen executed; and he insisted on my going to see him, and thus my visit to Clyst St. George in August, 1882, has to be connected with a visit paid to Donegal in August, 1837. DELTA.

GARDEN FLORA.

PLATE CCCLVII.

CELSIA CRETICA.

IN the annexed plate is represented a handsome old plant now seldom seen. A charming drawing of it was made nearly fifty years ago by Mr. Bond, of Walcot, who was then at Kew, but, owing to the small size of our plate, we have been unable to show the full length of the spike. We have from time to time specimens of this plant sent us, but the finest we have seen came from Mr. Sangwin, Treilissick, Truro, who evidently grows it to perfection in the genial climate of Cornwall. In speaking of its culture Mr. Sangwin says: "Nothing can be more simple or easy to grow well than this plant. It produces seed freely, which may be sown out-of-doors in any good soil any time after the 1st of April. The young plants should be pricked out from the seed bed for a few weeks, and then planted finally. But if sown in pans the first week in March, pricked out under the protection of a frame, and planted out in May, the plants will begin to flower by the middle of June, and will continue blooming till cut down by frost. They flowered with us nearly all through the past winter, which was exceptionally mild, but when cut down by severe winters they break again the following spring, and are in bloom very much earlier than plants from fresh-sown seed. Of course, like most other things, they succeed best under liberal treatment. This *Celsia* is certainly one of the most beautiful and most floriferous of herbaceous plants and well worthy a place in the most select collection." North of London we doubt if the plant could be grown out-of-doors so easily; but even where not hardy enough to stand in the open air unprotected it makes a showy greenhouse plant, and one which lasts in flower for a long time.

It is a native of North Africa and Crete, whence come several other species which were once in cultivation, but now appear to have been lost. Among these are *C. Arcturus*, *orientalis*, and *sublanata*. If any of our readers know of these in a living state, we should be glad to hear of their whereabouts. W. G.

PANSIES IN HOT, DRY SOILS.

PERHAPS an experience I had with Pansies in a hot, dry soil on gravel may be of service to Mr. Fish and others who wish to extend the usefulness of these plants. I planted some self-sown Pansies, the third generation, from a packet of seed saved from show flowers, in a hot, dry border in front of perpetual Carnations just to fill up until the Carnations came into bloom. The soil was very fine in texture and dried very quickly; before planting it was mixed with about one-third of powdery leaf-mould. The Carnations died, owing to a close, damp, and frosty spring, and the Pansies were allowed to remain through the season. They not only flowered continuously, but

Growers or introducers of new plants will oblige us much by early intimation of the flowering of new or rare species, with a view to their representation in our "Garden Flora," the aim of which is the illustration in colour, and in all cases where possible life size, of distinct plants of high value for our gardens.



developed a round, bushy habit, short-jointed, with plenty of bright foliage, and the flowers were borne on short stalks, which made them useless for cutting, the lower petal being just clear of the foliage. They were dreadful mongrels of indistinct colours, but they taught me a lesson as to the possibility of breeding a strain of Pansies suitable for hot soils. The summer they flowered through was a fair average one, neither excessively hot nor very cool. The plants were kept rather dry, and only watered after dark when the ground had cooled down. There is no doubt that, as "F. W. B." advises with regard to *Tropæolum speciosum*, seeds can produce plants which adapt themselves to circumstances better than cuttings or divisions of the root. I have found seeds produce healthy plants in instances where purchased plants refused to grow under the same conditions. Plants suddenly moved from a cool, moist loam to a soil which in a hot summer's day become literally scalding could scarcely be expected to do well at once, but seeds of the same plants reared in the soil adapted themselves to it. J. D.

RAMBLES OF A PLANT COLLECTOR.

(Continued from p. 229.)

In a previous communication I promised to give an account of Nikko, the great shrine of Japan, and the burial place of the first and third shogun. The avenue of Cryptomerias and Pines mentioned in a previous letter ends at Nikko, which is 2000 ft. above the sea. The vegetation slightly changes as we slowly ascend from the main road at a place called Outsonomega. In many places near Nikko on the road the trees of the avenue are planted on a mound on each side, 6 ft. above the level of the road. Whether this was intentional or not I do not know, but during past generations the water that has constantly run down on each side of the road has undermined many of the grand trees, and when I last visited Nikko, whole rows of them had fallen across the road, the avenue in many places being ruined for a quarter of a mile. I counted in one place over 200 fallen trees. The Japanese Government is very slow in renewing these trees. Men are appointed to fill up the gaps, but the work is generally so badly done that it is simply labour lost. The town of Nikko itself is supported by pilgrims, who come here from March to November. Most of the houses are hotels and lodging-houses, and many signs are seen in English, such as Sayoken Hotel. I found this a very good stopping place, and I should mention the fine old stunted Yews in the garden, cut into all kinds of shapes. A pretty garden and lawn lie in front of the principal room, made in perfect Japanese style, with the small lake, bridge, rock, and Azaleas, the whole place being not more than 10 yards across. Orontiums, Portulacas, and Andromedas occupied a border on one side. I rambled along from the hotel up the street towards the mountain in front, and soon came to a splendid red bridge, with gilt brass mountings. This, I was told, was the celebrated red lacquer bridge, built by the third shogun. It spanned the rushing mountain torrent, and was a very peculiar structure. Immense beams of timber resting on the sides of the rocks overlapped each other, till about one quarter over the stream on each side, when another long beam was thrown across, forming with the beams from each side of the bank a sort of suspension bridge. This bridge commands a splendid view up the valley of Nikko, low hills to the left coming precipitously down to the water's edge, thickly covered with Maples, Firs, and Pines. To the right is the celebrated mountain Nantaisan, about 7500 ft. high, covered to the top with vegetation. Near us to the right is a dense mass of Cryptomerias, the finest specimens I have ever seen in Japan, specimens 8 ft. in diameter being quite common. The road past the bridge ascends the mountain by irregular stone steps under a winding avenue of Cryptomerias, with an irregularly set stone wall on each side, dripping with water, and covered with an immense variety of Filmy Ferns and Mosses. This is the home of *Camandron ramondoides*, although I often saw

it on exposed rocks, but wet. A beautiful white Saxifrage, too, grows abundantly here. Above us on the Cryptomerias were masses of *Davallia* and *Dendrobium japonicum*. After ascending some 50 ft. we came to an open space, with an immense bronze pillar, supported by four cross-posts, and surmounted by gilt bronze Nelumbium flowers and a crown-like ornament on the top. It is a round pillar, erected, I believe, to the first shogun's memory by the old princes of Japan about 300 years ago. On each side stand two enormous bronze lamps, presented by the silk merchants of Japan at the same time. The temple adjoining was rebuilding, and I was asked to subscribe a tile of copper for the roof, costing a few cents. I gave one, and my name was written on it, but whether it was put on the roof or not I cannot say. After passing out from this temple yard we again came into another grand avenue, with a huge Torus amongst the trees. These Tori are sometimes made of wood, others of stone—two upright pillars with a cross-piece on top. Here were both stone and wood; the former was a kind of granite, and how they put up such immense stones is a mystery to me. Near here was a fine pagoda in a plantation of *Retinospora plumosa*. As we enter the third shogun's temple yard, a fine *Sciadopitys* is standing in the middle, surrounded by a stone railing, planted by the shogun himself. Near it is a grand bronze chandelier, presented by the old Dutch traders to the shogun, also another chandelier given by the Coreans, who at that time paid tribute to Japan. The curiosities about the temple yard were too numerous to describe.

Inside the temple were lovely wood tapestry, if I can so call it—screens let into the walls, representing hunting scenes; the birds and animals consisted of small pieces of coloured wood let in so as to give the desired effect, for the many coloured feathers and the leaves of the trees were also most perfectly carved. Lacquer boxes and tables were here in abundance and of the finest quality. Swords, too, of immense value belonging to old warriors, and made by all the first sword makers, might be seen. In one room were hung pictures of all the then ministers that ruled the country; over a door was a picture with only a screen painted on it, and on one side of the screen a portion of a dress was painted. It was in a splendid frame. I asked what it was, and was told it was the Tycoon, or spiritual emperor at Kieoto; he was behind the screen, as he was never seen in person by the people.

At the back of the temple, in a beautiful solitary forest, was the tomb of the third shogun, a massive stone structure with a raised centre, surmounted by a splendid bronze, containing the ashes of the departed hero. I shall never forget the solemnity of the place; all things round were just what a man of horticultural tastes would desire for his last resting-place—on the side of a fine mountain in the heart of a forest consisting of all the finest and rarest trees. The walls round were perfectly covered with *Hymenophyllums* and other Ferns; on one side a fine *Abies polita* spread out its branches over the tomb. At the one corner of the grave was planted a *Catalpa*, and there used to be a *Paulownia imperialis*, but it is now dead, the tree being short-lived in Japan. There is another temple similar to the one described with just the same sort of things surrounding it. There are fine specimens of Box trees, Yews, *Podocarpus*, *Sciadopitys*, Maples everywhere, and the Azaleas are truly grand.

I visited Nikko several times, and in my rambles came on places where the foot of a foreigner had seldom trod; in fact, I knew every hunter's track all over the mountains. One solitary path under gigantic trees of *Cryptomeria* and *Abies bifida* (firma), hung with Ferns and Mosses, led to a temple high up on the mountain, unfortunately almost in ruins. I went first there with a hunter who told me the temple belonged to three gods—the god of thunder, god of wind, and god of the forest. The two former had occasion to fall out with the god of the forest, and they decided to destroy three trees planted by the

forest god. I should say that these three trees were *Cryptomerias*, planted in a line on the very top of a point on the mountains. One night the two gods of the elements created a great storm, and when the forest god came in the morning he found his favourite trees blown down; to defy the other two deities, he caused three more trees to spring up in the places of those uprooted. And now, at this very day, three high trees, measuring over 6 ft. each in diameter, are growing in a line, and on each side of the hill are three other old decayed trees, hollow and rotten. One measures 12 ft. in diameter, and the other two are over 9 ft. This, of course, to a Japanese, is sufficient to prove the truth of the story. There are about ten magnificent waterfalls at Nikko, varying from 50 ft. to 500 ft., and these form great attractions for sight-seers from all parts of the world. I have never seen such fine falls. One of my rounds in search of plants was from Nikko to a place called Umoto, 5000 ft. up the mountain, and distant about twelve miles, most of the road steep climbing. The vegetation at Nikko, as I said before, is different from that of the plains of Yedo, and even plants of the same species, say *Abies bifida* (firma), are so different in habit and appearance generally, that at first I mistook them for other species; and it was not till after I had carefully collected cones, young plants, and branches that I discovered they were the same thing; hence the confusion amongst conifers in English nurseries. Having determined the various forms of *Abies bifida* (firma), I proceeded up the mountains, and got further confused with *Abies brachyphylla* (Veitchi of old). This Fir was so much like the high mountain form of *A. firma*, that it was not until cones were ripe, and I had seen them in forests at 4000 ft., that I determined what it was. At about 3000 ft. the forest changes visibly, and we leave the *Cryptomerias* and *Abies bifida* behind. *Abies Tsuga*, a species of *Styrax*, and Willow, Maples, Oaks, Walnuts, Hazel nuts, *Castaneas* form the mass of trees everywhere, and some magnificent scenery met our view as we wound round a point of the mountain, or crowned a gorge over the noisy torrent below. At 3000 ft. *Abies polita* grows wild. I have only met with it on one mountain, and it was not common there. Young trees of it are very pretty, but old ones have rather a poor appearance—possibly, however, owing to the thick undergrowth killing off the lower branches. At 4000 ft. I passed over a pumice swamp, thick with very large Maples, consisting of about five species and about one dozen varieties of *A. polymorphum*. The finest in autumn is *Acer vitifolium*, a variety which I sent home; it has bright crimson leaves in autumn, and is an under-shrub, seldom seen in open, exposed situations.

The following plants are always found in such places as are covered with snow in winter, a sort of single Azalea (like *A. indica*), *Acer vitifolium*, a species of *Styrax*, *Lastrea Standishi*, *Maximowiczii*, *Polystichum setosum*, *Cephalotaxus*, and *Rhododendrons*. People, I think, make a mistake with some Japanese plants by planting them in "nice" places, such places being often the most exposed; whereas in their native *habitats* perhaps they scarcely get a ray of sun, and never a cutting, frosty wind. Of course many will stand such treatment, but it is not fair to judge or say a plant is not hardy because it does not stand in an unnatural position. I found Maples luxuriating in pumice always. Wherever there were rocks and pumice and decomposed vegetable matter at 4000 ft., *Abies brachyphylla* (Veitchi of old) was to be found, sometimes alone, at other times mixed with *Betulas*, *Abies Alcoquiana*, and *A. Tsuga*.

At 4000 ft. on the road to Umoto from Nikko we came to a fine waterfall 500 ft.—one long fall from top to bottom and a very large volume of water from a beautiful lake called Chusenjee. The village here is of the same name. I was well known here; most of the men are hunters and very good fellows. We used to stay in the house of a hunter, and I always went with him through the forest up the mountain of Nantaisan. It was here I first saw *Abies Veitchi* (true) growing far

up on the mountain 6000 ft., to stunted trees of it at 7500 ft. In an out-of-the-way valley where we had chased a deer one evening we came upon specimens of *Abies Mariesi* at 7000 ft. I afterwards found this at 8500 ft. growing in greater perfection, where even *Abies Vietchi* was stunted owing to the cold, freezing winds. I last visited this place on October 25, when the air was very rarified indeed, and I had a sensation as if somebody was pressing heavily on my chest. I found *Andromedas* and *Rhododendrons* here with *Retinospora decussata* as under scrub. *Thuja Standishi* formed fine trees at 5000 ft., with *Abies Tsuga*, the latter being in forests at from 5000 ft. to 8000 ft., mixed with *Abies Veitchi* and *Betulas*. In a pumice swamp at an elevation of 4500 ft., *Larix leptolepis* grows wild; it is also found in forests at 2500 ft. I thought it very peculiar that several species of trees should be found in lines at two elevations. Birch, Larch, *Abies brachyphylla*, and *Abies Tsuga* are found in two bands, one low at 2500 ft., another at 4500 ft. to 7000 ft. Another thing struck me as being peculiar: plants found at 5000 ft. at Nikko I found growing on the low land to 1000 ft. in the island of Yesso. I found *Abies brachyphylla* growing in a swamp where, if you dig 6 in., water is found; in some places the water was hot very near the trees, it being the crater of an old volcano. This *Abies* seems to grow in almost any situation and soil. *Lilium medeoloides* and *L. cordifolium* grow in abundance here, always in shade and in new decomposing leafy matter. *L. auratum* was growing on all the exposed grassy slopes near Fuzi-Yama to an elevation of 4000 ft., but always in tall, rough grass from 2 ft. to 4 ft. high. I seldom saw this Lily in or under trees, always in grass or amongst low bushes, and always in peaty, leafy mould with pumice underneath, and not more than 3 in. of soil on the pumice.

Irises.—In one of the late numbers of THE GARDEN I notice my name mentioned in reference to Irises, the cultivation of which here is as follows: A piece of ground is chosen that can be easily flooded, and it is well dug or ploughed while under water. When the plants commence growth they are planted in rows, generally 3 ft. apart, in this mud bed, or sometimes after flowering is over. Water is allowed to stand all round the plants till after flowering. It is then gradually drawn off and the ground is allowed to dry up for the winter. I believe the Japanese never water the plants in winter, and I think they are protected with straw, leaves, or ashes at that season. They manure with excrement only, and this is put on in a weak liquid state every week or so when the plants are growing. This is how Japanese nurserymen grow Irises; and if any of my readers should go to Japan, don't miss the Iris nurseries at Horikiri, about three miles from Yedo, in May. Irises are also grown continually in water, but never so fine, nor so healthy as when grown as just mentioned.

Lilies.—The following are always cultivated. I have never seen them wild, and doubt if they do grow wild in Japan. I imagine they did once upon a time, but now they are only to be found under cultivation, viz., *Lilium lancifolium rubrum*, *L. lancifolium album* and varieties, *L. virginale*, *L. Browni*, and *L. japonicum*. The mountain road to Fuzi-Yama is a mass of *auratum* in June and July; every open patch of ground is covered with it. *Gloriosoides* is a Chinese Lily, and I consider it to be one of the most beautiful of the Lily family. *L. formosianum* is from a mountain in South Formosa. Lilies, such as *L. Thunbergi*, in almost all cases are found wild in sand and peaty leaf soil on pumice; very often one sees a bulb of *L. auratum* sticking on the black earth by the mountain track. I have never seen above from twenty-five to thirty flowers on a wild plant of *L. auratum*, and it seldom grows above 4 ft. high, while in some places in England it often reaches more than three times that height. It is covered with snow in winter. *L. cordifolium* and *medeoloides* always grow in shade in the forests; *L. gloriosoides* is also a shade-loving plant.

C. MARIES.

FRUIT GARDEN.

RIPENING AND KEEPING GRAPE.

ALMOST everyone who has a viney endeavours to keep Grapes to as late a period as possible, but many fail through not ripening them properly, as Grapes are often a long way from being ripe when they are black; after that some kinds want a good deal of finishing. This is particularly the case with *Alicante*, *Lady Downes*, *Gros Colmar*, and others of that class, which are not over sweet at any time, and unless the watery juices are dissipated they mould and rot on the Vine. The only way to get rid of these watery juices and to prevent rotting is to use gentle fires, which, by keeping up the circulation of the sap and maintaining a dry atmosphere, enable the Vines to perform their work and turn the crude juices of the berries to sugar. It is this sugar or saccharine matter that makes all the difference in Grapes hanging, as without it they have nothing in them to preserve them, and the pulp must of necessity perish. Not only are gentle fires exceedingly beneficial for the ripening of the Grapes, but they are equally so for ripening the wood, which this season, owing to the wet sunless weather we have had, is in a very green, backward condition, and greatly needs the assistance of dry heat to harden it off. The time to apply this heat is by night and during cold, cloudy days, but care is requisite to have air on as well, as the artificial heat without it would be productive of more harm than good. The reason of this is that heat in pipes or flues draws out damp from the floor of the house; and as this damp cannot escape it, condenses on the Grapes and spoils their bloom, besides which the atmosphere, instead of being made dry, becomes humid, a condition favourable to the growth of vegetation, but just the reverse for the process of ripening. It is not the quantity of air, however, that is required, but only just enough to move the atmosphere and keep it buoyant, which may be done by having the ventilators of the house open about a couple of inches back and front, so as to induce a slight current. The heat in the pipes or flues will do the rest, but the fires must be kept steadily going from this time to the end of October, after which the less heat the better, as it will make the Grapes shrivel; they must be kept cool and dry to be plump.

S. D.

FRUIT GROWING AT DRUMLANRIG.

ALLOW me to say a few words respecting three classes of fruit grown here, viz., Grapes, Pines, and orchard house fruits. Of Grapes in the early houses, *Black Hamburgh* and *Duke of Buccleuch* are the main kinds, and of these good bunches are still hanging, but it is in some large new houses in the front range the best samples are to be found. Here one large house is devoted to *Black Hamburghs* and another to *Muscats*, and in both the crops are surprisingly fine. The rods are about 24 ft. long, and each of those in the *Hamburgh* house is bearing from twelve to fourteen bunches, none of which will weigh less than 4 lbs. and some nearly double that weight. The berries are above average size, and the bunches as firm and compact as if cast in a mould. Some who visited the International Show at Edinburgh complained that *Hamburghs* of the "good old type" were things of the past, and that coarse, big bunching sorts had taken their place. I question, however, if a finer house of the true old *Black Hamburgh* was ever seen, even in bygone days, than that at Drumlanrig. The *Muscats*, too, were above the average in quality and by no means deficient in quantity, but they were not so perfect as we have seen them under Mr. Thomson's care in the better climate of Archerfield, in East Lothian. Excessive rain and scant sunshine are not conditions under which fine *Muscats* can be grown, no matter how well directed the aim of the cultivator may be. *Gros Colmar* at one end of the *Muscat* house is developing its true character. The berries are very large and fine.

Pine-apples are largely and well grown at Drumlanrig. In the whole collection an un-

healthy looking plant or a discoloured leaf was not to be found. All possessed firm, massive leaves, and the fruits were correspondingly fine. Of the latter, there were several lots in different stages of development and in different structures, but one houseful will sufficiently indicate their character. These were in a lean-to house with a bed in the centre containing sixty plants, and each plant was bearing a fruit weighing from 7 lbs. to 8 lbs., and perfect in shape. The bases of the fruits were not more than 10 in. above the soil in the pots, and the height of the whole in few instances exceeded 24 in. The age of those now maturing fruits is eighteen months. They are growing in 10-in. pots in a mixture of fibrous loam and small bones, and are kept a little on the side of dryness, which is preferred to having them too wet. The new seedling *Pine* lately sent out by Mr. Hunter, of Lambton Castle, is giving great satisfaction at Drumlanrig. Three plants of it are in a forward fruiting state, the largest, not yet colouring, being quite 9 lbs. in weight. The leaves of this variety grow in a very upright manner, and are not very numerous, but the fruits are very fine and good in flavour.

The orchard house at Drumlanrig is 500 ft. long, span-roofed, and 16 ft. wide. The trees are planted in the inside border with root-liberty to go outward. They occupy both sides, and are trained all over the roof on wire trellises. They consist of *Peaches*, *Nectarines*, *Plums*, *Pears*, and *Figs*; all have made remarkably fine growth. Much of the fruit had been gathered, but the *Salwey* and other late *Peaches* were unripe. From this house alone more fruit is gathered annually than could be got from open walls in a number of years. This system has indeed so many advantages, that it would be well worth general adoption. Good wood is annually developed, maturation never fails, plenty of blossom follows, and a full crop is the result.

CAMBRIAN.

WATERING FRUIT TREES IN AUTUMN.

IF there is one point on which fruit growers agree more than on another it is on the importance of the thorough ripening of the wood in autumn. It is a good omen to see the leaves change to a rich golden colour and drop off naturally, leaving plump buds behind; but, in order to assist Nature, it is frequently advised in works on "Fruit Culture" to keep the fruit tree borders rather dry, as, for instance, where late crops of Grapes are hanging, and in many cases where houses that supply the earliest crops are desired to be ready for pruning early in the autumn. It cannot, however, be too often or too distinctly repeated that drying off or forcing to rest from lack of moisture is a most dangerous proceeding, and many a crop of fruit is thus wrecked, even while yet in its embryo state. After many years' experience, I can safely say that the roots of fruit trees are never wholly at rest, and can no more be safely left without a supply of soluble food than can any living thing without feeling its effects, and not only feeling them, but showing them the following season. Let anyone take the trouble to examine fruit tree borders either under glass or in the open, in the months of August and September, when all the roots have been actively draining them of moisture, and when they have been subjected to the still larger drain by evaporation; the work of watering must have been more attentively carried out than I have generally found it to be, if a thorough good deluging would not prove more conducive to the thorough ripening of the wood and plumping up of the buds than any amount of drying off. If there be green or immature wood in any case, I have generally found it in trees that have been checked by drought from perfecting their growth until late in the season, when the moisture from autumn rains has started them afresh, clearly indicating that growth was only arrested, but not completed. If amateurs would only consider that fruit trees under glass are solely dependent on the supplies of moisture given them by means of the hose or the watering-pot, and that the keeping their trees on what is

called the "dry side" is dangerous at any time, we should have fewer complaints of Peach buds falling off and the buds of Vines refusing to break regularly: these things only occur when the rains are intercepted by a glass roof, and where no means are taken to supply the deficiency of moisture. This is the time when the roots of fruit trees, bushes, or whatever other term they may go by, are in active search of food to fill up the fruit buds of another year. Do not, therefore, imagine that, because the old leaves are putting on their autumnal tints, the roots are dormant; for on examination I have, as I have said, found them far more active than when the blossom is expanding in spring. Therefore, to curtail their supply of root moisture is certain to throw the whole constitution of the tree out of gear. Let anyone take the trouble to examine a Gooseberry or Currant bush at this time, or during the next month or two, and note how the fruit buds swell up; they will be found to do so as if spring, and not winter, was approaching. But although the autumn rains are filling the buds, ready for the first breath of spring to awaken them into action, there is no fear of their anticipating that season unless they have been arrested in growth through lack of moisture. Those who have fruit tree borders would not think of keeping them on the "dry side" when the crop was swelling; and yet next year's crop is equally dependent on a supply of root moisture now, even though there is not much visible sign of activity.

Gosport.

J. GROOM.

NEW AND OLD GRAPES.

UNDER this heading in THE GARDEN of September 12 we have a critique on new Grapes by "J. C. C.," who specially falls foul of two seedlings raised by me. He condemns the Golden Champion as being "the most disappointing of any," and then states that "the Duke of Buccleuch was still more an unfortunate introduction; that it had but a short-lived existence, as it proved to be a bad grower, an indifferent bearer, and had no particular merit in flavour to recommend it." Now, notwithstanding this unqualified condemnation, at the recent great show of Grapes held in Edinburgh, the Duke or Golden Champion was a strong feature in all the leading collections of Grapes as well as fruit, with scarcely an exception. Scores of the best Grape growers in the kingdom have seen the Duke of Buccleuch growing rampantly here this month, and the bunches so thick, that in many cases they were touching each other; this is the Vine that is said to be a "bad grower and indifferent bearer." "J. C. C." seems to have taken his keynote from a would-be teacher of Grape growing who informed his readers that he grafted the Duke of Buccleuch on a Black Hamburgh, and that it would not only not fruit itself, but stopped the fruiting of the Hamburgh.

WM. THOMSON.

Tweed Vineyard.

Lord Palmerston Peach in Middlesex.

—I send you four Peaches of the Lord Palmerston variety grown in the open air. They have been considered by all who have seen them to be very good. Those sent are not the largest, but the others are hardly ripe. Do you think they are true to name?—J. McD., *Hanworth Park*. [Yes, it is Lord Palmerston, and very fine examples of it. We are pleased to know such are grown well in the open air, as the last few years have made one despair of Peach culture out of doors in many places where it once was the rule to grow Peaches well.—ED.]

Vine borders.—I have a greenhouse, a lean-to, in which are large Vines of perhaps sixteen to twenty years' growth. They have decreased gradually in bearing, till now they produce nothing. No border was ever made for the roots. I should be glad of short instructions as to how to make a border. If the roots have gone very far, should I make the border up to them? What are the best hardy sorts? The Black Hamburgh is the only one I have which bears; should I graft the Black Hamburgh on others? (one is Sweetwater; I for-

get the others) or should I start with new ones? What is the best manure to put into the border when made?—GREENHORN.

Double grafting.—We have here a large number of trees of Marie Louise Pear obtained some few years since from Mr. Rivers as maidens. They were intended to form upright cordons against a west wall, and for that purpose were planted some 2 ft. apart. The trees are all double worked, first with some robust kind, such as perhaps Beurré d'Amanlis on the Quince, and then the Marie Louise on to this strong growing kind, leaving about 6 in. of stem. The object of this double working is to secure more robust action on the part of the Quince fibrous roots than would result were the weaker growing Marie Louise worked direct on the Quince. Here we find yet that the double working still produces too much growth, and, therefore, this year instead of pinching hard we have left the lateral growth 12 in. long to see what result will follow. Probably had not the trees been double worked we should have found them fruitful much earlier, but probably also they would have died much sooner. Once get them well into fruit, and no doubt they will thrive for many years.—A. D.

Autumn-bearing Raspberries.—Raspberries in season now are a decided acquisition to the list of dessert fruits. Semper Fidelis is an excellent late bearing sort. I lately saw some rows of it with dense, dark green foliage, and at the points of the shoots were large bunches of really fine fruit fit for any dessert table. It was, indeed, more like July fruit than that of September, and the quantity of green fruit indicated that Raspberries may be forthcoming as long as the weather remains mild. I need hardly remark that as this variety fruits at the extremities of the current year's shoots, the old wood may be entirely cut away at the winter pruning. Young shoots will push up vigorously from the base, and the stronger the shoots the finer the fruit; therefore good, rich, rather moist soil will produce the best results, as in autumn when the fruit is swelling plenty of food for the roots must be available, or the produce will be poor. Before planting the soil should be deeply trenched and well enriched, and a mulching of decayed manure put over the roots in spring will greatly help to keep them at work near the surface. When heavily cropped, some liquid manure will also greatly assist the swelling of the fruit.—J. G. G.

When to plant Vines.—I could wish that "W. C.'s" reply to Mr. Scott's query had been more explicit. It is all very well to say plant in the spring, but one likes those giving advice to give reasons for the faith that is in them. Mr. Scott evidently thinks that there is no good reason why he should not plant at once, seeing that such planting would be in accord with general practice. Were I about to plant Vines in a house I should prefer to plant now to doing so in the spring, even though by so doing I might check the ripening of the young canes to some extent. By planting in March the roots have no time to get established ere the temperature creates activity in the plants, and the sap is set in motion ere the roots are ready to assist in furnishing a supply. By planting now the roots will, without in any way promoting wood or leaf growth, get a good grip of the soil, and will furnish an abundance of spongioles or feeders, all of which will be ready for active work the moment heat puts a pressure upon them. Again, it matters little with planters whether 6 in. or 9 in. of wood, more or less, be ripened now, as inevitably for the making of permanent Vines they will be hard cut back early in the spring, and the ripened wood above the cut will not be of the least use. Again, the turning out of pots into a cool house, though close to the glass, would at once check the ascent of sap, and tend to ripen the wood and rest the plants. The roots, too, would be more ductile now for laying out in the border than in spring, after having been set hard in pots all the winter. These are some of the reasons why I should prefer planting Vines now to waiting till spring.—A. D.

THE BURDOCK.

(ARCTIUM LAPPA.)

THIS plant, the *Bardane comestible* of the French, is a well-known inhabitant of waste and uncultivated spots in this country, the large leaves speedily covering the ground with vegetation, and the hooked scales of the involucre often causing annoyance to travellers by attaching themselves to their clothing. These involucre are often a source of much amusement in consequence of the ease with which they become attached to anything with which they come in contact. The Burdock has a wide distribution, being found over Europe and Northern and Western Asia. The derivation of the generic name *Arctium* is from the Greek for a bear, in allusion to the rough



Bunch of Burdock roots.

surface of the fruits. The young stalks of the Burdock were formerly eaten both boiled as a vegetable and raw as a salad; gathered before the leaves appear and divested of their outer rind they have been proposed as a substitute for Asparagus. The root is said to contain a saponaceous substance which has been used in washing, and starch has also been obtained from it. Virgil recommends the extermination of the plant from meadows in which sheep are fed, as it lessens, it was thought, the produce of their wool. Notwithstanding all that has been said in its favour by old writers, the Burdock is now considered to be of little or no value economically.

JOHN R. JACKSON.

HEDGES.

A HEDGE is by no means the best description of plantation fence, as the tree roots rob the hedge plants of their food beneath, and the branches overshadow and injure them above. As a nursery fence, however, and in connection with the shrubbery and small ornamental groups, nothing can surpass, or even equal, a live hedge. The common Whitethorn, or Quick, is, of all other well-tried plants, the best for field hedges. Each of several other species of plants possesses certain special merits of its own, but the Whitethorn embraces more points of commendation for this purpose than any other. The Thorn hedge should consist entirely of its own species, and should not be mixed with other plants, such as Beech, Hornbeam, Privet, Brier, or any other. The soil suitable for a Thorn hedge should be strong, deep, and dry. And all the better if inclined to clay. Light sandy soil, or what is termed moorland, should not be planted with Thorn, as it never attains old age upon such ground, nor grows sufficiently strong to withstand cattle and horses. The hedge bed is seldom so favourably conditioned as to require no preparation for planting; but, on the contrary, what is

often required is, in the first place, to thoroughly drain it, which is commonly best done by extending a tile drain parallel with the line of fence, not closer than 6 ft., nor further distant than 10 ft. from the hedge, and on that side opposite to which the roots are laid, assuming that the plants are not planted perpendicularly, but slightly horizontal.

The ground almost invariably requires trenching, or at least deep digging and pulverising. A trench not less than 4 ft. wide and 1½ ft. deep should be made some time before planting (the longer the better) if the ground is difficult to pulverise. Most soils are all the better for receiving both a summer's sun and winter's frost, and they should be several times stirred and turned over during the summer months; ploughing and harrowing, where it can be done properly, often answers all the requirements of the case. In trenching, or otherwise preparing the ground, care should be exercised to keep the natural active soil on the top and the subsoil in the bottom of the trench, as found in their natural order; observing, however, to break and stir up as deep as practicable the subsoil. If the soil is of the proper quality, and well dried and pulverised, it requires no manure; and here fatal mistakes are often committed by adding farmyard and other manures to hedges. Just in proportion to the extent to which the growth of the hedge is promoted will its existence be shortened and its usefulness impaired. Lime, however, which is not a manure, may be applied to the soil in its preparation for planting, and should be well incorporated with the soil, and on no account brought in contact with the roots of the plants in its caustic state.

In planting the hedge, where the ground is level, and the soil sufficiently deep and dry, it may be done perpendicularly; but where the subsoil is of inferior quality, and the ground sloping, the plants are best put in slightly inclining their roots uphill. The plants should not be put in closer in the line of hedge than 4 in. apart, and at that distance the weaker plants are soon overgrown by the stronger ones. At wider distances the plants have more freedom to develop themselves; but whether the wide or close system of planting is adopted, there are always some plants stronger than others, which soon outgrow their weaker neighbours, and keep them down. With the 4 in. distance apart practice, a closer and more regular hedge is produced, and also in shorter time than by planting at 9 in. or 1 foot apart. There is a practice possessing no small merits, in connection with thick hedge planting, which may with perfect safety be recommended, namely, to thin out by means of the pruning knife every second plant in the line of hedge, cutting it close to the surface of the ground. The result of this practice is, that the stronger plants secure more room to grow, and become standards for the smaller and weaker ones which they support. A hedge thus composed of a mixture of strong and weak plants, combined and blended together, makes the closest, neatest, and best hedge for all ordinary practical purposes. The younger the plants are when planted out the better, if only they are kept clear of weeds, and the ground well raked in dry weather to keep out the drought. Strong seedlings make a hedge sooner than transplanted older plants do if properly attended to.

Pruning.—The plants, if of the proper size when planted, should not be cut till they have grown two years in the hedge, after which they should be cut over at about 3 in. from the ground. They should again stand other two years, at the end of which they should be cut over at about 1½ ft. from the ground, and so on each second year, till the hedge is as high as required, which is usually about 4 ft. No cutting or pruning should be done to young hedges till the young wood is perfectly ripe, and by cutting them every second year, instead of yearly, there is more strength and bone (as it is termed) thereby secured, which is of great importance where a strong hedge is required. With advanced and old hedges the mode of pruning adopted is very different from that in the case of young ones; while the latter should be pruned only once in two years, the former should be pruned once a year, or where the midsummer beauty of the newly trimmed hedge is desired, there is no great harm in pruning twice a year, to secure that object, although for the sake of the hedge's health, once a year is preferable, and that only after the young wood is mature and ripe. Where hedges are situated upon a farm under rotation of cropping, and where the pasture land is ploughed up periodically, say every second, third, or fourth year, it is often better to leave the pruning to be done at intervals corresponding with the breaking up of the pasture land. Animals, while grazing, invariably crop the hedges, often indeed to an undesirable extent, and on that account it is better that no artificial pruning be done, for that is calculated to aggravate the evil complained of. The best form of hedge is that of the wedge, or rather the cone. It should not be broad on the top to cause the lodgment of snow, which crushes and breaks it very injuriously; nor should it be too thin or narrow at the top, thereby presenting too little obstacles to animals to push through or leap over. The best kept hedges in course of years become too broad, loose, and open, and therefore require to be cut close in to the stem, in order that it may renew and re-furnish itself with side wood. Both sides are not cut at the same time, but at intervals of two or three years between, so that the one side is well clothed with fresh spray before the other is rendered bare.

Wiring hedges.—An excellent plan with hedges exposed to cattle is to extend one or two lines of common fence wire along the fence, the upper one about 3 ft. from the ground, and if two are put on, the second wire may be about a foot lower down. If the wires are put upon advanced or old hedges they should first be cut close in upon that side upon which the wire is to be put, which should be the convex side where the line is curved; but on either side most convenient where straight. The wires require supports to keep them in their places till the hedge grows over and encloses them, and for this purpose small round Larch posts are most suitable; but, indeed, posts of any kind will do, for when once the hedge grows over the wire, they are thereby kept in their places for all time coming. The wire is placed on the top and centre of young hedges, also at about 3 ft. from the ground; but before putting up the wire the top of the hedge is cut level, and a line of small stakes driven in at distances varying from 6 ft. to 12 ft. apart, according as the line is straight or curved. The first growth thereafter completely covers and conceals both posts and wire, and then it afterwards remains, doing substantial service for many years. Although to some persons the putting of a wire in the centre of a hedge may appear nothing more than a novelty, yet in connection with live hedges there is no greater improvement or better security against animals breaking through the hedge by day or by night, to the detriment and damage alike of their owners' or their neighbours' property.—*Journal of Forestry.*

Gardening for profit.—Could any of your readers kindly suggest a profitable mode of utilising about four acres of suburban land? Some years ago I bought two acres and built a house upon it, and laid out grounds, &c. At that time two acres were all I could purchase, but I have recently acquired the remainder of the field, but had to pay building land price for it; and, to let it at agricultural rate, it will only pay about 1 per cent., which is less than I can afford to take, and to lay it out and sell for building would destroy the privacy of my house and grounds. The field is rather exposed to west sea breezes, and is pretty level; the sub-soil is gravel and fine sand. I do not want to make it into market gardens, or to work it so as to employ much labour. Is there any kind of forest or fruit trees that would make a good return without much attention?—CONSTANT READER.

TREES AND SHRUBS.

HYPERICUM CORIS.

A FEW weeks ago we received from Messrs. Backhouse's nursery at York a plant of this rare little *Hypericum*, a small spray of which is represented in the subjoined woodcut. It is an elegant and neat little plant, never exceeding 1 ft. in height, and its tiny evergreen foliage is very glaucous; therefore it is very distinct in this respect from a nearly allied species, *H. empetrifolium*. It is shrubby at the base, but the shoots are herbaceous.



Spray of Hypericum Coris.

The flowers, as in most all other St. John's-worts, are yellow, and when produced plentifully they have a pretty appearance. It is a native of the south of Europe and many parts of the Levant, and is plentiful on the hilly parts of the island of Crete. Whether it is perfectly hardy or not we cannot speak with certainty, but this much we know that it is a charming little plant for the greenhouse in autumn. It may be successfully grown in a frame for the rest of the year.

Among other small growing species are *H. empetrifolium*, a green-leaved Heath-like plant which bears a profusion of small golden yellow flowers; *H. aegyptiacum*, about 1 ft. high with minute glaucous leaves and sulphur-yellow flowers;

and *H. balearicum*, taller than the last, with deep green warty foliage and deep yellow flowers 1 in. across. These are all erect growing kinds, but there is another set of species, such as *H. nummularium*, which are creeping and desirable for running over rockwork. All may be propagated by means of cuttings, which should be inserted now, selecting well ripened shoots for the purpose. If placed in a slightly heated frame or in a close hand-light these cuttings will become rooted before cold weather sets in. In some seasons seeds are plentifully produced and afford an abundant supply of young plants. All the small shrubby kinds thrive well in good light soil in a well drained, sunny situation sheltered from cold winds.

English-grown Black Walnut.—I send you a piece of English-grown Black Walnut, thinking that perhaps you might like to see a specimen of the wood of a tree that is likely to become valuable in the future. It is neither varnished nor polished—merely planed and rubbed with the hand.—GEORGE BERRY, *Longleat*. [A handsome piece of wood very good in colour (a rich brown). The only question is what varieties of our soils—not of high value for ordinary crops—may be best devoted to its growth.]

Hydrangea paniculata grandiflora.—In the lower flower garden at Drumlanrig this may now be seen in great perfection. It is planted out, and fills two large beds, and the effect is both striking and novel. Its long plumes of flowers form a perfect mass of rich, creamy colour. Single plants of this *Hydrangea* are attractive, but when seen bedded out in quantity like those in question, its interest is increased ten-fold.—CAMBRIAN.

Blue Hydrangeas.—Under certain circumstances the flowers of the *Hydrangea* turn quite blue, others partly blue and partly the normal colour. The cause of this change has produced great diversity of opinion, but it is generally supposed to be the result of growing this plant on certain classes of peat earth, or where aluminous salt is present in the soil. We have also learned on good authority that watering with alum water during summer will cause the succeeding flowers to become blue. The grey-coloured earth under the black moor earth has the same effect, also peat soil; the flowers of plants in the last seem to be bluer the longer they remain in it. It is also a singular fact that the flowers on the same plant are frequently pink, blue, or of a creamy white colour, and on some occasions we have noticed a single flower-truss composed of two distinct colours. This seems to be a peculiar feature of the *Hydrangea* that has been noticed and commented upon ever since its introduction in 1788. In some parts of Wales the flowers of the *Hydrangea* vary very much in colour. In one clump they are sometimes a lovely pink, while within a dozen yards others may be a deep azure blue. Even in nursery lines, under apparently similar circumstances as regards soil, there is frequently a marked difference as regards colour, which leads one to believe that cuttings of any sort will produce plants with flowers similar to the original.—A. D. W.

SHORT NOTES.—TREES AND SHRUBS.

Dwarf flowering shrubs.—What low growing flowering shrubs are suitable for growing under a north wall in a garden facing the west?—F. O.

A variegated Robinia. A poor, sickly variegation, and one which prevents this tree assuming the beauty of foliage and form which it usually does under all conditions.

Preserving a Deodar tree.—I have a fine Deodar near Norwood, some twenty-three years old, the top of which was lost two years ago, and I fear the tree is dying because the roots have touched the clay. Is there any way of arresting the decay? The last year the lower part seemed to have taken a new lease of life. I have a *Wellingtonia* much in the same state.—ARBOR.

Black Walnut from seed in Austria.

—Having cultivated this tree in a nursery abroad, and having also witnessed its growth from the present time backwards for sixty years, my mite of information in reference to it may be of some use to such of your readers as may be interested in ornamental and forest planting. Our stock was raised annually from seed collected from the older trees; they begin to bear in their tenth year. The seed was thrown into a heap to rot the outer fleshy envelope; it was then put into a cellar during October and placed in layers in moderately dry white sand, but the sand is immaterial; earth answers the same purpose equally well. In spring, when good planting weather set in, the seeds were carefully gone over; those that had sprouted were planted in nursery lines, 9 in. apart in beds, conveniently broad for cleaning purposes, and the unsprouted ones were planted at the same distances apart later. In view of frosty nights it was thought advisable to protect the tender plumules with a little dry litter, but the unsprouted ones did not need this protection. The growth the first year would average over 1½ ft. in good ground. Early in the following spring the young plants were carefully dug out and planted at distances of 2 ft. between the rows and 1 ft. apart in the rows; after that biennial removals are sufficient till they are large enough to plant out permanently. In the case of forest planting we found it to be best to allow the peasants to take over a piece of land intended for a plantation rent free, and cultivate it for two years with Maize, Gourds, Sugar, Beet, or Potatoes. This was generally dug with the spade, and kept very clean, thereby bringing the soil into good tilth for the trees intended to be planted. The seed was then put in as before, but at 4-ft. intervals. In average ground kept clean for the first two years the trees attained a height of 10 ft. in five years, and during that time received one pruning off of the lower laterals. With judicious thinning out as time went on the trees grow quickly, and have straight stems that do not branch out into a head much under 20 ft. from the ground. I found that they did well on land flooded annually from a neighbouring stream during the months of May and June. They grew equally well in unflooded land, but not in that which was sandy, very dry, or poor in quality. Some of the best timber grew in swampy river deposit with standing water just about 3 ft. under the surface. I may add that the seed should be obtained during the autumn.—SYLVESTRIS.

NOTES FROM THE OHIO VALLEY.

Catalpa blooms.—Among the many unlooked for and unusual sights to me was that of *Catalpa bignonioides* in bloom in September. In driving round our little city of about 18,000 inhabitants on September 4 I noticed that nearly all the trees of *Catalpa bignonioides*, of which there are a great many growing upon the outer edge of the pavement, having been planted there for the double purpose of ornament and shade, were just opening a few blooms. This was such an unusual occurrence, that I made a study of them, and found no one tree with more than five bunches of bloom; while others, the large majority, were limited to one or two bunches each. But equally as strange was the rapid development and decay, for Monday and Tuesday, September 4 and 5, sufficed to mature the whole bunches, and Wednesday morning nothing remained but their dried and brown flowers still attached to the upright stems, where they are still. Probably the excessive heat and drought then prevailing shortened their life.

Black Walnut caterpillar.—I had always imagined that some of our native forest trees would always defy the attacks of the whole insect world upon their terribly bitter and leathery foliage, but during the cloudy and rainy weather of last August the caterpillar made a clean sweep of all the foliage on the Black Walnut trees that were standing alone in the cultivated fields in this part of the country. They did not, however, seem to molest the trees in the native forest

very extensively, but confined their depredations to the isolated specimens of Black Walnut, Wild Cherry, Lime, &c., standing alone in the cultivated fields. Nearly all our trees suffered badly this year from insects, which of course will materially affect the quantity of fruit for next summer.

Richmond, Indiana, U.S.A. L. B. CASE.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J. SURREY.

MICHAELMAS DAISIES are now useful in large bouquets. The best of all for cutting is *Aster bessarabicus*, which has a good effect with the great white Daisy flowers of *Leucanthemum lacustre* and some very dark foliage, such as Portugal Laurel or Japan Privet. Another large bouquet, all of yellow flowers, has some tall shoots of *Helenium autumnale* and of *Helianthus giganteus*, with yellow single Dahlias and large fronds of dilated Shield Fern. A pretty table bouquet in white china is of *Laurustinus* with berried twigs of Dog Rose and flowering sprays of *Clematis flammula*. White *Bouvardias* and the large white *Jasmine* are with red-tinted foliage of *Andromeda catesbaei* in a clear Venetian glass. Czar Violets are now abundant on plants divided in April and well cultivated. They are best in loose bunches with the stalks of uneven lengths and a few of the smaller leaves. A bunch of Cactus Dahlia and some of the single scarlet are arranged with small *Ricinus* leaves of redder colouring and some warm-coloured foliage of *Cannas*.

FLORAL DECORATIONS.

J. HUDSON, GUNNERSBURY HOUSE.

THERE are still quantities of outdoor flowers from which to draw a supply for indoor decoration. With us Hybrid Perpetual Roses have been most serviceable of late, and so also has the old, but well tried kind, *Souvenir de la Malmaison*. All of these we arrange by ourselves, only adding thereto a few sprays of Maiden-hair Fern, and occasionally some heads of *Mignonette*. For some time past we have used single Dahlias for indoor decoration and find them most valuable. Seedlings raised this spring are still flowering freely and bid fair to continue for some time yet to come if frost spares them. As a background to these two or three sprays of the bronzy shoots of *Berberis aquifolium* are a great assistance. Our groupings are made for a sideboard, and, therefore, to one face, for which purpose these flowers are well adapted, bearing in mind to secure as long stems as possible when cutting them. A few even with unexpanded buds are a great help; do not forget, moreover, that quantity will not give the artistic effect that can be derived from a small number well arranged. *Anemone japonica* and its varieties are evidently becoming more appreciated than was the case a few years back. There is not, we think, a better herbaceous plant grown than this for floral decoration at this season of the year, lasting as it does a fairly long time in a cut state. These *Anemones* are very pretty for specimen glasses, and the white kind is valuable for working into wreaths and crosses. The dwarf form of *Scabious*, of which there are several colours, is another excellent indoor flower now greatly assisting us, the light and dark kinds being particularly striking. We find these to arrange well with spikes of that valuable autumn flowering Grass, *Eragrostis elegans*, which has been in constant request with us for some time past. For tall epergnes or trumpet vases, we have also used *Love-lies-bleeding* (*Amarantus caudatus*); this, associated with some richly coloured sprays of the Virginian Creeper and a few blossoms of the white Japan *Anemone*, forms an excellent autumnal arrangement. If a piece or two of the growth of *Passiflora corulea* can be had with flowers expanded and entwined with the Virginian Creeper so much the better. We are now cutting the handsome blossoms of *Passiflora quadrangularis*, which if secured early in the morning remain open

in most cases till the evening of the second day. We place them in finger glasses about one-third filled with water; though not natural as regards position, it is the best way we can devise to show off their beauty to the best advantage.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

General work.—At present, beyond the maintenance of neatness, there is no department that demands special attention. Advantage should, therefore, be taken of the opportunity to commence operations on any extensive alterations or improvements that are intended to be done during the coming winter, an early start being desirable, first, because of the uncertainty of the winter, or rather of the weather, at that season, and secondly, because the transplanting of most kinds of trees is most successful when performed in autumn and early winter, for the very obvious reason that they have then time to get established in their new quarters before there is any danger of drying winds and powerful sunshine checking free root action. Rhododendrons, Azaleas, and Conifers are the first on our list for transplantation, which will be done the moment the positions for them are prepared by deep trenching and manuring. The character of the soil here—a sandy loam—being suited to the plants named, no further preparation is needed to ensure success, but those less favoured either as to soil or position must work accordingly. Drainage, deep tilth, and a loam free from chalk and not too adhesive will grow American plants almost equally well as peat, whilst some kinds of Conifers really do best in a chalky soil. In the flower garden, as the plants die off or begin to look weedy let them be at once removed and their places filled with others for the winter. All the dark-foliaged tender plants we are now pulling up, and in their places are planting *Ericas*, small shrubs and *Ajugas*, and in some instances laying down plots of *Sedum* that have been grown in a reserve garden for the purpose, and which, being moved with a spade and with soil adhering to them, never feel the removal, and are at once effective. The principle is also applicable to choice plants that it is desired to save from injury by frost. Let these be removed now, and fill in with the most suitable plants at command. Keep the edgings of the beds neatly trimmed, and bad flowers and foliage daily removed; by these means, should sharp frost not intervene, a creditable display of flowers may be had till quite the end of the month. Some disparaging remarks as to the value of tuberous *Begonias* for bedding purposes having recently been made, I feel in duty bound to say that my experience of them is altogether of a contrary character. At this moment they are simply magnificent, and have been so during the entire season; next year they will be used much more largely. We have them planted a good distance apart on a groundwork of *Sedum* acre and *Sedum* glaucum, and each plant standing thus separately has a far better effect than others planted in a mass, not to mention the economising as regards plants that this manner of planting ensures. As soon as frost blackens them the bulbs will be lifted and placed thickly in boxes of sand, and wintered in a shed that is cool but secure from frost. It is not now safe to leave unprotected at night any kinds of bedding plants; therefore all that have been struck in the open borders should either be potted up at once, or, till this can be done, be covered up nightly. *Calceolaria* cuttings should now be got in. A frame is best for striking them in, and the soil should be two-thirds light loam and the other third leaf soil. The cuttings, which should be 2½ in. apart, should be well fastened in the soil and for the first fortnight shaded from sunshine. Pansies and *Violas* should be treated in exactly the same way, and these, too, should be got in as early as circumstances permit.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Standard Habrothamnus.—Although this plant is particularly adapted for furnishing walls and pillars, and where so grown when planted

out no doubt it gives the greatest quantity of flower, still it is a most useful subject in the form of standards, with a fair amount of pot room, say 10 in. to 14 in. Thus managed, it can be used with effect to relieve the even surface too often apparent where dwarf plants are almost exclusively grouped together. To keep specimens of this form in shape the heads should be freely cut in from time to time; as it is all but a continuous bloomer, there is no particular season in which to cut it in, but plants that keep on flowering through the summer should now have the shoots well shortened back. If after this they are kept in a warm greenhouse or intermediate temperature they will push freely and flower towards spring. Examples cut back early in summer, and that have been well sustained at the root, will now be furnished with abundance of shoots, and if kept in a genial temperature they will flower freely through the autumn.

Lapagerias.—Large specimens of these, especially when the roots are confined to pots or boxes, are often found after a few years to cease flowering satisfactorily. It is in the nature of these fine climbers to require much more root room than many things need. The ability to bloom freely will generally be found proportionate with the strength of the growth which the plants are able to make. Now whilst they are in bloom it will be well to note whether there is any falling off in the strength of the shoots or flowering, and to rectify any deficiency either by larger boxes or turning the plants out in a prepared bed. Where either of these courses becomes necessary it is well to carry it out at once or as soon as the flowering is at a close, for if the giving of additional root space is put off until near the time when shoot growth commences, next season's progress will be much interfered with. If the roots have more room given them now they get hold of the new soil, and are in a position to sustain top growth as soon as it commences.

Anthurium Scherzerianum.—The time of making growth and also flowering with such plants as this is, in a great measure, dependent upon the amount of warmth to which they are subjected, and the potting, when required, frequently gets put off through a reluctance to disturb the plants when more or less in bloom. It is a great mistake to keep this bright-flowered Aroid in a hot stove temperature, as is often done; it produces larger leaves and proportionately larger flowers in an intermediate heat, say from 48° to 55°, during the autumn and winter. Where the summer temperature is proportionate with this, it will make the most leaf growth through the autumn months up to the end of the year. There are few plants with which it is so necessary to thoroughly remove the old soil as this, an operation to which it should be subjected every two years. This is particularly the case with large specimens, the soil of which is most liable to get sour and sodden. Any plants that are at all in a doubtful condition in this respect should even yet be shaken out and have the soil renewed. They will keep on rooting in the new material through the winter.

Dipladenias.—Those who grow the small-flowered *D. boliviensis* cannot fail to have noticed its distinct habit of growth so different from that of the other stronger growing sorts, both species and hybrid varieties. The Bolivian species is very suitable for training up a rafter in a stove kept at medium temperature, for although the plant will bear strong heat, still it grows and flowers freely with less warmth than any of the other kinds, and moreover is mostly less liable to go off at the root if it gets a little over much water in the way the other sorts do. It would be difficult to say too much in favour of its flowers for cutting. Their colour, pure white, with a small lemon-coloured eye, coupled with a long tube, admit of each flower being cut singly. It blooms for six or seven months without ceasing. Anyone having plants of it, by now keeping them in a temperature of 60° in the night may have it flowering up to the end of November. Young examples of any of the other kinds, struck from cut-

tings last autumn, provided they have been kept going freely, will do well if at once moved on into 12-inch or 13-inch pots, that is if a fair amount of heat can be kept up through the winter, say a night temperature of 65°, for nothing is gained by resting young specimens of these *Dipladenias*, but a loss of time in their flowering much later next season. *D. crassinode*, one of the best for cut flowers, should not be lost sight of, for if pushed on during the winter it will bloom continuously from the beginning of May up to late in autumn. For a reasonable chance of success with these plants suitable soil in the shape of the best fibrous peat, with much of the earthy matter shaken out, should be available. Use it in a lumpy condition, with a liberal addition of sand.

Gardenias.—The stock should now be looked over, and such as have their bloom-buds prominent, or partially developed, ought to be placed where they can be kept not lower than 60° in the night, with less moisture in the atmosphere than it was necessary to have in the bright summer season. If the pots are full of roots, sprinkle a little of some or other of the concentrated manures on the surface of the ball once every three weeks or so; a little at a time in this way will be much better and safer than heavy dressings seldomer. The fertilising elements will reach the roots with the water given to the soil; it must not, however, be applied so often as when there was more sun to dry it up, otherwise the flower-buds will be liable to fall off without opening. Successional plants intended to bloom later may be kept somewhat cooler, but must not be subjected to too low a temperature, otherwise the bloom-buds that should now be set will not come forward when submitted to more warmth. The dwarf-growing *G. citriodora* is a profuse flowerer, blooming freely in moderate heat, and deserves to be much more generally cultivated than it is; the flowers when mounted are useful for bouquets, wreaths, or in any other way that Orange blossom can be employed, for which they answer well as a substitute.

Tuberoses.—Where these are well managed, and sufficient quantities are grown, they can be had in flower over a considerable portion of the year. Those that are pushing up their bloom-stems should be kept with their heads close to the glass; heat ought to be given them proportionate to the need there is of pushing them on into flower, or the reverse if their blooming is to be retarded. If it is necessary to push them on they will bear a night temperature of 60°, or they may be kept at 50°; but if too cold the blooming will not be satisfactory. The same applies to plants that have made considerable root and leaf growth, and are only now about pushing up their flower-stems; if checked by too low a temperature at this season, the chances are that many will fail to bloom altogether. Give water sufficiently often to keep the soil in a moderately moist, healthy condition, but not too wet.

Salvias.—The earliest flowering plants of these will now be in bloom, and if sufficiently supplied with manure water, will, after the leading terminal shoots have flowered, produce laterals freely that will bloom later on. Want of room at this season, when almost everything has to be got under glass, frequently is the cause of many things of this character being stood much closer together than is conducive to their well-being, the result of which is that the bottom leaves suffer, not only giving the plants an unsightly appearance, but reducing their flowering capabilities. This is particularly the case with the later-blooming kinds. The lighter the houses or pits in which they are located, or, these failing, the higher the plants are raised up to the roof, the closer these and all other subjects that develop their flowers through the short winter days will bear standing together. Amongst the less well-known varieties *S. Bethelli* (pink) and *S. Picheri* (blue) are particularly deserving of general cultivation; their distinct character in habit of growth and profuse flowering disposition, even in a small state, commend them to all who are in any way pinched for glass accommodation.

Berry-bearing Solanums.—Plants that were lifted and potted a short time back, as advised, will have begun to root freely in the soil, as when properly treated, they push their fibres rapidly. They should now be accommodated with a good, light, airy pit or house. Such as have their berries sufficiently coloured may be at once placed in the conservatory or greenhouse, where, associated with flowering and fine-leaved plants, they will be effective for several months. These plants are subject to green fly, and before being taken in, if ever so little affected by it, should be fumigated two or three times in succession. Later stock, the berries of which are yet green, ought to be kept in an ordinary greenhouse temperature, where the fruit will colour slowly, coming to their best about the end of the year, at which time they will be found very useful. One of the advantages of growing a sufficient quantity of these plants is that they bear keeping in rooms, halls, or similar places where the light is insufficient for most things, and the atmosphere not such as plants of a more tender nature require.

Primulas.—It is time now to get both the single and double varieties of these out of frames, and to place them in their winter quarters, which should be in a house or pit where they will receive plenty of light, and the atmosphere is drier than most soft-wooded plants need. The double varieties especially will be benefited by a little warmth continuously; where this can be given them all on from the present time to the return of warmer weather in spring, they keep on growing and blooming simultaneously, the flowers under such conditions being much larger and more abundant than where subjected to an ordinary greenhouse temperature. Weak manure water once a fortnight will assist both the double and single kinds materially both as regards the size and colour of the flowers and the stronger condition and more healthy hue of the foliage.

Cinerarias.—Plants of these raised from the earliest-sown seed will, if they have been managed right, be now about pushing up their flower-stems. Much of their ultimate blooming depends on the treatment they now receive; the more liberally they are supplied with weak manure water, the stronger they will flower. They will be benefited by having it every time they require water, not giving it too strong. Keep the plants so far as possible standing on a moist bottom, such as damp ashes or sand, without a current of dry air admitted at the side.

ORCHIDS.

J. DOUGLAS, LOXFORD HALL.

East India house.—It was stated (p. 246) that, owing to the shortening days and consequent decline of atmospheric temperature, less shading would be required. Another matter also demands attention, and that is the degree of atmospheric moisture needed. On dull days I would not sprinkle any water about after 3 p.m.; but if we had a clear, sunny day, it might be desirable to damp the paths and stages two hours later than that. If shading is required it ought to be removed early in the afternoon, so that the temperature may be run up by sun-heat to 85° as a maximum, and from 65° to 70° at night will be found to be a good minimum. It will not be necessary to water the plants so freely now as it was a month or two ago. All the *Saccolabiums*, *Acerides*, *Angræcums*, &c., that have been watered freely must now be watered with more caution, and it is also desirable to keep them near the glass. Plants of this type, if kept too far from the glass, are apt to suffer from weakness, the leaves become flabby, and if to this is added too much moisture in the atmosphere, the chances are that some of the plants will suffer from the disease known as "spot." Certain species have the tips of the leaves damaged by turning yellow; this spreads down the leaf, which is only saved by cutting the affected part clean off down to quite a healthy part. The flowering of *Vanda Hookeri* forms quite a red-letter day in the Orchidist's Calendar.

Allusion was made (p. 246) to the treatment required by *V. teres*, and there is little doubt that the new *Vanda* could be flowered in the same manner. I have seen some growers attempt to flower *Vanda teres* by starving it and exposing it freely during the growing season. It would, I think, be better to grow it freely in summer by giving it plenty of heat and moisture with a moderate amount of shade. The incipient flower-buds are formed while the plant is finishing its growth, and they are further developed by judicious treatment during the resting stage.

Cattleya house.—I find that a number of the occupants of this house are making their growth; some are starting, more are in a transition stage, and some are completing their growth. The question then arises, what is the most suitable treatment to give the plants under such circumstances? I have always found that it is best to take the weather as a guide; as the cold nights and dull days approach less shading and less atmospheric moisture are necessary. Those who have plenty of spare time and can pot their plants when they like should watch the stage in the plant's growth when fresh roots begin to issue from the base of the last formed pseudo-bulb. Just before this the plants, if they require it, ought to be re-potted, and the new roots will then run freely into the fresh compost. *Lælia cinnabarina* is a plant that now requires re-potting, an operation which may be done at this time or in February. Probably September is as good a month as any in which to pot this species. I pot it much in the same way as I do *Lælia purpurata*. If the roots of imported plants of both kinds are examined, the same material will be found clinging to each, viz., a very light fibrous peat, or light decaying vegetable matter. *Odontoglossum Phalaenopsis* seems to succeed well along with *Cattleyas*. I place it very near the glass, and keep it free from thrips by dipping in soapy tobacco water. Shading may be quite dispensed with now in this department. *Cattleyas* can well stand a considerable amount of sun heat, and be the better for it. It would be well if growers would watch such plants as *Cattleyas*, and allow them to receive as much sun-light as they can well stand; many species of *Lælias* and *Cattleyas* can stand more sunshine than many persons would think they could. I noticed during the present season that the large house in Messrs. Backhouse's nursery at York (which contains an immense number of *Cattleyas* and *Lælias*) was freely exposed to the sun all day long, and its contents seemed to like the drenching overhead which they received from the syringe even when the sun was shining upon them. In Mr. Dorman's garden, The Firs, Sydenham, *Cattleyas* are treated in the same way, i.e., they are freely exposed to the sun, and its scorching effects are counteracted by syringing copiously when it shines freely upon them. The temperature of this house should be 60°.

Cool house.—The occupants of this house like plenty of moisture, and if exposed to the sun it is difficult to keep the atmosphere too moist. Where the house has a north aspect I would advise that water be sparingly distributed during dull weather, and if the house receives little or no sunshine I would not damp the paths or stages more than once in a day. Much moisture with little artificial heat causes the flowers of *Odontoglossums* to become spotted almost before they open out to their full size. *Masdevallias* ought now to be growing freely. Some of them, such as *M. Veitchiana* and the beautiful hybrid raised from it, named *M. Cheloni*, have a tendency to flower now, as well as in the spring and early summer months. I would rather they did not flower now, but reserve their full display until the early summer; but we cannot help it, and the only way in order to get the best possible bloom in spring is to pick the flower-buds off as soon as they show themselves beyond the sheaths. *M. tovarensis* flowers only in the winter, and its beautiful clean white flowers are ever welcome. Our plants which made capital growth in the summer are now producing flowers in abundance; the buds are just showing them-

selves beyond the sheaths, and it is very desirable to watch them nightly, in case slugs or snails should be inclined to make a meal of them in preference to the baits of Turnip or Carrot laid down to attract them. The temperature may sometimes fall as low as 50° at night now, and it need not be higher as a maximum than 65°.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Pines.—As days decrease in length the temperature in every department may be reduced by degrees until the minimum is reached and plants in various stages of growth are brought into what is termed the resting period, when the supply of water and atmospheric moisture must be reduced to meet their diminished requirements. It is not, however, wise to withhold heat and moisture to an extent that will produce a check, as there is no standing still in Nature, and succession Pine plants which go away best in the spring and give the most satisfactory results are invariably selected from stocks which have been kept steadily progressing through the winter months. If any alterations still have to be made no time must be lost, particularly where the renovation of the beds necessitates exposure of the plants to the elements. In such places where the only means of access is by the opening of the roof lights and underground pipes are not abundant, good tanner's bark forms the best plunging material for the winter months, as it retains its heat much longer than leaves; but the latter, if well harvested from the Oak or Beech, form a more genial medium for summer use, as the constant decay of vegetable matter by fermentation produces elements highly acceptable to nearly all tropical plants, and notably to the Pine through every stage of its growth. Where composition of any kind has been applied to the glass for shading purposes every particle still adhering must now be removed to give the plants the benefit of sun-heat and light, and blinds on rollers may be taken down and stored away for the winter. Keep the successions free from suckers by screwing them out until they show fruit and then allow one on each plant to grow. Old stools of scarce or shy kinds may be divested of all their leaves after the fruit is cut and placed on their sides in shallow boxes as close as they will lie together. The boxes may then be filled up with leaf-mould or peat, and plunged in a strong bottom heat for the winter. But little, if any, water will be needed until the buds break and begin to push through the surface, when slight sprinklings at syringing time will soon cause them to emit roots and assume the form of seedling plants fit for potting off singly. It is a very common practice to place autumn-struck suckers close together at a time when space is limited. There they often become drawn before the mistake is discovered, and as no after-management can correct this evil, it will be well to resist the temptation to retain a greater number than can be properly accommodated, and then they must be plunged well up to the glass to keep them in a sturdy condition. If a good supply of turf has not been secured for potting purposes, this is perhaps the best time in the whole year for getting it home, as the roots of the herbage are sound and firm, and form a more durable fibre than when taken off earlier in the season. A dry day should always be selected for cutting and storing, and the turves should be taken off thin and rolled up as for relaying on a lawn in preference to stacking large flat pieces in a solid mass quite impermeable to the pulverising influence of the atmosphere.

Vines.—Late houses that were started early and helped forward with fire-heat will now be finishing crops of ripe, well-coloured fruit, which may be expected to hang and winter better than Grapes that still require fire-heat, and the wood and foliage being well ripened, all lateral growths may be shortened back to prevent crowding, and those which emanate from the base of the pruning buds on old vines cut quite away to plump them up before the foliage falls. As days and nights

get colder gradually reduce the temperature to a minimum of 50° with a rise of say 10° on fine days, and ventilate freely to secure a circulation of air when external conditions are favourable, but keep the ground ventilators closed when the weather is wet and the atmosphere is heavily charged with moisture. The above remarks apply to black Grapes; but Muscats, where quite ripe, will keep well under similar treatment. Houses in which Hamburgs and other thin-skinned kinds are hanging must be kept dry and cool, not by throwing all the ventilators open every day, but by keeping them closed in wet weather, and by dispensing with fire-heat as much as possible consistent with the maintenance of a temperature which does not strike cold to the body when the house is entered. Look over the bunches at least twice a week, and remove every faulty berry before it has time to taint its neighbour. Discontinue all sweeping and raking, as dust soon disfigures the fruit, and draw a tarpauling over the external borders from this time until all the Grapes are cut. If former directions have been attended to all the necessary preliminaries will have been completed in the early house, and the vines will be ready for starting. If fermenting material is used for external borders it should not be applied until the buds are on the move, but some light covering may be placed over the roots to protect them from cold, chilling rains. The second early house will now be better for having the portable lights—as a matter of course, recently mended and painted—replaced on the roof when pruning, and the usual routine of scrubbing and cleansing must follow. Many people do not think it necessary to expose their Vines or Peaches to the weather, but I have always felt better satisfied with the start and finish after they have had the benefit of fine autumnal rains which so thoroughly cleanse the foliage and buds, and enrich and sweeten internal borders after they have been slushed with stimulating liquid and shut out from the influence of the atmosphere for at least six months out of the twelve. If yearling or maiden Vines are still growing, and do not show a disposition to ripen up properly, this process may be greatly facilitated by maintaining a strong dry heat, with air through the day, and by shutting off the fire and keeping the house cool at night. Get fruiting pot Vines pruned, top-dressed, and placed in position ready for starting.

Orchard houses.—With the exception of a few late Plums, Pears, and clingstone Peaches, the orchard house season is over, and the present month will be devoted to the correction of drainage, potting on, reducing, or top-dressing, and as next year's success depends upon the way in which these matters are carried out, it may not be amiss to again direct attention to the importance of using clean dry pots and drainage, dry sound loam of a calcareous nature with a liberal admixture of crushed bones, charred refuse, or old lime rubble. These should be thoroughly incorporated and kept under cover for some time before being used, and as firm potting is imperative, the shift should always be large enough to admit of the use of a fair sized potting stick for ramming the compost as the work proceeds. Another important point which must not be overlooked is the watering or soaking of the balls of the trees before they are turned out, otherwise it matters little how well every part of the work may be performed. Neglect of this will lead to disappointment and failure. When all the trees have been overhauled, select a dry, airy, but sheltered situation in the open air, place each tree upon two bricks, and leave the pots exposed to the influence of sun and air for a time. On the approach of bad weather fill in between the pots with dry Fern leaves or Cocoa-nut fibre to protect the tender roots, which soon begin to work through to the sides of the pots, from frost, and to prevent the latter from being burst or cracked by expansion of the soil. It is hardly necessary to say all pruning should be performed as soon as the fruit is gathered, and the protection of the buds from birds by means of fishing nets must not be neglected. If trees for potting up have not been

selected, lose no time in getting them marked before the leaves fall. Always give the preference to clean healthy trees of moderate growth, as they are generally well furnished with fibrous roots, and the wood being ripe they always lift well.

KITCHEN GARDEN.

R. GILBERT, BURGHEY.

GET all late Potatoes lifted as soon as possible; if they could be put into sheds, properly sorted, before finally clamping them for the winter, all the better; if not, put them into clamps at once; 3½ ft. wide will be sufficient. Give them first a good covering of straw, and then another of earth; but that most objectionable plan of leaving chimneys must be avoided. They only let in the wet, and do harm instead of good. Make another sowing of Spinach; keep well cultivated early spring Cabbage and Lettuce quarters; hoeing one row and walking in the other leaves the whole piece smart and trim. French Beans must be earthed and rodded as they make progress and another batch sown. Endive may now be lifted, laid in under shelter, and have charcoal slightly sprinkled among it to keep it from rotting; when nicely blanched it makes a very pretty and fairly good salad, and as a change desirable. Mustard and Cress must also be sown in small boxes, and a regular supply kept up. Get late Celery well earthed up, and any Broccoli or Walcheren Cauliflower not wanted may be lifted and shedded. It keeps well tied up by the heels in a dry shed, or laid in among soil, covering up the roots.

NOTES FROM EDINBURGH NURSERIES.

CRAIGLEITH NURSERY.

THIS, one of the establishments of Messrs. Ireland & Thomson, the youngest of Edinburgh nursery firms, is situated at Comely Bank, one of the pleasantest suburbs of Edinburgh. It is of moderate size, and contains a good representative collection of plants of all classes, which, on the whole, are skilfully grown under the management of Mr. Cole. This nursery is more like those about London than the others, inasmuch as one can find collections of the more uncommon and expensive classes of plants, such, for instance, as *Nepenthes* and *Orchids*; indeed, we saw in no other Edinburgh nursery any attempt to form an *Orchid* collection, a fact which shows that either the Scotch are not *Orchid* lovers, or that their wants are mainly supplied from the south. The houses form a compact group, so as to be readily heated and get-at-able from each other, and everything seems to be arranged so as to carry on an extensive plant business, ample provision, of course, being made for propagating and rearing plants.

Orchids are particularly well grown and comprise a good collection, but our visit was at the wrong season to see many in flower. We noticed particularly a fine batch of that lovely *Orchid*, *Cymbidium eburneum*, healthier than usual, the foliage being as green as Leeks. The plants appear to be treated more as a terrestrial *Orchids* than usual, and from what we could see a good fibry loam seemed to be the chief component of the soil. It is natural, too, that a thick-rooted subject as this is would be partial to a little stronger food than peat, which we are inclined to think is used much too freely by *Orchid* growers, especially in amateurs' collections. The exceptionally fine bulbs of *Calanthes*, too, in this collection indicate liberal treatment in the way of strong soil and good manure, combined with plenty of light and abundance of moisture in the growing season. It will be a fine sight by-and-by in this nursery to see these Mangold Wurtzel-like bulbs throwing up their stout flower-stems and unfolding their long wreaths of lovely blossoms. The kinds chiefly grown are *C. vestita* and its varieties and *C. Veitchii*, which latter appears to be the favourite. Numerous as is this collection, however, it is found inadequate to meet the demand for cut bloom, a branch of the

business this firm carries out largely, and few more profitable plants can be grown for the purpose than these *Calanthes*, as they last so long in perfection. The collection of *Laelias*, *Cattleyas*, &c., include some fine specimens, and we noticed a huge potful of *C. lobata*, one of the biggest plants we have seen. If Mr. Cole can tell us how to flower this lovely *Cattleya* regularly he will receive the thanks of orchidists, for of all *Cattleyas* it is one of the shyest to bloom. *Dendrobiums* develop fine growths in the admirably constructed houses, but perhaps the clear Scotch air has something to do with it. It was a pleasure to see such long firm bulbs of *D. Wardianum*, *nobile*, *Bensoniæ*, *primulinum*, and the like, and particularly of *D. crassinode Barberianum*, than which we have rarely seen better growths. We observed, too, that *D. Falconeri* grows remarkably well here, but whether it flowers well is another matter. *Cypripeds*, *Oncidia*, *Epidendra*, and other genera of *Orchids* which go to make a good "all round" collection are grown well, and we noticed particularly that cool *Orchids*, chiefly *Odontoglossum crispum*, and *Pescatorei* are receiving the chief share of attention.

Nepenthes, as we before remarked, are well represented. Among them the most conspicuous are the new seedling varieties, which, we believe, had their origin in the United States. There is a batch of about a dozen of these seedlings all more or less distinct, but a strong family likeness pervades the entire set, thereby indicating the same parentage. The chief characteristics of these varieties are their compact growth, free, but not too coarse, and their extreme productiveness of pitchers, which are of moderate size and coloured more or less highly with red on a pale green ground. Out of these in this nursery we singled out those named *N. Outramiana*, *Henryana*, and *superba* as being particularly worthy of notice, as each possesses a well marked character either in the high colour of the pitchers, growth, or productiveness. We are not sure of the parentage of this valuable set of Pitcher plants, but we surmise that the prolific little *Sedeni*, itself a hybrid, is one of the parents. Besides these varieties we noticed that the handsome *N. Mastersiana* has found its way northwards. We have before remarked that we consider this new hybrid of Mr. Court's to be the best of its class in cultivation at present.

Fine foliage plants receive a deal of attention here, especially such things as *Dracænas*, *Ferns*, *Palms*, and *Crotons*. The latter are quite a speciality, and in some respects the firm has stolen a march on southern raisers, for they possess one or two new sorts of exceptional merit. These are *Thomsoni*, of which we made a few commendatory remarks at p. 286; *C. Archibaldi*, a variety in the way of *C. Wiesmanni*, but with brighter markings and better habit of growth; and *C. interruptum aureum*, which reminds one of *C. angustifolium*, but the foliage is suffused with a greater amount of yellow. The leaves are long and narrow, and fall over fountain-like in a most elegant manner. The collection of *Crotons* is an uncommonly rich one throughout, and somehow the grower manages to put a bright complexion on each, so as to show it in its true character. Now that plant collectors have brought us, and hybridisers have given us such a wealth of *Crotons* of the mottled yellow and green and a dash of crimson stamp, could not a new departure be made in raising a new class of varieties, such, for instance, as would undoubtedly be obtained by "working on" such a handsome old plant as *Croton discolor*? But perhaps it would be spoilt in the process.

Among other plants with fine foliage we noted *Alocasia Thibautiana*, an extremely handsome species with huge heart-shaped leaves poised vertically on a stout arching stalk 3 ft. or more high. The leaf is a deep green, suggesting a metallic hue, and being traversed copiously with light green, almost white, veins, small and large, the peculiar green is shown off well. This plant when large and well grown bears leaves 2 ft. and even 3 ft. in length and proportionately broad. If anyone has a good sized stove and wants a plant with handsome leafage we should recommend this one or

either of two other Anthuriums, *A. Veitchi* and *Warocqueanum*. There is much of a sameness in these species; both bear in the adult stage gigantic heart-shaped leaves, long in proportion to the width. Of these two there are also some good plants in this nursery. The new *A. Andrea-num*, too, has a fine representative, for on one plant (*bonâ fide*) we counted no fewer than eleven spathe, which is going a long way towards refuting the statement made some time since that Andre's Anthurium would never be so prolific in spathe production as its rival, *A. Scherzerianum*. Begonias of the Rex type seem to be coming into favour again, judging by what we saw here, and there is an uncommonly handsome one called *Louis Chrétien*, which seemed to us to be distinct from most others. Bertolonias, those brilliantly tinted-leaved plants, apparently receive a good deal of attention, as do other smaller kinds of fine foliated plants.

Hard-wooded plants seem also to be in the ascendant again. Here there is a capital assortment, including some decent exhibition specimens of such things as *Ericas*, *Statice*s, *Ixoras*, especially *Williamsi*, one of the best of all. Never previously had we seen such grand examples of *Heidia glaucescens* as we saw here; there was a pair of plants, about 5 ft. high, of perfect pyramidal outline, and each leaf from top to bottom was profusely hung with its tiny blossoms suspended on hair-like stalks. The elegant pinnate leaves and abundance of flowers give such an airy lightness to the plant as to make it quite unique, even in the small state as one usually sees it, but such grand examples are elegant in the extreme. We should like to know what special culture they receive, so as to preserve the foliage intact from top to base. A species of *Amarantus*, probably *A. tricolor*, was one of the most attractive plants in the nursery and one that is very seldom met with now-a-days, though the name occurs in almost every seed catalogue. The plants here range from 9 in. to 18 in. high, of erect growth. The stem leaves are a dull coppery red and green hue, but those at the top, which form a spreading head, are bicolorous, one half being a bright golden yellow, the other of an exquisite rich carmine, a strange contrast, but exceedingly attractive. It is apparently of annual growth, but this is of no moment, for it is assuredly more deserving of culture than the plebeian *Cockscomb* or *Celosia*, both near neighbours. These are a few of the most interesting objects in the houses. The outdoor department of the nursery is occupied with the usual class of ornamental trees and shrubs, as we have noted in the other nurseries, so that there is no need to go over the same ground; suffice it to say that ornamental *Conifere*s and *Hollies*, and, in fact, all kinds of evergreens, are done well, and we were pleased to see that some little attention is being paid to the growth of some of the finer types of hardy herbaceous plants, whose absence in Scotch gardens generally is conspicuous. Of autumn flowerers we made a note of such fine things as *Harpalum rigidum*, *Galatella hyssopifolia*, *Tritoma grandis*, *Anemone japonica alba*, *Coreopsis lanceolata*—all handsome plants, such as everybody would call showy and useful, and which, if taken as a standard of excellence, Messrs. Ireland & Thomson need not fear the reproach of disseminating rubbish. We took note also of a long border which struck us as being very bright for September. It was composed of *Dahlia*s, *Pentstemons*, *Calceolaria* (a good, bright, free-flowering sort), *Violas*, white and blue, *Matricaria inodora fl.-pl.*, and *Hydrangea paniculata grandiflora*, an invaluable autumn shrub. A branch nursery in the town (Lyndoch Place) is what may be called the "show room," where the goods are displayed in a beautiful way.

COMELY BANK NURSERY.

MESSRS. CUNNINGHAM & FRASER's establishment is among the most celebrated of Scotch nurseries, being the birthplace of many a good garden plant, and always a place in which one could find something out of the ordinary way. As it was fifty

years ago so it is now. It is quite a nursery of the old school, as one sees at a glance on entering; it is bounded and intersected by high brick walls, against which are spacious lean-to houses of a stamp not built nowadays. The walls, formidable enough for a fortification, are of course put to good use in the rearing of trained fruit trees, of which there is an uncommonly fine stock throughout the nursery, and the houses, several of them unheated, are indispensable for housing all kinds of trees and shrubs, which are too tender to stand out unprotected from the rigour of a Scotch winter.

As we before remarked, the nursery abounds with all sorts of uncommon things, but the great feature of the establishment and the pride of its owner is the wonderfully fine collection of *Hollies* which may be seen at every turn, varying in size from plants from 6 in. to 9 in. high to handsome specimens as many feet in height. The variegated kinds are the most prominent, and rarely have we seen so numerous a stock in such uniform vigour as that of the *Golden Queen*, one of, if not the very best of, all the golden *Hollies*. On one quarter there could not have been less than 10,000 plants about 2 ft. high in the best of health. Such a sight as this is enough to raise the enthusiasm of *Holly* lovers, the whole plot seeming like a sea of yellow and green. Other kinds of *Hollies* are of course grown largely, both the green and variegated kinds, and the soil and locality seem to suit them uncommonly well, the majority being handsome symmetrical specimens.

Hardy Heaths.—Another great speciality of the firm are the Heaths, and we happened to visit the nursery just when most of them were in flower. In all the nurseries about Edinburgh we noticed that a deal of attention is paid to these shrubs both as regards culture and propagation and selection of varieties, and all seem to thrive uncommonly well, far better than in the south, where the soil during summer seems to be too hot and dry for them. Here we found one of the richest collections, numbering, we should say, some three dozen varieties. Of the common *Ling* (*Calluna vulgaris*) there are upwards of a dozen varieties, the most distinct being *alba*, the so-called white, though it is not pure white; *Alporti*, a beautiful carmine-purple sort, a very profuse flowerer; *carnea* and *coccinea*, both darker than the type; the double (*flore-pleno*), a very desirable variety on account of the extreme persistency of the flowers; the colour is a pale mauve. The varieties that most differ as regards habit are *minor* and *pumila*, very dwarf and tufty; *Searlei*, dwarf, but larger than the preceding; *pygmæa*, a quaint little tufted growing sort; while *rigida* has stiff, erect branches, and *elata* is taller than the rest. *E. vagans* and its varieties were beautifully in flower, the white (*alba*) and *carnea* being the most distinct. The neat compact growth of this Heath, and the way it has of bearing dense cylindrical spikes of bloom, make it an attractive little shrub. Of *E. cinerea* there were several varieties, notably *coccinea* and *alba*, white and deep red varieties, both distinct and pretty. *E. ciliaris* is a very attractive species, one of the best of all, and is taller than most of the others. *E. Mackaiana* is likewise a good Heath. These are a few of the most prominent in this fine Heath collection, from which could be made a valuable selection. These hardy Heaths are not half enough used in gardens, particularly where there is rough rockwork, for there they are seen to the best advantage or clothing a dry bank. Peaty soil is not absolutely necessary, though they do best in it; we have found that any light soil will grow them well.

Other Ericaceous plants are represented admirably, such as *Ledums*, *Azaleas*, and particularly the *Menziesias*, *M. empetrifolius*, *M. polifolia*, and its varieties all being attractive just now; also *Bryanthus erectus*, a neat little Heath-like plant, and *Andromeda tetragona*, which bears tiny, waxy-white, bell-like flowers on square rigid stems. We also saw the pretty *Cassiope fastigiata*, somewhat similar to the last, but smaller, and altogether a rarer plant and more difficult to grow.

Gaultheria procumbens, a small creeping evergreen, with red sealing-wax-like berries, and *Epigæa repens* are grown remarkably well in a snug corner in peaty soil in company with such rare little plants as *Rubus arcticus*, *Coptis trifoliata*, the *Gold Thread*, of which there is a fine mass better than we had seen hitherto. *Philesia buxifolia*, a dwarf-growing Chilean plant, allied to the popular *Lapageria rosea*, seems to be perfectly at home in the open air peat bed, and all the protection it seems to get is a hand-light during winter. Under-hand lights, too, we saw some exceptionally fine plants of *Yucca filifera variegata*, a very handsome plant when grown as it is here, the white being very pure and in strong contrast to the green. A deal could be done with hand-light culture with such plants as these, which, as a rule, resent the coddling treatment they usually get in a house, yet full exposure does not suit them. Tree *Pæonies* are uncommonly fine here, and Mr. Fraser assured us that they are not injured by cold so much as one would expect in the Edinburgh climate. *Coniferous* trees, like the *Hollies*, are made a speciality of, and a rich and full collection there is of them, and as in the neighbouring nurseries the smaller growing kinds, such as the numerous *Retinosporas*, are propagated extensively. Among hardy herbaceous and bulbous plants we noticed a good collection of autumn flowering *Crocuses* and *Colchicums*, and of the latter *C. speciosum* in particular, of which too much cannot be said in its praise, for it is a noble flower, enlivening the dull borders in September and October with its large showy flowers.—W. G.

PROPAGATING.

PROPAGATING PERENNIALS.

THIS, of all seasons of the year, is the best for propagating most kinds of hardy perennials, especially such as have to be increased by cuttings, as just now they are well furnished with young growth, which, if taken off and treated with ordinary care, strikes freely under hand-lights or kept close in any cold frame. The proper place in which to put hand-lights for the propagation of hardy perennials is on a north or partially shaded border, where the soil should be prepared by having leaf-mould and sand worked into it. After that is done, it should be made level and smooth, when all will be in readiness for the cuttings. The most important plants to devote attention to are *Pansies*, *Pentstemons*, *Antirrhinums*, and *Phloxes*, all of which root readily now. *Pansies* may also be dug up and divided. In this way they may be so separated that each young shoot may be got with plenty of root, and when so obtained, they will grow freely if dibbled anywhere in rich, light earth out in the open. In taking cuttings of *Pentstemons* and *Antirrhinums* choice should be made of soft young shoots, and if these are cut off about 3 in. long and have their lower leaves removed they will make excellent plants. Some strike and winter *Pentstemons* and *Antirrhinums* in pots—a good plan, as they can be moved from place to place in pits or frames wherever there is room. *Phloxes* not only admit of being propagated by cuttings, but they may also be increased by division, an operation which may be safely carried out now, and the same with *Pyrethrums* and others of that class that form multitudinous crowns. All that is necessary with such as these is to dig them up, shake them out bare of soil, when it may be seen where they can be cut through, pulled apart, and separated to the greatest advantage. In replanting, the great thing is to choose fresh sites for the plants, as the ground which they occupied previously is sure to be exhausted, and they seldom do well again in the same spot. All perennials like rich, deep soil, and the situations intended for them should be prepared by digging and manuring the ground; and as much of the effect they produce depends on the way in which they are arranged, the height and size to which each grows should be taken into consideration, and the whole placed accordingly, so that the tall

may be behind and the dwarf kinds in front, with room for each and all to spread and develop.

S. D.

The propagation of rock and herbaceous plants should not be longer deferred. If those intended to be increased are looked to at once they will strike root under a hand-light or cloche in about a fortnight, and may be potted and kept in a cold frame for the winter, and planted out early in spring. If sheltered from severe frosts they will make sturdy plants by the end of February. In many cases side shoots may be taken with roots attached to them and potted.—D. HARRIS, *Munstead*.

Clerodendron trichotomum.—A ready means of increasing this flowering shrub (lately noticed in the garden) came under my notice by which an almost unlimited quantity of it may be obtained. Having occasion to transplant a large bush of it, many of the roots were broken during the operation, and as the ground was merely levelled down they were not extracted. The consequence is that great numbers of young plants have sprung up in all directions, many of them originating from but a very small portion of the old root. Several pieces not thicker than a straw, or more than 2 in. in length, had produced young and vigorous plants, and that too without any care. The soil was certainly favourable for striking cuttings, being light and sandy, but in a hot, dry situation.—ALPHA.

Virginian Creeper.—What is the easiest way of propagating this creeper? and at what time of year should it be done?—M. S. [Cuttings of Virginian Creeper strike root without difficulty. The best time for putting them in is just after the leaves have fallen and before winter sets in, as then they callus quickly. For cuttings choose pieces of shoots about 1 ft. in length, but do not employ the young or succulent portion; on the contrary, rather take shoots of firmer growth. The long pendulous branches make good cuttings if the top portion be thrown away and the remainder cut up into convenient lengths, leaving of course a bud on both the upper and lower parts. Pieces of older growth as stout as a lead pencil may also be used; indeed, if the situation in which they are put be exposed, such cuttings often strike better than younger ones. A good place for their insertion is in a somewhat sheltered border, such, for instance, as one protected by a wall, and yet at the same time not dry or baked up, as the soil often is in such places. Insert the cuttings firmly and bury them, so that there are only from 3 in. to 4 in. above the surface of the soil, placing them, of course, in a perpendicular position. Small-rooted branches may often be detached from the base of large plants, and where these can be had, treat them the same as has just been recommended in the case of cuttings.—T.]

LAW.

OVERHANGING TREES.

THE behaviour of the owner of one property towards the owner of an adjoining property should be based upon the golden rule, which, for legal purposes, is paraphrased into "use your own property in such a manner as to cause no injury to another." In the management of a landed estate the owner may feel inclined to do several things dictated by his fancy the effect of which would be to do harm to his next door neighbour. Should he, for instance, be of opinion that no landscape is complete without water, he might dam up the tiny brook that runs through his water meadow, in order to make a mimic lake. The result of such a piece of engineering would be that his neighbour's cattle would, in all probability, be deprived of their drinking water; and that the law would not sanction. Or, again (and to this our remarks will be confined), one man may be an admirer of timber, and suffer his trees to grow to the greatest luxuriance. So long as he indulges his whim with the trees on his lawn, or trees that grow in the hedges that divide

his own fields, his taste is worthy of commendation rather than censure; but for personal reasons a neighbour may object when the mighty Oak spreads its branches over his (the neighbour's) land. Supposing, then, one man suffers trees on his land to extend their arms over the hedge on the land of another, what is the latter's position? It was laid down long enough ago that whatever unlawfully annoys or does damage to another is a nuisance, and that such nuisance may be abated or removed by the party thereby aggrieved, so long as he commits no riot in the doing of it. Now, the growing out of tree boughs over the land of another is a private nuisance, and may be abated by the person over whose land they extend. Strictly speaking, the person aggrieved need not send any notice to the owner of the trees, but may, as soon as he finds the overgrowth a nuisance, set to work and lop the offending boughs. As a matter of courtesy, however, the wisdom of intimating the existence of the nuisance before proceeding to extremities is obvious.

Cases in point.—The right of thus taking the law into one's own hands in the matter of lopping trees seems to be a privilege by itself, for in the case of "Lord Lonsdale v. Nelson" Mr. Justice Best said: Nuisances by an act of commission are committed in defiance of those whom such nuisances injure, and the injured party may abate them without notice to the party who committed them; but there is no decided case which sanctions the abatement by an individual of nuisances from omission, except that of cutting the branches which overhang a public road, or the private property of the person who cuts them. The permitting these branches to extend so far beyond the soil of the owner of the trees is a most unequivocal act of negligence, which distinguishes this case from most of the other cases which have occurred." The boughs must not, however, be touched until they actually overhang and cause a nuisance. Taking time by the forelock, and cutting them for fear they should eventually become a nuisance, would constitute an indefensible meddling with the property of another, and lay the offender open to an action. Nor, again, must an atom more be cut than is absolutely necessary, otherwise the person doing the lopping will be liable in damages. This was decided in "Pickering v. Rudd." In that case it appeared that Rudd's house adjoined Pickering's garden, which was behind his house in Bernard Street. In that garden was a Virginian Creeper, which spread itself over the side of the defendant's house, and which, as the report picturesquely says, was very ornamental to the prospect from the plaintiff's house. Rudd, being a business man—a hairdresser—was blind to the beauties of the creeper, and wishing to hang up a show-board on that part of the house over-spread by the creeper, he managed, without interfering with Pickering's premises, to cut away enough of the creeper to allow of the board being fixed. In summing up the case to the jury, Lord Ellenborough told them that the question was whether, in removing the mischief, Rudd had done any damage to the tree which might have been avoided, and the jury found that he had not. The law was similarly defined in the case of "Roberts v. Rose," where Mr. Justice Blackburn said: "We all agree that a person may justify an interference with the property of another for the purpose of abating a nuisance if that person is a wrongdoer, but only so far as his interference is necessary to abate the nuisance. We also agree that it is the duty of a person who enters upon the land of another in abating a nuisance to do it in the way least injurious to the owner of the land."

Lopped boughs and fallen fruit.—Assuming the overhanging boughs to have been rightfully and carefully lopped off, the person cutting them must not burn them or carry them away, for either course would constitute turning them to his own use. He should either send them to the owner of the trees, or leave the loppings on his own lands. Should he do the latter, he gives the owner, who does not lose his right to them, an implied permission to come and take them away, but he may not break the hedge in so doing. The

same is the law with respect to trees falling into a neighbour's land when blown down by the wind, and in the case of fruit falling from boughs that overspread another's land. The person over whose land the boughs of the fruit tree extends is not entitled to the fruit, nor, on the other hand, could the owner of the fruit go into his neighbour's lands and pick up the fruit without first asking permission. Should permission be refused, the withholding of it will constitute a taking of the fruit, and, subject to any damage he may commit, the owner may forthwith go and get it. The result, therefore, is that a person upon whose land fruit falls from overhanging boughs cannot decline to allow the owner to fetch it.

Roots.—What has been said of overhanging boughs probably holds good, as far as it is applicable, to the case of roots extending themselves into adjoining land. But, bearing in mind that no more damage must be caused than is absolutely necessary, the removal of roots would have to be effected with great circumspection, and the damage, it is submitted, clearly shown. When trees happen in any way to overhang a public road it is a public and not a private nuisance, and the trees may be cut by anyone passing along, "because," says Blackstone, "injuries of this kind, which obstruct or annoy such things as are of daily convenience and use require an immediate remedy, and cannot wait for the slow progress of the ordinary forms of justice." When boughs of trees are suffered to overhang a public road, the authorities may call upon the owner to clip them.—Field.

KITCHEN GARDEN.

POTATO SPORTS.

I FEAR that we can hardly term a white form of Beauty of Hebron a sport. Beauty of Hebron in some soils comes very pale in colour, and now and then a totally white tuber is found; but that simply shows that the kind is closely allied to the pale-skinned varieties, and nothing more. I have little faith in sported Potatoes. They are very problematical indeed, and, in fact, though I have grown Potatoes so largely for many years, I have never yet met with a real sport. Blanchard sometimes yields pure white tubers, but it is Blanchard still, and when exposed to the air the pure white tubers will discolour just as soon as will the purple blotched tubers. Mr. Laxton's Beauty of Hebron may have a colourless skin, but it is Beauty of Hebron nevertheless, though a white form, and its cropping and eating qualities, also its top growth, foliage, and flowers, remain exactly the same, so that it is not possible to accept it as a new kind, unless from seed, although even then it may be but a reproduction of the parent. The variety may be called White Beauty of Hebron if thought desirable; but as it is still Beauty of Hebron and nothing else, it could not be shown with the coloured kind in the same collection, but as a colourless form of an old kind in commerce it can be shown in the competitions, and cannot be regarded as or treated as a seedling or new kind at all. Sharpe's Duke of Albany, already in commerce, seems to me to be but a white form of Beauty of Hebron pure and simple, and if this be so, then Mr. Laxton has been already anticipated with regard to his kind. I must take exception to the statement that at exhibitions so much encouragement is given to coloured varieties. Positively, there is always as much encouragement given to white kinds as to coloured ones, whilst the former have always, in equal competitions, the preference for white-skinned kinds in their favour. Still farther, any raiser of seedling Potatoes knows that he always finds white-skinned kinds to be largely in the ascendant. There are plenty of coloured kinds as good as white kinds, and the objection to colour is simply a local prejudice and nothing more. In America the coloured forms are in much greater abundance than white ones. It is worthy of note that one of the finest flavoured Potatoes introduced of late is the reddish coloured Prizetaker. Reading Russet, also a red-skinned variety, is first-rate in qua-

lity, so that it would be a mistake were the committee of the International Potato Show or of any other exhibition to object to any kind because of the colour of its skin. In private establishments no objections are raised against colour. It is chiefly in the London market where the demand for white kinds is greatest. We are not, however, without plenty of good kinds to satisfy the London market, and these are fast increasing. Cosmopolitan, Reading Hero, Bedford Prolific, Fiftyfold, Magnum Bonum, and Schoolmaster are all sorts that will please Londoners well when they can be got in abundance.

A. D.

SHALLOTS AND GARLIC.*

THESE esculents are in every way so nearly related that cultural notes given in reference to the one may safely be taken as suitable for the other. Except in rare instances, however, their cultiva-



1. Common Shallot.

tion is somewhat neglected, a circumstance owing no doubt to the fact that there is not much demand for them. That, however, ought not to be accepted as a reason for neglecting their culture, for though we may be required to grow but few, it is surely worth while to grow those few well. The most suitable soil for them is a strong loam that has been manured the previous autumn and left to mellow under the winter's frost. This should be broken down smoothly with a rake early in February, and the bulbs should be planted in rows 15 in. from each other, and 9 in. apart in the row. No dibber should be used; the bulbs should be pressed into the ground with the fingers only. As soon as they begin to make roots it is



2. Garlic.

necessary to give them another press down, or the roots will upheave the bulbs out of the ground.

* Owing to an unfortunate transposition of the inscriptions under the woodcuts in this article last week we have thought it well to repeat it in a corrected form.

Beyond hoeing to keep the surface of the soil open, little else in the way of culture is needed to insure success. In order to obtain handsome pro-



3. Jersey Shallot.

duce, select the finest and best shaped bulbs for planting. As regards varieties, they are not numerous, and what there are vary but little in any respect except in colour and size, the quality of all being about alike, and are no doubt more improved by constant selection of the finest for reproduction than by seed. The ordinary pale red-skinned (Fig. 1) is perhaps the most profitable kind to grow; it is certainly far more productive and hardier than the larger deep red-skinned Jersey variety (Fig. 3). There is also a good silver-skinned kind in cultivation, which from the appearance of the bulbs might easily be mistaken for Garlic, though it is somewhat longer than the bulb shown in Fig. 2, which is the common English variety of Garlic, and the only kind that need be grown.

W. W.

Tomatoes.—Seeing an extract on Tomatoes from a New York paper, I would mention that when in America lately I took note of the best varieties of Tomatoes, especially as to their quick-growing and ripening quality. I brought seed of Livingstone's Perfection, Acme (both so highly spoken of in the article quoted by you), Conqueror, and Alpha. I propose sending seeds of these to various friends that they may be fairly tried, when no doubt some of the recipients will report to you on them.—H. STUART-WORTLEY (Colonel).

Judging Turnips.—The annual subject of judging is again before the public. I write to tell you of the great strides towards perfection this matter is making in the midlands. At the Oakham Show some ten dishes of Turnips were exhibited, all of fairly good quality, and the judges, three noble lords' gardeners, to be quite sure of their decision being right, tasted them all several times over, discarding the hot ones, and very properly, and giving the mildest and best flavoured the prize. I hear the decision gave general satisfaction, and some little amusement to non-exhibitors.—R. GILBERT, *Burghley*.

HORT NOTES.—KITCHEN.

Tomatoes cracking.—Can anyone tell me the reason why some of my Tomatoes crack? On some the skin is rough, and much resembles that of a ripe Melon, while others on the same plant grow all right. They are under glass, but have no fire heat.—E. M.

Mummy Pea (*Pisum sativum* var. *umbellatum*) is here 5 ft. high, with hollow fasciated stems, and very pretty pink and white flowers in a cluster at the top. Pods short, containing three to five Peas each. When cooked these are dull russet colour and very tough, a wretched table Pea.—F. W. B.

Laxton's Earliest of All Pea.—Permit me to confirm every word of Mr. Ward's letter in THE GARDEN (p. 232) respecting this Pea. It is in my opinion the best early Pea of the present time, and its flavour is unique for a first early.—R. GILBERT, *Burghley*.

Peas and Cocoa-nut fibre.—This day (Oct. 2) I have gathered a dish of delicious Peas, British Queen, sown late in June and mulched well with Cocoa-nut fibre. I use this fibre extensively all over my garden amongst flowers, fruits, and vegetables, and find that it amply repays for the outlay, the fibre acting well both as a forcing material and a mulcher. I still expect a few more dishes.—T. N., *Stoke Newington*.

Flavour in Tomatoes.—Two years since I crossed Stamfordian Tomato with Green Gage, and last year the produce proved to be all scarlet and identical with Excelsior. My seed was saved for this year's growth from a couple of good fruits off one plant, and though this season the greater portion have again come Excelsior, two or three plants have produced yellow fruits, thus showing not only that the progeny will at times revert to the character of one of its parents, but also that Green Gage is but a sport from Hathaway's and nothing more. I have read Mr. Gilbert's note upon Tomatoes, and thinking his opinion as to the relative quality of flavour found in yellow as compared with red kinds worth testing, I tasted fruits of both, and really think that he is right. If it be found that the yellow kinds have most flavour, then the difference can be due to colour only. Still, perhaps we are not all agreed as to what constitutes flavour in the Tomato.—A. D.

COST OF HIGH AND LOW TEMPERATURES.

I HAVE made some pretty accurate calculations in reference to this matter this season at no inconsiderable trouble, and as the subject is one that interests employers and their gardeners, as I happen to know from a pretty extensive correspondence with both, I will avail myself of your pages to record the following facts. Several writers in both your weekly and monthly contemporaries have—some of them while admitting the advantages of the system otherwise—said and maintained that low night temperatures retarded maturity, that no fuel was saved thereby, as the heat lost at night had to be made up by firing late in autumn or starting earlier in spring. I have, on the other hand, thought and maintained the contrary from past experience, but I have this season made further and more accurate investigations into the subject, and the following statistics and remarks will perhaps show who the coal burners are—the high or the low temperature men. All our houses here, plant as well as fruit, are treated on the low temperature principle, and I wish it to be remembered that our climate is both cold and late, situated as we are in the north on the spurs of the Pennine range, 700 ft. above the sea. The Muscat vinery was again the subject of experiment, and the Vines are still the same, being about fourteen years old and in good heart—roots now all outside. The vinery was started on February 1. A heap of leaves was placed on the floor inside at the same time, with the object principally of keeping out frost by the gentle heat it afforded when no fire-heat was used. From the above date till May 1—three months—the heat was turned off the vinery every night (except two when the frost was severe) some time between 2 o'clock in the afternoon and 10 p.m., according to the weather, not a spadeful of fuel being added after these hours for these three months. Our first Muscats, quite ripe and yellow, from the warmest end where a row of pipes crosses the end of the vinery, were cut on August 11 for a party on the 12th, and all were fully ripe by the end of August, about which period a well-known judge and writer described samples of them to be "as clear as crystal, and not easy to be surpassed." On August 30 one of your contemporaries described first-prize dishes of the same at a provincial show as "well-ripened examples of Muscat of Alexandria." These facts I simply give as vouchers for the state of the Grapes at the end of August, as it is the time, temperature, and cost of fuel which is under discussion. It will thus be seen that the crop was ripe in seven months from the time of starting, and the earlier portion of it in a little over six

months—roots outside. The day temperature was allowed to go up to from 75° to 80° on all sunny days from the commencement, and the maximum figure at any time was never allowed to exceed 90° if we could help it, and rarely did do, and was often lower; while on dull days from 65° to 70° was never exceeded all the season by fire-heat, and proportionately less was allowed before the flowering period. The very most was made of every sunny day from morning till night. During the first three months an accurate account of the lowest night or morning temperatures was kept. The highest figure recorded was 60° on the mornings of April 20 and 29; the lowest when the vines were in flower, 48°; and the mean minimum temperature during April was about 52°, the glass seldom falling below 50°, and seldom rising above 55°. During February and March it was of course lower, no fear being felt at that period so long as frost did not enter. The pipes became cold every night soon after the heat was turned off. Moisture was given on fine days, but no steaming or damping was needed whatever of nights under such low temperatures, and the leaves were always moist in the mornings without it. From the time of starting, February 1, till the vines came into flower was sixty-four days, and till all the bunches were fairly set, and the earliest thinned, eighty days. After this period the night temperature by fire-heat ranged from 55° to 65°. Up till the 5th of May, the last day the heat was recorded, the temperature had not exceeded 60°.

And now with regard to cost of fuel. I cannot, of course, give the exact amount paid or the quantity of coal burned, as the boiler heats several houses; but I reach an approximate estimate of the cost in this way, and which it will be seen cannot be far from the mark. The length of our range of heated houses, which consists of good sized lean-to vineries, Peach, Fig, and Strawberry span-roofed plant houses, &c., is 660 ft., to which must be added 300 ft. of brick Melon houses and pits, all efficiently heated by from two to eight rows of hot-water pipes, worked by nine furnaces and fired by coke and coal at 8s. per ton.

Since the 1st of February this year (the date of starting the Muscats) till the end of August the cost of fuel has been £43 18s. 9d., which, allowing the difference for the lodge and shed fires, would leave the cost against the glasshouses at £40. The permanently planted out vineries are about 170 ft. in length, or less than one-third of the 660 ft., and less than one-fifth of the total, 960 ft. As the houses which consume the most coal are the plant houses, mostly span-roofed stoves, and over 200 ft. long, not to speak of the other forcing structures, I feel certain that I credit the vineries with all they owe at one-quarter of the total amount, viz., £10. The vineries are in five divisions, and the Muscat house is 30 ft. long inside, less than the late house by 20 ft. Putting its cost for fuel down at one-fifth of the £10 makes it about 40s. The two early vineries of the same size, however, consume most coal, as they are forced between November and June, so that the cost of the Muscat house is probably under 30s.; and taking it at that it means about three and a half tons of coal for one house for seven months. No doubt that quantity, if not less, represents the whole amount burned, a quantity or more which I have seen burned to maintain night temperature alone for the first three months of forcing only, the amount of coal packed into a furnace at "banking-up" time alone representing a large consumption, and which, in the above instance, has never been used at all. I have done without it, and, much more, have not spent more fuel during the day than other practitioners, and have ripened the crop in as short a space of time. Probably more coal was spent in June and July for day heat than at any time, as the weather was cold and unsettled then.

In connection with this subject it may be mentioned that under the low temperature system the Muscat of Alexandria can be ripened in six months, or even less, by exposing the bunches to the sun fully in the same way as the Grape

growers at Thoméry do with their Muscadines. Two bunches of our Muscats exposed all the seasons in this way, the bunches getting the sun fully broad-side on, were ripe and of a rich yellow colour by the end of July. On sunny days the bunches got so hot in the afternoon that I put a thin coating of whitewash on the glass to break the direct rays of the sun. I do not, however, say that this is the best way to perfect Muscats. It is by far the quickest, but I have seen as good if not better samples ripened under the shade of the leaves as in any other way. I would prefer a thin distribution of the foliage to exposure to the sun, so that a diffused light might play among the bunches. I am satisfied now that low night temperatures in the early stages of forcing do not retard, and some of those who have differed from me on that point elsewhere now admit the correctness of my opinions. In letters to me, one clever and well-known gardener in Scotland states that he has been experimenting with temperatures "similar to mine," and that he ripened Black Hamburgs "perfectly" in about the usual time. Another gardener to a nobleman says, "I dropped just 10° below my former temperature this season, and have the best finished and coloured lot of Grapes I ever had—the Barbarossa especially doing well." From another practitioner in Cumberland whom I do not know personally I hear exactly the same statements, not to mention others from time to time. I need only add that our coal bills and vouchers, &c., and all particulars are at the disposal of anyone who chooses to call. The heat was turned close off the vinery at nights by a valve on both the flow and return pipes placed outside the vinery, and no artificial heat entered the house after the pipes cooled. J. SIMPSON.

Rock gardens about Edinburgh.—

Your remarks in reference to the rockery in the Botanic Garden, Edinburgh, are quite right. The way in which such places are often treated is absurd. The natural rock, as you very properly advocate, should always, if possible, be developed, but it very rarely occurs where it is wanted. As to the contemplated winter garden, or whatever it is to be, in the Princes Street Gardens, I agree with you that there should be no glass shed, nor do I think it likely there will be. Surely the architectural taste about Edinburgh is too great for that to happen. If the "Pulhamite scheme," which has been in contemplation for these last two years, should be carried out, and, with a proper roof, it would not be obtrusive, as the bulk of the rocky structure of it would be close into the bank, and would appear like a development of the natural rock; the roof, which would rest on the rocks, would obviate the use of walls. As the funds are not equal to the object desired, it would perhaps be well to dispense with glass entirely, and make it wholly a rock garden, suitable for the growth of thousands of various hardy plants, such as Ferns and other shade-loving plants in shady parts, alpine and other evergreen rock plants and shrubs in suitable positions; also a great variety of Heaths and Ivies, all of which could be well provided for; and lastly, a few of the most suitable herbaceous Perennials, so as to dispense with the need of glass. Thus the cost of keeping up would be but little, and not a flower-pot should be used except it be desirable to plunge outside a few half-hardy plants for the season. Such an arrangement as this would be pleasing all the year round except during the occurrence of frost and snow. Few have any idea how interesting a picturesque rock garden can be made, even in winter. The late Mr. MacNab has informed us (see GARDEN of January 21, 1876) of the great variety of plants that flower in the six winter months in Edinburgh, and I see at Byfleet that one of your correspondents speaks of having 10,000 varieties of hardy plants, half of which, I think, would do well on or about the rocks in a well-arranged rock or picturesque garden.—JAS. PULHAM, *Broxbourne*.

[An artificial rock garden of any kind in the Edinburgh Gardens would be most undesirable,

for the simple reason that the garden itself is half a rock of the boldest and most picturesque kind. As well make a little sham sea on some ocean beach. Surely the resort to artificial rock of any kind is never excusable, except in the complete absence of the real rock—a condition that occurs often enough to give ample opportunities for the artificial.]

Native Guano Company.—We learn that the annual competition for the prizes offered by this company will take place at the works, Aylesbury, on October 19. The schedule embraces sixty classes for vegetables, fruit, and farm produce, and also special prizes offered by Messrs. Sutton for vegetables amounting to 12 guineas, and £5 and £2 for the two best collections of stove and greenhouse plants.

OBITUARY.

MR. EVELYN PHILIP SHIRLEY, F.S.A., died on the 19th ult., from an attack of apoplexy, at his residence, Ettington Park, near Stratford-on-Avon. Mr. Shirley entered the House of Commons in the Conservative interest as one of the members for county Monaghan, and sat for that constituency till 1847. In 1853 he was returned for the Southern Division of Warwickshire, and retained his seat down to 1865, when he retired. He was a trustee of Rugby School and of the National Portrait Gallery. Mr. Shirley was also well known as an able and indefatigable antiquary, and as the author *inter alia* of a work of high merit entitled "The Noble and Gentle Men of England," of which several editions have been published. In 1842 he married Mary Clara Elizabeth, daughter of the late Sir Edmund Hungerford Lechmere, by whom he has left issue, besides three daughters, a son, Mr. Sewallis Evelyn Shirley, who was formerly M.P. for county Monaghan. By Mr. Shirley's death horticulture has lost one of its most enthusiastic patrons.

We have to record with regret the accidental death, by drowning, of Mr. SIM, of the Sidcup Hill Nursery, Footscray; aged fifty-four.

Boilers (Bishops Castle).—The one you name will doubtless answer your purpose.

French Marigolds (W. Thorburn).—The flowers you send represent a fine strain, and the dark self sorts are particularly noteworthy.

Flower protector (A. L.).—As far as can be seen by the rough drawing sent, your protector is no improvement on kinds now in use.

Wall plants (A. C. B.).—Try in the pockets of your wall some of the small growing hardy Ferns, such as *Asplenium*, *Adiantum nigrum*, *A. Trichomanes*, *Allosorus crispus*, *Blechnum Spicatum*, *Scopolopodium vulgare* and its varieties, and *Polypodium vulgare* and its varieties. The small kinds of *Sedum*, *Saxifrage*, and *Sempervivum* would also doubtless do well.

Names of plants.—*A. R. M.*—Species of *Dioscorea*; probably South African.—*W. Nelson*.—1, species of *Solidago*; 2, *Begonia ascotensis*; 3, *Aster lavigatus* variety 4, *Coccoloba platyclada*.—*R. R. W.*—1, *Aster Novae-Angliae pulchellus*; 2, *A. laevis*; 3, *A. dumosus*; 4, probably a form of *A. longifolius*.—*Takita*.—*Cleome integrifolia*.—*J. H.*—*Tacsonia insignis*.—*Cah.*—1, *Lycocystis formosa*; 2, cannot name such a scrap; 3, *Asplenium marinum*; 4, *Oxalis Bowiciana*.—*A. and M. (Glasgow)*.—*Anemone Pavonia fl.-pl.*—*R. E. G.*—1, *Rudbeckia laciniata*; 2, *Hypericum oblongifolium*; 3, *Helianthus scabra*.—*E. Molyneux*.—1, *Poa annua*; 2, *Hordeum murinum*; 3, species of *Avena*; 4, *Schizostylis coccinea*; 5, apparently *Aster longifolius* var.; 6, *Nigella damascena*.—*J. Clark*.—1, *Cattleya velutina*; 2, *Oncidium sarcodes*.—*H. Steiger*.—*Cratogeomys marocana*.

COMMUNICATIONS RECEIVED.

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

TEA ROSES, NEW AND OLD.

THE autumn shower of catalogues, detailing among other things the newest varieties of this most charming section of the Rose, reminds me that some notes I made last spring when visiting Rose gardens in France may prove of use and interest to readers of THE GARDEN. One of the most successful raisers of Tea Roses in France during the last few years is no doubt Nabonnand in his sunny garden at Golfe Jouan, so well known to visitors at Cannes; let us therefore begin with what I saw there. It is amusing to see how the fashion of single Dahlias has extended itself to the Rose, so that now any single varieties of vigorous growth and bright colour are sent out to swell the number of novelties in the coming year. One of the first varieties that I was shown was a large single-flowered seedling of bright cherry-red colour and excessively rampant growth that has received the name Reine Olga de Wurtemberg. If by any happy chance this extreme vigour of growth is succeeded in our climate by abundance of flower, it will be pleasant to see such luxuriance as this; but, as the honest raiser frankly owned, its autumn blooming capacities are strictly limited even in that climate. I should greatly fear that in ours its youthful vigour will not turn in the direction of bloom. Another seedling of less remarkable growth attracted my attention hard by, and on enquiry I found that this had been named Madame Marie Lavallée. This is a very pretty semi-double pink Gloire de Dijon, whose central petals curl over and hide the stamens, so that it has the effect of a double Rose; and as it is evidently of a free blooming disposition, it will probably thrive in England and prove an acquisition in gardens where an effect of a Rose tangle is sought after. Neither of these Roses will stand pruning if I am not mistaken. Another climbing Rose of Gloire de Dijon blood, and which looked less at home in that warm climate, is a white-flowered seedling named Mélanie Soupert. This most probably will turn out the most remarkable Rose I saw there, as it was evidently suffering from the heat when I saw it in the end of April, and its petals were thin and papery in texture from drought, but still there was enough to show that in a cooler and moister climate it might fulfil all the conditions of a good white Rose such as all will welcome for cutting from and that will thrive in England like Gloire de Dijon. For those who like a purple-pink Rose F. M. dos Santos Viana will find warm admirers, for its abundance of large, fairly-shaped flowers was most remarkable, but to many a Rose that looks dull in colour even before it be fully expanded is far from attractive. A Rose, said to be of Noisette blood, named Madame Julie Lassen, was decidedly pleasing, but its dwarf growth and dark flowers make me think it to have more China blood in it than was said to be the case. Both it and a new China Rose called after Lord Brougham were said to be remarkably good winter bloomers, and if so they will be of use to florists in England, as well as to those whose winter Roses are grown

in the open field, for a good red Rose bud is ever welcome. As merely a summer Rose, Madame Emile Dunau is of great merit, being a climber, with large and beautiful salmon-rose-coloured flowers and glossy leaves. What a pity that it is not more generous of its charms at other seasons! Another climbing Rose, and one of great merit, at least in warm climates, is Madame Marie Berton, which must be seen to be appreciated. Its vigorous growth and rich red-brown shaded leaves and tender growths are set off by large lemon-white flowers from every eye on the long rods which hang down in the most pictorial manner among the richly-coloured leaves. Though well known in catalogues for some years, this Rose has not met with the favour it deserves, because its beauty is not that of the show table, and the late severe seasons prevented its showing itself in full beauty where it has been tried. On a sunny wall, or position where Lamarque thrives, this Rose should certainly be tried, as the flowers are large, abundant both summer and autumn, and contrast most strikingly with the red-brown of the young shoots and leaves.

Of dwarfier growing Roses that flower magnificently at Golfe Jouan, Isabella Nabonnand stands foremost. How it is that this Rose is practically unknown in England is a mystery to me, unless it be that our climate does not suit it. In leaf and growth it somewhat resembles the old Bourbon Souvenir de la Malmaison, but it is a Tea Rose, still larger in flower and deeper in its salmon-rose tints than that old variety. An instance of vigour caused by climate surprised me much in the Rose called Wassilchikoff abroad, and Duchess of Edinburgh in England. It was hard to believe that those great bushes covered with fine, double red blooms and bold foliage could be the small China-Rose-like bud we grow at home, and made one realise that not unfrequently Roses that deserve the praises lavished on them by their raisers prove unsatisfactory in other climates, while the "ugly duckling" may turn out the beauty of the family when strengthened by northern air and a moister atmosphere.

That most charming Rose of small growth, but of large size, called La Lune, is, as far as I know, unknown in England; it is as rich in petal as the finest Devoniensis bloom, and of a clear lemon colour. Here at its raiser's it is of the greatest beauty. Though I fear to weary, yet the fair Princess Véra, with neatly-folded Camellia-like petals, deserves a passing word of praise, and a rose-coloured Niphetos, under the crack-jaw name of Mme. Elise Stchegoleff, is a seedling of promise. Reine Emma des Pays-Bas is a more highly-coloured Safrano, and more double. Paul Nabonnand is a really beautiful clear pink Rose that deserves attention. Mile. Francisca Kruger is a fine bold Tea Rose of robust habit and of delicate colouring. W. A. Richardson is very striking in its intense apricot and white colours, and seems brighter in colour in colder climates; it should be a worthy successor to the old favourite Ophiré against English garden walls. Comtesse de Nadaillac is here even more brilliant in colour than its best show form at home; and Catherine Mermet is of a coppery rose colour instead of the delicate flesh tint we know so well. But it would not be fair to omit from any list of Tea Roses those two which are the sweetest scented of all when all are sweet, for to my mind the fairest Rose is but a mockery if it be scentless. Aline Sisley and Mme. Benoît des Roches shall end my list—last, but not least,

in that they gladden the nose even more than the eye.
E. H. W.

EARLY WINTER TREATMENT OF ROSE ROOTS.

MANY years' experience forces me to the conclusion that the roots of Roses are less hardy than their tops. A Rose grower is, however, just now on criticism bent, and it may be well to guard the statement thus: that a good deal depends on the kind of Roses and the sorts of roots. The statement, for example, might not hold good in regard to Teas worked on the Brier. As a rule, however, it would prove true of perpetual Roses on the Brier. The roots of Briers are probably less hardy than is generally supposed. In a state of Nature they are exposed to no severe tests. Protected with weeds and litter of all sorts, they are seldom or never frozen. Planted at first, as they often are, in open and exposed beds and borders, the roots become severely frozen, and suffer much injury in consequence. No doubt immense quantities of Brier and Manetti stocks are annually planted in nursery gardens, and these mostly do well; but most of these are planted deeper than the average for Roses in private gardens, and the soil is newer and probably, as a rule, lighter and looser on the surface. These differing conditions are powerful elements in the protection of the roots from extreme cold. Commercial Rose grounds are also generally well drained, and a dry soil, as every one knows, is also a warm one. The enumeration of these favouring conditions for the conservation of heat suggests the best and simplest means of protecting the roots of Roses from any excess of cold. Those who are obliged to grow Roses in wet localities should see to

The drainage of beds and borders before winter. It is impossible to over-estimate the cooling, chilling influence of semi-stagnant water alike on the earth and the local atmosphere surrounding the Roses. On retentive soils the drainage for Roses needs to be so thorough as to seem excessive; the sooner all water is removed by drainage through the soil the warmer the roots of the Roses, and *vice versa*, while every drop lifted from the surface by evaporation that might have been drained off through the soil wastes much heat in its removal. Next to thorough drainage perhaps a loose surface is the most potent means of conserving the warmth of the earth. It is this looseness of the mass of soil that renders the roots of Roses and Briers so much warmer on the new fresh soil of commercial gardens than on the older and more solid root runs of private grounds. To bring up the latter to the level of the former,

Surface stirring at this season is most useful. If with such stirring a top dressing of manure or compost can be applied, such top-dressings not only enrich the earth, but make it warmer by rendering it more porous. In this connection the character of the top-dressing becomes important; the rougher in reason the character of the dressing, the more potent as a heat-preserver for the roots. This is why surface-mulchings of rough and loose materials are so effective in protecting the roots of Roses and other plants from cold. They are almost wholly impervious, and consequently prevent any of the heat of the earth escaping into the colder air. The efficacy of

Dressings of loose earth or mulchings as conservers of the warmth of the roots is also largely determined by their thickness as well as their roughness. The more deeply the surface can be stirred compatible with the safety of the roots, the deeper the dressings and the mulchings up to 3 in. or 4 in., at least the warmer and consequently the safer the roots. The roots of our perpetual Roses have become so active, that I believe it is better for them never to be frozen; while newly planted Roses and Briers make such efforts to re-establish their roots shortly after planting, that every possible effort should be made to prevent their newly-made spongioles from being frozen. For a root to be frozen in active growth in winter

not only totally arrests growth for the period it remains frozen, which may prove a very serious matter for the future health and strength of the Rose, but too often it totally destroys the roots, and may thus cause the entire destruction of the Rose tree or plant. It seems too often to be forgotten that the more perpetual blood we get into the heads of our Roses, the more perpetual and constant the growth of the roots becomes, and hence the greater need of special culture to protect them from a forcible stoppage by cold. Roots or tops, either for that matter, that are perfectly hardy in a state of rest or semi-dormancy become tender as Potato tops when in a condition of active growth. By recollecting this simple fact, and adapting the protective culture accordingly, thousands of Roses might be saved by the adoption of some such expedients as are here pointed out that are annually sacrificed to the severities of our winters. What rosarian has not found after winters of abnormal coldness several hundreds of Rose and Brier roots dead while the tops have been alive, not a few of them even struggling to break into a flush of all too transient life in the spring? Had the roots of such Roses been protected, no doubt nearly all of them would have lived.

D. T. FISH.

ROOT DISTURBANCE.

ALTHOUGH "A Rose Grower" may have planted "scores and hundreds of Roses many a time," he has apparently something yet to learn in the matter of plant growth, for incidents have occurred in my experience which confirm the accuracy of every statement of Mr. Fish, to which he so strongly objects. I feel concerned lest "Rose Grower" should get into serious trouble in support of his opinions, as he considers that "a man might stake all he possesses that Mr. Fish will not get autumn-moved Roses to grow as strongly as those which have not been moved at all, nor anything like it, other things being equal. Has he ever known such a thing to happen?" This supposed impossible feat has been accomplished; not, indeed, with the queen of flowers, but with the plebeian, yet useful Gooseberry; but the principles involved in successful removal I apprehend apply to both. The story is this: Two of my father's workmen had in their allotment gardens some of the show varieties of Gooseberries, and gave me about half-a-dozen plants. Going round a market garden soon after where a number of bushes were grown for special show purposes, I noticed the method of training, and imitated it in the management of my plants. I soon found I had got my bushes too close together, and one especially, of the variety then known as the White Eagle, needed more elbow room. This was transplanted early, while most of the foliage yet remained on the bush. No doubt I selected a suitable day for the purpose, and took special pains to spread out the roots so as to make them cover as great a horizontal space as possible. The results observed were that a day or two after planting the leaves wilted a little in the middle of the day, thereby showing that "disturbance had for a time reduced the absorbing functions of the roots," and the speedy cessation of the wilting afforded proof that new fibres must have been quickly produced, and that the absorbing power of the roots had become equal to the requirements of the foliage. The plant continued to grow till very late in the season, and was not pruned until after the leaves had fallen. The summer in which this plant was moved my pets had responded so well to the loving care bestowed upon them, that I was induced to become a subscriber to the local horticultural society for the purpose of exhibiting my fruit, two prizes being awarded for the best plate of twenty of each colour or class; and in the summer next after the autumn in which this bush was removed I exhibited twenty of its berries—"superbly finished specimens," to borrow a phrase applied to show Potatoes, and, as I stated in a paper which I wrote on the culture of the Gooseberry, these twenty berries were not only larger than any other white variety then shown, but I believe I them to be finer than any white variety

previously exhibited at the shows of that society.

This and other experience led me to question the soundness of the statement that November, after the leaves had fallen, was the best time for transplanting. My view of the question was thus stated: "A plant contains within itself during the winter or its season of rest a fund of elaborated sap by which its first emitted leaves, &c., are supported; it is not, however, stored up in a fluid, but in an inspissated or concrete state, and before it can be made available for the support of leaves, &c., it must be dissolved* by aqueous sap absorbed by the roots during winter, and in proportion to the quantity of sap thus prepared which a plant contains previously to the renewal of its growth in spring so will be in a great measure the size and vigour of its first emitted leaves and shoots; the roots of plants are thus of great importance to them during winter as well as summer, and that season, must, therefore, I think, be the best for transplanting which, with little risk of loss or injury from atmospheric influence, insures the speediest renovation of the roots." After the lapse of forty years it was gratifying to me to read an editorial in a contemporary wherein it was said "experience has taught us that the best of all times to plant is immediately before the natural fall of the leaf, or just before the active life of the tree has subsided into its semi-dormant winter state."

As further evidence that "root disturbance may result in increased root activity," I may mention that in the Far West I had the Altringham Carrot growing in rows wide enough apart to admit of the space between to be worked by the fork. When the Carrots were about half grown I loosened the soil to the depth of a steel manure fork between several of the rows, but noticing that there were numerous white fibres in the soil and finding these had a strong odour of the Carrot, I concluded I was possibly doing more harm than good, so stopped; but when the Carrots were lifted, the marked superiority of the roots where the ground was forked up over the others, showed conclusively that in this instance root disturbance had resulted in increased root activity. I have had the same experience in the growth of Indian Corn. It was usual to plant field Corn in hills 4 ft. apart each way. As soon as the plants could well be seen in the rows, a one-horse cultivator was run twice through each 4-ft. space, up one side and down the other; this was repeated in the opposite direction. The Corn was cultivated the same way soon after a second crop of annual seeds had made their appearance; commonly nothing more was done in the way of cultivating. But I have several times taken advantage of any spare time between Rye and wheat harvest to go through the Corn with the cultivator a third time. Owing to the projecting ears which were then formed, the cultivator could only be run in the middle of the space between the rows; you could hear the stout roots snap and see quantities of fibres in the loosened soil, but I never went through Corn the third time without manifest benefit to the crop, deepening the colour of the plants and adding to the weight of the ears produced. On mentioning this to a friend in the same township, I found he had tried the same experiment and had obtained the like results, for, said he, "If I were blindfolded when cutting up the Corn I could tell where I had cultivated a third time and where not by the difference in the 'heft' of the plants."

Fibrous roots during the growing season are rapidly produced when and where suitable food is present. The benefit derived by growing plants from stirring the soil is probably the result mainly of the chemical changes induced by the admission of air, hastening the decomposition of organic matter, adding a certain amount of warmth to the soil by the union of oxygen with carbon, and setting free and rendering soluble essential

* Subsequent experience would require a modification of this statement. The starch granules, &c., stored up in wood in autumn are probably converted into a syrupy fluid by a chemical process like that observed in the germination of seeds. Fluids absorbed by roots may be needed to dilute this, and so make it available for free growth.

mineral matter by the carbonic acid evolved—the loss of fibrous roots, if this is not carried to excess, being thus more than compensated by the greater amount of plant food made available.—I. T., *Birkdale, Southport*.

—I have only to say in reference to this subject that I will give Mr. Fish or anyone else five guineas for an October-planted Rose with more roots to it in December than one that has not been moved at all, all things being equal, and at the same time acknowledge I am wrong and Mr. Fish right about root disturbance. I took exception to his statement because it was likely to mislead. "Love of the Rose" has taught me, not sweetness perhaps, but not to assert as facts things I do not know and cannot prove. What says Canon Hole about root disturbance? —ROSE GROWER.

NOTES AND READINGS.

THE BULB TRADE.—I see another grumble from members of the trade about their customers buying bulbs from the same source as they do themselves, viz., from Dutch houses, or rather Dutch houses selling to their customers. They should not object to this; it is "free trade" pure and simple. I should think that a peep into a foreign bulb catalogue would be a revelation to most gardeners and their employers. The difference in price is something startling. At the present time when numbers of people are desirous of furnishing their gardens as soon as possible, in order that they may have a lengthened enjoyment of them, the question resolves itself into one of money, and the cheapest market is the market for the buyer. I expect the Dutch houses find this out. Not only do they push their trade among gardeners in private places, amateurs, and others, but sales of imported bulbs by auction are now common in many towns, and they are patronised by people who, perhaps, would not have thought of investing in such things, all resulting in advantage to gardening in the long run.

FRUIT TREES AT CHISWICK.—A good while back your contemporary, the *Chronicle*, furnished some excellent cuts of the pyramid trees at Chiswick, which it said "were calculated to afford much interest with reference to the question as to the advantages or disadvantages of restrictive pruning or training." There was "no room" then, it was stated, for extension-trained trees, and the verdict was given in favour of the pyramids, which, as grown at Chiswick, were "the very thing for gardens of moderate extent, &c., &c." Notwithstanding the *Chronicle's* predictions, however, it appears from another of your weekly contemporaries this week that Mr. Barron has found "room" for 219 extension-trained trees on a space 90 feet by 24 feet, and which have, it seems, been the admiration of all who have seen them this year. These trees, we are told, receive no pinching and very little pruning. They "are allowed to grow in as nearly natural form as possible, justifying the doctrine that the natural form of the tree is the best form." By-and-by, perhaps, Mr. Barron will give us an account of his experiments. We do not hold him responsible for the diverse opinions expressed by outsiders on his practice. There are, however, plenty of signs that the pyramid and fanciful restricted specimen system is doomed. The exigencies of the age are awakening people to all the readier ways of doing things, fruit culture among the rest. We heard of a proprietor the other day who had had all his pyramid trees dug up with the approval of his gardener, and bestowed them with doubtful judgment upon his neighbours. We have also heard of other owners of good gardens in the favoured fruit-growing counties of the south who are engaging gardeners only who understand and are able to carry out the "extension system satisfactorily."

WORTHLESS GRAPES.—This might form an appropriate subject for an article at the present

time, when there seems to exist some dissatisfaction as regards the awards at exhibitions where quantity and weight are said to have over-ruled all other considerations in some classes. If we were to go by the preference shown for certain varieties by writers on the Vine generally and by general opinion, I think there could be no doubt which were the best and most useful varieties. Taking one notable authority as an example, we find that he grows the Black Hamburg in every house but the latest one, and he recommends it to be planted at the rate of from about six to one of almost any other sort. His next favourites are Muscat of Alexandria and Lady Downes Seedling, which together are advocated for general planting at the average rate of about four to one or two of all other kinds. Why people should grow such kinds as the Syrian and its like, which few ripen to presentable condition, and which nobody will eat who knows what a good Grape is like, is a puzzle; and consequently what good there is in producing such examples simply to show people how big they can be grown is another puzzle, which only those who award them prizes can explain.

COMPARATIVE SIZES OF GRAPES.—Nor in estimating the size of bunches and offering prizes for large bunches have the comparative merits of the varieties ever been taken into consideration; hence the bad sorts as a rule beat the good ones. We have always regarded the twenty-two pound Black Hamburg exhibited by Mr. Hunter as the most wonderful and most creditable production in the way of large bunches, because it was of the best kind in cultivation, and the bunch itself was fit for dessert—two points that could not be allowed for the larger bunches shown since. A twenty pound Black Hamburg is equal to a Syrian or Raisin de Calabre forty pounds weight, and better in other respects. Any novice who plants these three varieties under the same conditions should always have bunches twice the size of the Hamburg from the two last. Then we have prizes offered for Grapes with the “best bloom,” another frivolous idea not in any way tending to promote general good culture that one can see except when considered in conjunction with other points.

WRONG IDEAS IN JUDGING.—In most prize schedules it is intimated that the prize will be awarded to the best bunch of, say, some black or white Grape. This is plain enough so far as it goes, and means the best bunch on the table, but how often do we hear a wrangle among the judges—not as to which is the best bunch before them, but whether or no points for or against some kind should be allowed because it happens to be an unpopular variety, difficult to grow, a poor cropper, or uncertain in some way, things that have nothing to do with the bunches before them, their duty ending in deciding which are the best on the table. This mistake is most frequently made in judging plants.

ENGLISH GARDEN BARROWS AND LADDERS.—“Clumsiness” is the only word that describes these correctly as a rule. Garden barrows are usually so heavy without a load, that it becomes “heavy drill” to trundle one empty for a whole day. A French lady, writing her impressions of England to a friend in Paris, described English beds of the time as “ponderous wooden structures that had to be clambered into by means of a ladder.” Ponderous structures, too, are some of our garden appliances. In this matter the French do beat us; their barrows that we have seen would, perhaps, by some be called flimsy, but they enable a man to do much more work in a given time, while such things as ladders and steps, &c., are models of lightness and even elegance. We have been looking at a list of a Paris house lately who advertise garden ladders of light make, made of wrought iron, fluted, and of Bamboo pattern, that a man could twirl round his head with one hand, while he has to stagger under a home-made one of wood. What our barrows want to make

them light are bicycle wheels without timber, shafts of weight to correspond, and a general reduction of weight and cumbersomeness. The improvements in tricycles of late suggest the inquiry “could not we have barrows on the same principle that would take the weight off the man’s shoulders and put it on the wheels with a tilt-up action to empty the load?”

PEAT FOR POTTING PURPOSES.—In the culture of pot plants peat is perhaps the most valuable soil the gardener can employ generally. Almost everything will grow in peat, and many plants will grow in nothing else. The nurseryman grows almost all his pot plants in peat, notably Camellias, Azaleas, Lapagerias, and numbers of stove and greenhouse plants that there is not the slightest reason for supposing grow in peat in their native country. To such an extent has this preference for peat been carried, that some gardeners have grown their Pine-apples in nothing else, and beat their neighbours with their fruit. There is only one family which it is by no means certain like peat, and that is Orchids. Roots of many pot plants, however, do live in peat better than in other soils. Young Pine plants, for example, always survive the winter best in a peaty compost and are better preserved. Lindley says peat is only a leaf mould (in which he is wrong), but that it has the important property of preserving soil in an open state, so as to allow water and air to pass through it freely. That it has a preservative and beneficial effect upon the roots of plants no one can doubt who is acquainted with it in practice, and this has probably led to its common use by all cultivators. It is preferable to leaf mould for composts, and the peat from dry commons and moors is so much alike except in the quantity of sand it contains as to be equally useful for similar purposes to Kent peat. Mostly all the Australian plants are favourite subjects for a peat diet with the gardeners—Epacris, Acacias, as well as all the numerous members of the podbearers from that continent, and yet travellers in that country say that hardly one of these plants grow in peat or anything akin to it, but in the natural soil of any district in which they are found. The truth appears to be that peat is the only soil in which many plants of different proclivities will thrive in exclusively.

PEREGRINE.

ORCHIDS.

ORCHIDS AT BURFORD LODGE, DORKING.

SIR TREVOR LAWRENCE undoubtedly possesses the most complete collection of Orchids in existence; for culture, variety, and novelty his plants are unsurpassed. Not only are numbers of the best specimens of the finest varieties obtainable of all the ordinary showy Orchids to be found here, but also an extensive collection of everything rare and sufficiently pretty to save itself from being called a botanical curiosity. To the Orchid lover who studies them from a scientific point of view Sir Trevor Lawrence’s collection is doubly interesting, owing to the opportunities which it affords of comparing allied species. This was apparent as soon as the first door was opened. There, all under the eye at once, were *Dendrobium triadenium*, with pretty bunches of flowers like those of *Hoya bella*; *D. sanguinolentum*, *D. Huttoni*, and the beautiful offspring which Messrs. Veitch succeeded in obtaining between the two latter, and which I believe will never be out of bloom so long as a dozen plants remain in the country. Thus the whole of that immediate group was available for comparison. Further on almost the whole of the smaller growing *Zygopetalums* were in bloom, and grouped within sight of each other were *Z. Clayi*, *Z. maxillare*, *Z. Gautieri*, and the rare *Z. rostratum*. This last is very handsome, furnished, as it is, with a number of large flowers resembling those of *Warszewiczella*, but with a large, pure white, rather flat labellum. I have never seen an importation of this plant. It is said to come from Demerara, but, as in the case of *Odontoglossum nævium*, that may be a mistake. I

think it probable, however, that whoever finds the right ground for *O. nævium* will find *Z. rostratum* not far off. Some classes of Orchids are better cultivated at Burford Lodge than anywhere else, as for example, the Chimæroid section of *Masdevallia*. Even if the best plants from several collections were picked out they would fall short of what one finds here. There are very fine specimens of *M. bella*, *M. Backhousiana*, *M. Chimæra* and its varieties *Roezli* and *Winniana*—all marvellously quaint and beautiful when seen carrying about a score of blooms, some of them measuring 15 in. from tip to tip, and with petals 1½ in. in width. These and all allied *Masdevallias*, such as *M. vespertilio*, *M. Houtteana*, and *M. radica*, are grown in boat-like teak baskets, rather shallow in proportion to their size, and suspended overhead, so that the flowers hanging over and through the baskets readily catch the eye. They are given a moist intermediate house temperature, in which they have formed massive leafy plants interesting even when not in bloom.

Amongst Cattleyas and Lælias the first to command attention is a magnificent specimen of *C. exoniensis* bearing twenty-five beautiful white bright crimson lipped flowers. In this beautiful cross-bred *Cattleya* Messrs. Veitch have certainly beaten anything that unaided Nature has produced in that way. In the same house is a fine batch of *Cattleya marginata* and its varieties, one of which is bearing beautiful rose-coloured flowers margined with white, the lip being purplish crimson. These flowers measure 5 in. across, and the two broad segments 2 in.—wonderful productions from a plant scarcely 3 in. in height. Next comes *Lælia elegans*, with rose petals and maroon lip, and beside it the white variety with light rosy magenta lip; further on are the pure white *C. Wallisi* and a grand form of *C. Eldorado* splendens, numbers of spikes of the white and other rare varieties of *L. anceps* and *C. gigas*, a huge specimen bearing sixty-two of its magnificent blooms. Sir Trevor Lawrence may well be proud of his *Cattleyas* and *Lælias*. Many of his best plants have grown up under his eye, and some of the rare ones, now in the best condition, he has produced from very sickly beginnings. If we consider the wide geographical distribution of this genus, from the cool uplands of New Grenada, over the sunny plains of Brazil to the moist banks of the Amazon and Rio Negro and the swamps of Guiana, we cannot fail to see that a great amount of care and skill is required to keep them all in good order. Only they who grow small plants into large ones can say that they thoroughly understand them.

In the East India house is a fine plant of the true *Aerides suavisimum* and another of the allied, yet distinct, species, *A. Reichenbachianum*, both filling the house with their delightful odour. The latter has long dense spikes of flowers, the petals of which are white flushed and tipped with rose, the centre being yellow spotted with brownish crimson. A fine-coloured variety of the Burmese form of *Saccolabium Blumei*; *Angræcum Chaillouanum*; a fine specimen of *A. pertusum*, with many spikes of its snow-white neatly-arranged flowers, each with a bright emerald green spot in the centre; *A. bilobum*, and many large plants of *A. citratum* and *A. Ellisii* are producing here flower-spikes in profusion. In the *Phalanopsis* house *P. rosea*, *P. violacea*, *P. violacea Schroederi*, *P. amabilis*, a fine form of *P. grandiflora* with large rose-tinted flowers, and the beetle-like *Luisia Psyche* are in bloom. The collection of *Cypripediums* is never without a quantity of plants in flower; they even produce a great show all through the winter. At present one plant of *C. Sedeni* has over one hundred blooms expanded on its tall branched spikes, and another of *C. vexillarium* is well in blossom, one spike bearing two flowers; *C. purpuratum*, *C. niveum*, and *C. Spicerianum*, both old and new importations, are also in great beauty. In the *Dendrobium* house *D. formosum giganteum* has several pseudo-bulbs furnished with massive white and orange flowers, one of them bearing nine of them, a bouquet in itself; *D. bigibum*, the rare white-

flowered Australian *D. Moorei*, *Epidendrum* *versum*, *E. Moseni* (bright yellow, changing to orange), *E. Cooperianum*, and the ever-blooming *E. Wallisi* are all in fine condition. In an intermediate house are fine examples of *Eulophia Guineensis* with showy spikes of large flat-lipped rose-coloured flowers, some grand varieties of *Vanda cœrulea* really blue, *Warszewiczella marginata vestalis*, *W. Wendlandiana*, *Batemannia Burti*, *Pescatorea cerina*, *P. Roetzli*, *Compactia macropleuron*, *Oncidium Turialvæ*, *O. obryzatum*, *O. Forbesi*, *O. ornithorhynchum*, and some fine pans of *Pleiones*, &c. In bloom in the cold houses are some fine varieties of *Odontoglossum Alexandræ*; of one of these I measured a flower, and found it to be $3\frac{1}{2}$ in. across, and the broadest segments were $1\frac{1}{2}$ in. wide. Another fine form has pale rose coloured flowers; the original plant of *O. hebraicum* is likewise in bloom, also *O. nævium* and several fine forms of *O. Pescatorei* and other *Odontoglossums*. There is also a grand plant of the true *Epidendrum vitellinum majus* with many spikes, one of them bearing eighteen flowers. The *Masdevallias* are represented by good forms of *M. Veitchi*, *M. Harryana*, *M. ignea* (one a bright cherry red), *M. velifera*, &c.

In the Nepenthes house the Lattice plant is growing vigorously, and seeding and reproducing itself in the freest possible manner. In several of the houses Mr. Spyers showed me convincing evidence of his skill and patience in Orchid cross fertilisation, *Cattleyas*, *Lælias*, *Cypripediums*, *Zygopetalums*, &c., being all operated on, but the most interesting of them all perhaps is one he has obtained between the *Prepanthe* section of *Calanthe* and the true *Calanthe*; such a prospect of novelty at home almost makes us independent of that from abroad. There is yet a vast field before the hybridist in the case of Orchids. In the plant houses there is a great show of *Anthuriums*, *Begonias*, *Nerines*, &c., with a lovely canopy overhead consisting of the mingled flowers of white and red *Lagerarias*. Outdoors also the garden is well arranged and gay, *Canna iridiflora* and beds of white *Marguerites* with scarlet *Lobelia* between being very conspicuous. JAMES O'BRIEN.

Harrow-on-the-Hill.

ORCHIDS IN BLOOM AT DOWNSIDE.

In Mr. Lee's collection a very handsome *Vanda* is now in flower; in appearance the blooms seem intermediate between a fine form of *V. tricolor* and *V. suavis Veitchi*, combining the perfect shape and flat appearance of the former with the bright clearly defined markings of the latter. The petals are white, clearly marked with blackish crimson, and the broad flat labellum is rose-coloured on the lower and mauve on the upper half. The plant bears some very large spikes of flowers, which vary in the different stages, but each change only seems to render them more handsome. It is quite up to the standard of the best *Vandas*, and should be distinguished as the Downside variety. As winter approaches the Orchid houses become more thickly studded with bloom, the bristling flower-spikes promising a great treat when almost all other flowers are gone. Prominent among a great variety of plants in bloom are *Odontoglossum crispum clarum*, a very large clearly marked variety of the star-shaped form; *O. polyanthum*, *O. hebraicum*, *O. Reichenheimi*, *O. nævium*, and the pretty rose-lipped *O. bictonense rubrum*. A very large-flowered form of *Cattleya labiata*, with flowers of the Warneri type 8 in. across, is in the *Cattleya* house; if it always blooms at this time of the year it will be a welcome addition. Further on I noticed a fine form of *Cattleya Loddigesi alba*, pure white, massive, and wax-like. In the East India house is a fine form of *Aerides suavisimum*; also the best I have ever seen of *Vanda lamellata*, with shining chocolate coloured lower segments and mauve lip; likewise the pretty *Saccolabium Hendersonianum*. In the intermediate house are many fine forms of *Lælia præstans*, with flowers 5 in. across; snowy masses of *Pilumna nobilis*, the rare and pretty *Epidendrum evetum*, *Oncidium excavatum grandiflorum*, a wonderful plant of *Cattleya aurea*, and another of *Lælia autumnalis atrorubens*, with three strong spikes and six or seven flowers on each. The rare *Oncidium ornithorhynchum album* is in bloom, and a fine plant of the best variety of *Mesospinidium vulcanicum* with over twenty flowers on a spike. A very charming effect is produced in one of the houses by artistically grouping fine plants of *O. ornithorhynchum* and *O. incurvum*. There is not much variety in colour, as all are shades of rose and white, but the different tints are lovely when the plants with their long slender-stemmed spikes are tastefully arranged against a variously tinted green background.

Harrow-on-the-Hill.

JAMES O'BRIEN.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J. SURREY.

In a large blue china jar is a bunch of white Dahlias, single and double, with their own foliage. A tall glass holds long spikes of *Lobelia cardinalis* with red-flowered, dark-foliaged *Canna*. Another has a large bouquet of the great Ox-eye and Michaelmas Daisies. A brilliant bunch of yellow flowers is of pot Marigold with Corn Marigold and Helenium autumnale. The yellow and brown colourings of French Marigolds are grouped together among their own foliage in brown Lambeth ware. White Japan Anemones and pink Pentstemons are with pale green *Funkia* leaves. A round dish-shaped china basket is filled with a late-flowering pale lilac *Clematis* with its own leaves. Pink Japan Anemones are with red-tinted foliage of *Azalea*. A large china bowl holds pink Sweet Peas and Mignonette, and a brass bowl is full of red Roses. White *Cyclamen hederæfolium*, with its beautifully marbled leaves, is in a silver cup. The dinner-table has a decoration of pink China Roses with red Bramble leaves.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Herbaceous borders.—*Pyrethrum uliginosum*, many varieties of *Asters*, the Japanese *Anemones*, and *Geums* are still flowering most profusely, as are also Stocks, Sweet Peas, and several other kinds of late-sown annuals, the whole rendering the mixed borders, at present the centre of interest as regards the flower garden. The placing of neat stakes to the tall growers, and an occasional removal of decaying flowers and leaves is needed, also the filling in of any vacant spots by dividing plants that have done flowering, or else planting in their stead bulbs or annuals for spring flowering. Anent the division and increase of plants of this class, a word of caution may be of service, and that is, that preference be given to growing good varieties in duplicate rather than a large collection in the shape of single plants—a practice which must necessarily include some worthless kinds. This unfortunately is an error into which many fall, and hence the application by some of the term "weediness" to this class of plants generally.

Hardy fernery and rockery.—Till the leaves are all off the trees, it will be impossible to be as neat as might be wished; but the removal of weeds and dead fronds will help considerably in this direction. Now is the time to plant in the bare and most conspicuous spots amongst the Ferns spring flowering bulbs, the most appropriate kinds being Snowdrops, wild Hyacinths, and Daffodils, all of which flower before the new fronds make much growth, as also do Primroses, Cowslips, and the wild wood Anemones; by means of these simple flowers charming effects can be produced without the least interference with or detriment to the Ferns. Keep the rockery free from weeds; only those who know plants well should be trusted to weed here, otherwise plants may be pulled up instead of weeds. Most kinds may now be propagated readily by division, and

the slips at once planted in the places intended for them; a bit of light vegetable soil will aid the rooting process, and they must be guarded from slugs by sooting or dusting them over with dry wood ashes, and from being pulled up by birds by pressing them firmly into the soil. A good edging plant for walks in the rockery garden is *Sedum glaucum*, planted edging tile fashion, that is, on a slightly raised and rounded ledge, and about 4 in. in width. It is hardly necessary to add that the walks in such a garden should not be of any set design, pattern, or width, but in and out, narrow or wide, as best suits the size of the structure.

Bedding plants.—Tender kinds intended to be saved should now be lifted; all the tricolor *Pelargoniums*, the choicer succulents, and some few *Abutilons* are the only plants that at present we shall lift for potting, but the tender kinds that are over, and of which stock pots of cuttings have been put in, are gradually giving place to other plants for winter effect. As regards sub-tropicals, the more valuable should be housed at once, the annual section may, of course, be left till frost destroys them. *Cannas*, too, may be left till after the first severe frost, as it does not injure the roots.

General work.—See that nothing has been forgotten to be propagated, and house all that would be injured by frost. Cuttings of variegated Thyme, *Gnaphalium lanatum*, *Violas*, and *Calceolarias* should at once be put in; cold pits do best for all these, also for the half-hardy varieties of *Echeverias*, *Kleinias*, and *Sempervivums*. Mow the lawn, and cut grass verges and edgings of walks the last time for the season, and keep down worm casts by frequent rolling with a wooden roller. Leaf sweeping, rolling, and weeding of walks must also now have a large share of attention.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Nepenthes.—These most interesting plants are naturally of a scandent habit, and consequently can be used as roof climbers or trained to a pillar or rafter, in which way, where well grown, they not unusually are effective objects; yet when so managed the pitchers quickly lose the fine shape which is present in such as are produced by the shoots before they attain much height. This, it may be remarked, is one characteristic of these singular plants. Take, for instance, a strong, healthy, well-managed example whilst the shoots have only attained a height of say from 2 ft. to 3 ft.; the pitchers it produces will keep to the true pitcher shape—broad at bottom, narrowing towards the neck, with those curious appendages, the wings, fully developed; but, as the plants attain a greater height, more or less according to their kinds, the pitchers they produce assume quite a different character, coming very much longer and thinner, especially at the base, which, in place of being inflated and broader than the top, often has its shape so near reversed as to be much narrower at bottom, with the wings all but absent. Some kinds that, whilst the shoots have not attained a height more than above-named, produce pitchers heavily spotted, afterwards as they get longer they come wholly green; in fact, with all the different species that I have cultivated there has been a marked difference in either form or colour, or in both, when the shoots have reached a considerable length, in all cases resulting in their deteriorating. This condition can easily be avoided by cutting the shoots back to within from 6 in. to 1 ft. of the collar of the plants. Whenever so headed in they should not be cut lower than so as to leave two or three leaves to the stools below the point where cut back. Where a sufficient temperature can be kept up through the winter—and it is little use attempting the cultivation of *Nepenthes* without this—any plants that are getting too tall may at once be cut in as above described. By being so treated now they will get much better furnished in the ensuing summer than if the operation was deferred until spring.

Sarracenias.—The mistake often committed with these is in growing them too hot and with insufficient light; an intermediate temperature is quite enough for any of the species or varieties. Even the different forms of *S. Drummondii*, which make growth in late autumn, are better kept now in a house where the night temperature is at 50° than in more heat. All the kinds, both species and varieties, require to be kept always moist at the roots, even in the winter time when at rest, but the different forms of *S. Drummondii*, through the fact of their being now growing, need especial attention in this matter. Thrips are the greatest enemies these plants have to contend with, and at this season, when there is necessarily less atmospheric moisture maintained, they usually are troublesome, getting under the recurved margins of the mouths of the pitchers. Sponging with Tobacco water, or fumigating will kill them; the former is preferable provided the solution is not used too strong, so as to injure the pitchers, as it destroys both the live insects and their eggs. To those inclined to cultivate these interesting plants the names of the most desirable sorts may be an assistance. They are *S. Drummondii rubra*, *S. D. alba*, *S. flava*, *S. flava picta*, *S. purpurea*, *S. variegata*, *S. psittacina*, *S. Cheloni*, *S. atrosanguinea*, and *S. rubra*. The flowers of the latter are as sweet-scented as the most fragrant Violets, which their odour is much like.

Darlingtonia californica.—This is another plant often killed outright by the mistake of keeping it in too much heat. A temperature of 45° in the winter is enough for it, with proportionate warmth in summer. Where kept hot the growth usually becomes gradually enfeebled, until the plants die altogether. Peat, with most of the earthy matter removed, mixed with an eighth part of chopped Sphagnum, some crocks and sand, is the best soil for both the *Darlingtonia* and the *Sarracenias*; like the latter, it enjoys being always wet at the roots.

Stove Palms.—There is nothing gained, but rather the reverse, by allowing these plants so much pot room as they are frequently given, as it tends to their growing so rapidly as to get too large for the space available. Still, on the other hand, it is possible to err in the opposite extreme of insufficient root room; this applies more particularly to the large entire-leaved kinds, such as *Versaffeltia splendida* and *Stevensonia grandifolia*, two distinct and handsome species for a large stove, and which, as they attain their full size of leaf, require good-sized pots, otherwise the foliage gets yellow and sickly in appearance. To this broad-leaved section, but much more compact, consequently not taking up so much room, belongs the yet scarce *Pritchardia grandis*, which may justly be set down as not only the finest dwarf Palm of the entire-leaved character, but one of the finest of the whole family. It is deserving of a place everywhere. Any specimens of the heat-requiring section of these plants that are suffering through insufficient root room may at once have larger pots. This, in all cases, is subject to their being kept through the winter in enough heat to induce regular root-action, for if this cannot be secured it would be a mistake to move them. All Palms are not very particular as to the nature of the soil they are grown in, as most of the kinds will thrive in either peat or loam, light or heavy, but they seem to enjoy loam when it is of a heavy adhesive nature, provided the pots are well drained, but when grown in it, the dark colour in the leaves is not usually so apparent as when peat is used. Amongst the kinds of stove Palms that take up comparatively little room is *Chamedorea glaucophylla*, one of the most elegant kinds in cultivation. In habit it is like *Ptychosperma Alexandræ*, with a head of elegant drooping leaves surmounting a straight bare stem, but much thinner than the *Ptychosperma*. There are few, if any, species that can be grown with such little pot room as this kind, but with this, as with all other Palms, it is well to give it manure in either a liquid or a solid state, otherwise the leaves often assume a sickly hue, especially in the autumn, and in the case of those

that are much pot-bound. When in this condition, therefore, and there is any deficiency of heat to keep up through the winter free root action, manurial assistance in this way should be given. *Cocos Weddelliana*, now well known for its beautifully arched slender leaves, will bear a much lower temperature than is generally supposed; something above that of a warm greenhouse, say from 48° to 50° will keep it in condition equally well as where more heat is used, with the advantage of its not so soon out-growing the space at command. Any of the more tender Palms, such as the *Geonomas*, *Damænorops*, *Chamædoreas*, and others of a like nature, that have been placed for the summer in conservatories where the temperature is insufficient to preserve them in health through the winter should be at once moved to warmer quarters.

Greenhouse Palms.—Where a large or medium-sized cool conservatory exists there are no better plants for permanent use than cool kinds of Palms, such as the *Kentias*, *Chamærops*, and *Coryphas*; the first-named of the above in particular are especially deserving of notice. *K. Belmoreana* and *K. australis* are handsome in all their stages of growth either in a small state or when more fully developed, their beautifully curved leaves being at all times effective. At no time are they more useful than through the late autumn and winter, when, associated with *Chrysanthemums*, *Camellias*, and such other flowering plants as may be in bloom, they produce a beautiful effect which few other forms are capable of. *Cordylina australis*, *Dasyliirions*, variegated *Yuccas*, and *Aralias*, which are now often employed for standing out of doors on terraces, or for grouping amongst other things that give a tropical effect during the summer season, and for conservatory use in winter, should be taken in before cold nights come on, for although these things are not particularly tender, still they are better out of the reach of frost, and they can usually be grouped amongst flowering and other plants in the conservatory at this season.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Peaches.—Now that the Peach season is over advantage must be taken of every fine day for renovating the borders in succession and late houses, as it is of no use trying to grow first-rate Peaches where the roots are in an unsatisfactory state. It unfortunately too often happens that the proper period for lifting, which extends from the gathering of the last fruit up to the fall of the leaf, is allowed to pass away before this important matter receives attention, and when this is the case, very few, if any, new roots are formed before the trees are again excited into growth. Another important matter which is sometimes overlooked during the quiet time in this department is the watering of inside borders; hence the advantage of having portable roof lights, which can be taken off for a few weeks after the wood is ripe to expose the foliage to the cleansing influence of dew and autumn rains, and to insure a complete and even soaking of every part of the border. If well drained and properly made, an internal Peach border can hardly be overwatered in summer, and certainly it should never be allowed to get dry in winter, neither should the buds be exposed to an exciting temperature after the leaves fall; but the chief aim should be thorough ripeness by the application of warmth and complete rest by exposure to the elements. We should then hear less of failures from young beginners, and bud dropping would be no more prevalent than it now is where trees are well managed on open walls. Next to the management of a Peach tree comes the importance of getting exactly what we want to manage, as it unfortunately happens that great confusion and incorrect nomenclature very often lead to serious consequences both to the vendor and the buyer by late kinds being placed in the early house and early kinds in the latest. To avoid or reduce the chances of falling into this difficulty, a visit to the nursery before the leaves fall should

always precede the purchase of young trees, as many of the kinds can be determined by their foliage. One section is without glands; nearly all the varieties have large flowers, and the trees are more or less subject to mildew. The next section, including many of the best varieties, may be determined by the leaves having round glands, and the last by their assuming the kidney shape. Equally important is the selection of the stock, as all the varieties cannot be induced to succeed on any one particular kind.

Figs.—If the early pot trees are still standing out of doors no time should be lost in getting them pruned, cleaned, and tied into form, ready for starting, and as three-fourths of a year will elapse before the roots can be again disturbed, let the drainage be carefully examined and put right prior to top-dressing with rich loam and rotten manure. If the house in which the trees are usually forced has been devoted to other plants, see that it is properly cleansed to free it from insects, place each tree on a solid pedestal composed of bricks or inverted pots, give water occasionally to get the soil moist, and keep the house thoroughly ventilated until the time arrives for shutting up in November. Proceed with the root pruning and cleansing of trees that are planted out in internal borders, as trees cannot be kept in a fruitful state where head room is limited and the roots are allowed to run down through the drainage or ramble beyond their prison walls. If pruning is considered necessary, let it be confined to a general thinning away of barren shoots which have reached the extremity of the trellis to make room for younger pieces now thickly studded with embryo fruits, barely perceptible, at the base of every leaf-stalk. Let the house be well ventilated and only shut up to shield the trees from sharp frost or to protect the roots in very wet weather. By this time the latest house will have been cleared of all the fruit that is likely to ripen well, and the trees will be the better for a course of steady firing to mature the young wood. Rub off all partially swelled Figs, wash well with the engine to clear off spider, and dress parts affected with a suffocating insecticide to prevent scale from spreading until the time arrives for winter dressing.

Cucumbers.—If any of the pits usually devoted to the growth of winter or spring fruit are still occupied with Melons, lose no time in getting the latter removed, as Melons after this late period are of little value, and the loss of a fortnight in getting weak Cucumbers started often affects them until after the turn of the year. Having so often directed attention to the importance of cleanliness, it is hardly again necessary to remind the young beginner that a pure atmosphere cannot be maintained where it is neglected, and without this and an abundance of light, also secured by keeping the glass clean, it is useless to expect good fruit from Christmas up to the end of March. If the pot system is adopted let the pots be well drained, and fill them quite up to the level of the rim with light, rich, turfy loam and leaf mould. Turn the plants out before they get pot-bound, otherwise they will have spider before they lose their seed leaves. Give plenty of moisture, but avoid scalding steam, and maintain a bottom-heat of 85° to 90° until they get well established, when 80° will suffice for the winter. Where winter culture is not thoroughly understood, the planting-out system should be adopted, provided a good bottom-heat can be maintained in the chamber beneath the soil, and the plants are not so closely crowded together as is often the case where pots are used. Under either system their food, be it solid or liquid, must always be supplied at a temperature equal to that of the house. Insect enemies of all kinds must have no quarter, and mildew must be prevented from entering by good culture and light cropping in an efficiently heated and perfectly ventilated house.

Fungus (L. H.).—The popular name of the fungus you send is *Stinkhorn* or *Woodwitch*, the scientific name *Phallus impudicus*. It is often an intolerable nuisance in plantations from the

horrible factor which it exhales, and should be taken up and burnt wherever seen. It is local, and in some places rare: it generally grows (as with you) in plantations, but it is often seen by road sides and near hedges. We have also seen it in the beds of large greenhouses; it frequently grows on rootwork when made up of old stumps.

PLANTS IN FLOWER.

SENECIO PULCHER IN SALISBURY.—I have just seen (October 5) a plant of the above in Canon Swayne's garden at Salisbury, with sixty fine flowers, and beautiful fringed buds on it. It is a splendid plant indeed for the southern counties, where the autumn days encourage its perfect blossoming. There were a number of plants in the mixed flower border.—V.

CLEMATIS GRAVEOLENS IN OCTOBER.—This graceful species now (October 8) bears many blossoms in the garden at Ashmore Rectory, on the Dorset downs. Its good, but quiet yellow would be liked by many. The flowers and silky seed-heads are good on the table by day or night. It is a free-growing kind, climbing high up a wall or over a bower or fence.

THE BLUE ROCK BINDWEED.—This is free as could be desired on the chalky soil at Ashmore Rectory. Even so late as October it is a mass of flower on stony banks. *Convolvulus mauritanicus* is a pretty plant when grown freely in this way. It is hardy enough in a variety of soils and positions. The garden above-named is very high and much exposed.

HEMANTHUS ALBIFLOS.—This, a dwarf species with white flowers, is very good in effect by night in rooms, plants growing in pots and bearing four or five heads of flower each being brought into the house. Mrs. Davidson grows this in a cool greenhouse at Ashmore, and uses it with excellent effect in the sitting room at this season.

LATE PERENNIAL SUNFLOWERS.—I have been very much struck with the fine effect of the small-flowered late *Helianthus giganteus* in Canon Swayne's garden at Salisbury, and at Munstead; the effect with other good tall autumnal things is admirable. The new large-flowered *Helianthus multiflorus* was very effective at Down House on October 6. It is not so fresh in bloom as the other (which is an autumn flower to the manner born, so to say), but it is a very tall (8 ft.) plant with fine bold flowers. The habit, too, is good and massive.

ANEMONES FROM HOWTH.—"St. Bridgid" sends us some double varieties of Crown Anemones, very beautiful, and moreover rarely seen at this season. Obtained by sowing seeds early in the spring, they are now most useful as cut blooms indoors. With these vivid blossoms comes also a graceful spray of *Smilax tamnoides*, with fresh green cordate leaves and spikes of greenish yellow flowers. Sweet Violets also seem to come to "sunny Howth" sooner than elsewhere, and their rich fragrance reminds one of spring rather than of chilly October.

HEDYCHUM GARDNERIANUM.—I have now beautiful flower-spikes on plants of this *Hedychium* that have been growing out-of-doors for these last ten years without the least protection, and they never fail to flower every autumn. A very small piece of it was planted at first, but this has now increased to a very large mass, and greater numbers of sweetly-scented flower-spikes are produced every year. The plants are cut to the ground every winter, but come up again as fresh and strong as ever in the spring.—SANGUINEA, *Trelissick, Truro*.

OCTOBER PRIMROSES.—A gathering of coloured Primroses picked from a hundred different varieties in Mr. Dean's nurseries at Bedfont, Hounslow, is a welcome sight. Though they have an unseasonable look about them, they are as fine as could be gathered in May. It would be interesting to know if any special treatment could furnish us with Primroses constantly in October, and whether,

as in the case of Mr. Burbidge's autumn Anemones, the plants require to be raised in spring, or whether it is mild weather alone that induces the flowers to come at this season.

GUNNERA MANICATA.—We have three plants of this here received from Ghent about three years ago. The best plant has five leaves, the largest of which measures 6 ft. 7 in. across, and has a clear leaf-stalk $4\frac{1}{2}$ ft. long, perfectly round, and nearly 6 in. in circumference at a foot from the ground. It is thickly studded with bright, green, short thorny protuberances. The flower-spike is nearly 3 ft. long. In colour it is a distinct shade of purple during its early stage of growth, changing to green as it gets older, and thickly studded with small red berries—altogether truly a grand plant. W. SANGWIN, *Trelissick, Truro*.

NEW CHRYSANTHEMUM.—A beautiful variety of *Chrysanthemum*, named Maize, comes to us from Mr. Hans Nieman's nursery, Harborne Road, Birmingham. It is in the way of Elaine, but the florets are not so long. It is of snowy whiteness without a trace of any other colour. Mr. Spinks says "it is an early bloomer, coming in well between the early and late sorts. It commenced flowering about three weeks ago, and there is another batch just coming into bloom which will last till the ordinary winter sorts come in. We are growing it in quantity for cutting." It is a lovely variety, well worth attention.

AUTUMN ROSES.—I send two Rose blossoms, one of Etienne Levet, the other of Marguerite Brassac, from own root plants, to show you how they continue blooming. These are from the same batch of which I sent blooms to you some time ago, and these blooms are only average ones of such as we have been able to cut, I may say, daily. Eight months only elapsed from the time the cuttings were put in till the time when they came into bloom, and from the end of the eighth month till now we have, as I have said, cut daily. Now, if they can be got up in so short a time, and will bloom so continuously, why not grow them largely for cutting from the first season? Afterwards they make grand plants for beds.—JOHN CROOK, *Tarnboro' Grange*. [Good blooms for October.]

TROPÆOLUM TUBEROSUM.—Of "recovered reputations" among plants this offers one of the most interesting examples. Years ago one might see it now and then as a curiosity, but of late it has proved one of our most ornamental plants. In the second week in October it was a brilliant fresh plant in Mrs. Davidson's garden on the Dorsetshire downs, at over 700 ft. elevation. We have several times spoken of the fine effect it gives in Mr. Kingsmill's garden on the clay soil north of London, near Pinner. At Ashmore Rectory it is on a chalk soil. Plants of various sizes and in different positions are equally brilliant and fresh, one running high into an old Gloire de Dijon Rose, and throwing a mantle of its bright blossoms around the late blooms of the Rose. Others are on palings away from walls. We have thus proof of the value of this plant in various soils and conditions. We believe it is of greater value for our gardens than the Flame Nasturtium (*T. speciosum*), flowering later and being easily grown. It is also more brilliant at the present time.

HAPHAZARD MIXTURES.—Under this title Mr. Burbidge has brought us from Dublin an interesting collection of hardy flowers of many kinds tied up into little bouquets in a grotesque way—Japanese Lilies and *Orobancha Hederæ*; single Anemones, along with the brown fertile fronds of *Struthiopteris*. The singular fruits of *Paeonia officinalis* associated with *Eulalia japonica* zebra, and *Lilium auratum* flowers and buds arranged with leaves of Nepaul *Berberis*, are only a few of the combinations which contrast with each other in a very effective way. We have also Anemones from seeds sown in April last very bright and beautiful at this season, and valuable for cutting in the bud state for flower vases indoors, serving well as a contrast to the wealth of golden composites which this autumnal season affords us so lavishly. The size and freshness of

these flowers and of some leaves of *Saxifraga ciliata* from the "old College Garden" indeed surprise us at this season, and show conclusively how rich the garden flora of Dublin must at all times ever be.

SEEDLING FUCHSIAS.—Of these a beautiful series has been sent to us by Mr. James Lye, of Clyffe Hall, Market Lavington, long known as a successful raiser of good Fuchsias, of which not a few have been distributed. The seedlings now sent are chiefly of the white caliced class, all fine, though some are very much like older varieties. One of the best is named Beauty of Clyffe Hall. This has a large flower with sepals and petals of firm texture, the former a delicate blush white, the latter rich carmine-pink. It is evidently a free flowerer and a vigorous grower. Mrs. Bright, another named kind, is smaller than the last, but much in the same way, and pretty on account of its extreme floriferousness. Glory of the Day is a real beauty with pure white sepals, large and thick, the corolla being like that of Beauty of Clyffe Hall. Ellen Lye and Mrs. King are of a similar stamp, while Thomas King and an unnamed seedling have bright red calices and rich purple-red corollas, both handsome. What we should like to see done in Fuchsia raising is to obtain an improved race of the hardy kinds, such as F. Riccartoni, which would be a real gain; and could not something be done by hybridising such distinct species as F. corymbiflora, boliviensis, cordifolia, and others, so as to give us an entirely new "strain?"

TREES AND SHRUBS.

VARIEGATED CONIFERS.

I WISH that man from Wormwood Scrubs would turn his attention to the crowds of variegated Conifers that have been sent out to perish in their sad foliage of yellow and rags! I have noticed a good many of them decaying in prominent spots in choice shrubberies before now. The other day I saw a rock garden dotted over with them; they had every advantage—placed singly and in good soil, not shaded injuriously by neighbours, and in a good climate, yet every plant was diseased, and a wretched and useless object. In the nurseries these plants are carried through their earlier months or years without showing the decay they exhibit as they get on, but to judge of them fairly we must see them in gardens afterwards. The public who care for their gardens should not have these plants at all, and nurserymen should not send them out. It is a short-sighted policy to do so. Everything sent out by the trade which causes disappointment tells against it in the end. Some enthusiasts do not mind trying all things and paying for them, but many others give up in despair. Besides, every spot of choice garden ground given to shrubs like these that speedily become disease spots is a loss to all concerned. Of the many variegated Conifers sent out I never saw one that, as it grows out of the nursery stage, did not become diseased; in fact, the total yellow or whitish variegation is an imperfect state, and these parts soon die, as in the case of the variegated *Welling-tonia*. J. H.

Cotoneaster Simonsi.—Of all the *Cotoneasters* this is my favourite, but it is not nearly so well berried this year as it generally is. It needs a warm sunny border consisting of good soil, and if it can have a wall to overrun so much the better. It grows freely from seed, and the young plants are very beautiful in a small state.—SANGUINEA, *Trelissick, Truro*.

Pernettya mucronata.—With us every branch of this plant is now covered thickly with berries. It is a most useful shrub, both for its berries in winter, and its flowers and foliage in summer. It is not at all particular as to soil or situation, but birds are very fond of the berries, and where plentiful soon strip the plants in hard weather.—SANGUINEA, *Trelissick, Truro*.

THE COLLETIAS.

FROM the peculiar appearance presented by their spiny leafless branches during the greater part of the year, the Colletias are so distinct in character from the various shrubs commonly planted as to at once attract attention, whether in or out of flower. *C. spinosa*, of which the annexed is a representation, forms a shrub 4 ft. or 5 ft. in height, the young branches of which are sparingly furnished with small scale-like leaves, which, however, speedily fall off, leaving them quite bare of foliage. The small greenish white flowers are produced in great profusion during the spring months, and although not showy individually, yet from their number and spiny surroundings they produce a pleasing effect. This Colletia is often found under the names of *C. horrida* and *ferox*. *C. cruciata* is very distinct from the above, the large triangular-shaped spines being arranged in a cruciform manner on the branches, which also grow in a similar way. It is also opener in character than the kind just named, but from its stout branches and spines it has a bold and formidable appearance; indeed, a bush of it forms a veritable living *chevaux de frise*. The flowers of this species resemble miniature Lilies of the Valley, and when grown under glass are as pure in colour, but out-of-doors they become slightly tinged with green. Living plants of this were first raised at Bicton from a number of Chilian seeds, a circumstance which gave rise to the name of *bictonensis*, a name by which it is sometimes known. In *C. serratifolia* the leaves play a far more conspicuous part than in the case of the others, as the shoots remain during the summer somewhat thickly clothed with them. They are deep glossy green, about 1 in. in length, ovate, undulate, and serrated at the edges. The flowers are whitish, and often produced in profusion. This species forms a large, vigorous, open growing shrub, reaching a height of 10 ft. or 12 ft., and bearing at a distance some resemblance to a *Ceanothus*, but on closer inspection the formidable spines may be found concealed amongst the leaves. This Colletia is often found under the name of *Discaria serratifolia*.

The Colletias are somewhat tender; that is to say, being natives of Chili and Peru, they are not able to withstand severe winters without injury, but in ordinary ones they are as a general rule uninjured in the neighbourhood of London. The most suitable situation for this class of plants, or at all events the two first named, is some sheltered part where they can stand out in the shape of isolated specimens, or at all events sufficiently clear of other plants to show off their peculiarities. They are sometimes employed as wall plants, and where the winters are severe the protection of a wall is necessary, but so treated they cannot be said to show themselves off to much advantage. As regards soil, they are in no way particular provided it is not too wet; for growing as they do principally on the mountains, good drainage is thereby secured. In hot, sandy soils they do fairly well, but are more at home in an average loam free from stagnant moisture. There is one purpose for which the Colletias, or at all events *C. cruciata*, is well adapted, and that is for flowering in pots during winter, although but few thus employ them. Anyone, however, who saw them in the temperate house at Kew in the early part of 1881 could not fail to be struck with their adaptability for that purpose as in the month of January they were profusely laden with blossoms and that, too, with very little artificial heat—just enough,

in fact, to keep out the frost. Probably *C. spinosa* would flower equally well, but I have never seen it tried in this way.

Colletias all strike readily from cuttings, the easiest in this respect being perhaps *C. cruciata*. For this purpose take the cuttings from the half



Colletia spinosa.

ripened wood, about 6 in. or 8 in. in length, and insert them in well-drained pots of sandy soil, and place them in a cold frame in which the lights are kept close. They remain some time before they root, but under ordinary attention few will be lost.

ALPHA.

Blue Hydrangeas.—In reply to "R. D.'s" enquiry (p. 273), allow me to say that I do not consider there is anything extraordinary in finding pink and blue trusses of flowers on one plant. Here it is a common occurrence to find several of

each colour on individual plants. That soil alone is the cause of the production of blue flowers is manifest here. We have many large specimens in one part of our grounds. Those producing blue flowers are confined to about 120 yards; those beyond this point produce only pink flowers. The fact of the plant to which "R. D." alludes producing both pink and blue seems to indicate an insufficiency of oxide of iron to colour the whole.

—J. C. C.

PROPAGATING.

BEDDING LOBELIAS.

THE best method of propagating these is necessarily that which entails the least amount of time and attention to the stock during the winter months. Where Lobelias are employed extensively for lines and edgings in geometrical beds, raising the plants from seeds has generally given way to the use of the best named varieties of the *pumila* section, propagated by cuttings or division, a more uniform effect being thus obtained. We grow the sort named Emperor William, which is one of the best, being a compact grower and continuous bloomer. I believe, however, that different kinds vary in certain localities. I recollect seeing in Wales beds of the beautiful double *L. pumila grandiflora* sheets of bloom, while here we planted a quantity of it one season, and not a single flower opened; merely a green carpet was the result. It does well in pots indoors, and is very useful. As to producing the number of plants of it required every year, these, in my opinion, are best secured by wintering enough established store plants for the purpose, and propagating by division in spring. This plan is preferable to increasing it either by seeds or cuttings. At bedding-out time sufficient strong plants for stock purposes are reserved, potted in 6-in. pots, and plunged in a border or in ashes, where they remain for the summer, attention being given them in the way of watering, and passing the shears over them occasionally to stop their flowering. About the middle of this month, or whenever frost appears imminent, they are taken indoors, the pots are washed, the drainage looked to, and a watering with weak soot water is given to expel worms. They are then placed in their winter quarters, where I have found them to do best, viz., on a bed of ashes, close to the glass, in a double-light frame. Fire heat can be applied, but it seldom is, except to exclude frost or to dispel damp. The plants are kept as hardy and sturdy as possible, abundance of air being given in favourable weather. Under these conditions they grow along steadily all winter, and by February are dense tufts of fresh young growth covering the tops of the pots. A little sandy leaf-mould finely sifted is then shaken over them and worked in amongst the shoots, earthing them up as it were; into this in about a month's time they will have rooted freely, when they are shaken out, divided, and replanted. From each of these store pots we reckon to make thirty plants—not cuttings, but strong rooted bits, having several growths. If a Potato pit be cleared and can be spared we prick them out in that; if not, then the boxes in which *Pelargonium* cuttings have been wintered are made to answer the purpose. These hold about sixty each, and can be conveniently moved about where room is found for them. The advantage of treating them in this way is that plenty of time is given them to grow into stocky little plants by the time they are wanted. From first to last they are grown as cool as possible, the beneficial effects of which during the summer are apparent.

Cranmore.

A. MOORE.

Asparagus plumosus.—This graceful plant is generally propagated by division, for although cuttings of it may be and often are struck, yet their progress is generally slow compared with that of divided plants, and frequently many of the cuttings are lost. The method I prefer is to shake out the old plants any time during the spring or summer months, and divide

them carefully into as many pieces as possible, i.e., provided there is even the smallest particle of root attached thereto. The shaking out of the plants for the purpose of division must be done to a sufficient extent to allow of a thorough examination of the roots, and this is best effected by only removing the bulky part of the soil and then washing the remaining portion away by the free use of water. In doing this nothing is better than holding the plants under a tap, as the force of the flow can be regulated at pleasure, and the hands can be employed in loosening obstinate portions of the soil. Where no tap is at hand, soak the ball in a pail of water and wash clean with a syringe. The advantage of this is that every root can be traced home to its source, a difficult matter under other circumstances. Having cut the plants up to the extent desired, pot the divisions in as small pots as possible in a mixture of loam and leaf-mould with a liberal admixture of sand. As this *Asparagus* delights in a loamy soil, do not put more than one-third leaf-mould to two-thirds loam with sand enough to keep all open. In potting keep those with a very slight amount of roots by themselves, so that they can be kept in a close case till established; indeed, if space exists all will be the better for this treatment till the roots get a little established. As they are apt to sway about and get loose just at the collar, each plant should after potting be tied to a small stick. As soon as growth recommences, give air freely until the plants are inured to the atmosphere of the house. Although this *Asparagus* succeeds well in a greenhouse temperature, it grows more freely in a stove, and even if kept cool, it is best to place it in a higher temperature for two or three weeks before it is divided. Keep it in a close case till established, when, if required, it can be removed to the cooler house.—T.

GARDEN DESTROYERS.

GALL FLIES OF THE OAK.

(CYNIPIDÆ.)

THERE are few more interesting insects to the lovers of plants and to entomologists than those which in their immature states inhabit the leaves, stems, &c., of plants, causing the plant in which they are to form an abnormal growth round them. These peculiar formations are known as galls; they may be found on nearly all kinds of plants, and are caused by insects belonging to various Orders. It is not often that a plant is so infested with galls as to be seriously injured by them, but I have seen young Oaks so covered with various galls that their growth was quite stunted; and it should always be remembered that though a certain insect is not common enough to be really injurious to plants, should circumstances favour its increase, it may in the course of a few years positively swarm. The common marble gall was almost unknown in this country thirty years ago, when it suddenly became common, and has remained so. Were it again to increase as rapidly, our Oak plantations would be in a dismal condition indeed. Though these insects will always be looked upon with suspicion by horticulturists, we must always remember what we owe to a foreign gall fly (*Cynips gallæ tinctoria*), which forms the gall so largely used in the manufacture of writing ink; these Oak galls of commerce much resemble our common Marble galls. In the present article I intend to draw attention only to those formed on Oak trees by certain small four-winged insects which are known as gall flies, or Cynips; they are members of the family Cynipidæ, a family in the same Order as bees and wasps, but more nearly related to the ichneumons or parasitical flies. The number of these insects which attack the Oak is very considerable. Dr. Adler, of Schleswig, in a most interesting and valuable pamphlet on these insects (to which I am indebted for much of the information contained in this paper), enumerates nearly 130 species living on various kinds of Oaks in Europe, but this number probably includes several which are most likely dif-

ferent forms of the same insect. I have selected a few of the commoner and more conspicuous galls for illustration. The various galls differ very much in appearance and substance. Some, the marble galls (Fig. F) and the Artichoke galls (Fig. D), become quite hard and almost woody; others, like the Currant gall (Fig. B) and the Oak Apple (Fig. E), are soft. Another kind which may sometimes be found on the catkins or male blossoms of the Oak resemble a small mass of cotton wool more than anything else. It is very curious that the grubs which are so much alike in every way, though belonging to different species, should cause the growth of galls so very dissimilar in appearance. The Marble and Artichoke galls are both formed from buds, yet how unlike they are. The Currant galls and the woolly ones just mentioned are both found on the male flowers of the Oak and have no point of similarity. These differences may, however, be the result of the grub occupying a different position in the bud or flower, one species placing its eggs in a different layer of cells to the other. A question which has been much discussed among entomologists is, what is the cause of this growth of the gall? Does the gall-fly in puncturing the tissues of the plant inject a fluid which promotes the abnormal growth? or is it the action of the grub in obtaining nourishment from the surrounding cells? Dr. Adler is decidedly in favour of the latter solution, and has conclusively proved that the formation of the gall does not commence until the grub is hatched, and that as soon as the grubs (which are furnished with sharp jaws) begin feeding, a rapid growth of cells round them is induced; and that if a grub dies before the gall is fully formed, its growth is arrested. The life history of the gall-flies is most interesting. Dr. Adler, with the most unwearied patience and perseverance, has proved by very carefully made experiments that gall-flies which had hitherto been considered as different species which made very dissimilar galls and were in many cases really only the different forms which occur in alternate generations of the same, the insects and the galls they make resembling their grandparents and their galls, and not their immediate parents. For instance, the Currant gall (Fig. B) produces an insect which instead of piercing the male flowers of the Oak, as its parents did, attacks the undersides of the leaves, and deposits its eggs within them, the grubs from which cause the Oak spangles (Fig. A 3 4). From these are produced in spring insects which, like their grandparents (and not their parents), attack the male blossoms of the Oak, and thus the cycle of their transformations is completed. Another curious fact is that the generation which survives the winter consists entirely of females, or perhaps, to speak more correctly, I should say non-sexual individuals. I shall, however, for the sake of brevity, allude to them as females, whilst the generation bred from eggs laid in the spring is composed of both males and females.

The gall flies all resemble one another to a great extent, though different species, and even the alternate generations of the same, show marked differences in size, colour, &c., their colour varying from black to yellowish brown. The species (Fig. G) bred from the marble galls may be taken as an example of these insects. The grubs are scarcely to be distinguished from one another. The female gall flies are each provided with a long ovipositor, which is hidden within their bodies when not in use. They are of a very curious and complicated construction (Fig. G 4), and are composed of two plates which form a kind of sheath, and the actual instrument which is used for piercing the buds, &c., and placing the eggs at the bottom of the perforations. This piercer is composed of three pieces, one stout, and deeply grooved longitudinally for the reception of the others, which are hair-like, and work within this channel, beyond which they can be protruded when in use. This apparatus has its origin at the back of the body near the apex; it then passes in a curve towards the front, and afterwards finds an aperture just below its point of origin. When the insect wishes to deposit an egg she (if it be a

bud which she selects) settles upon it, and having carefully examined it with her antenna, passes her ovipositor under one of the scales, and thrusts it, working the hair-like organs up and down like saws, into the bud until the position is reached which she wishes her egg to occupy. This operation seems to require great exertion on the part of the insect. She then withdraws her ovipositor, de-

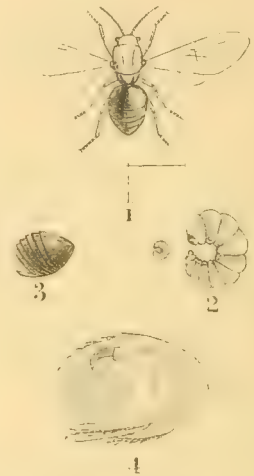


Fig. G.—1, *Cynips Kollar* (magnified); 2, grub (magnified); 3, ditto, side view of body (magnified); 4, section of body (magnified).

posits an egg at the entrance, and pushes it to the bottom. The eggs are oval, and have each a long stalk. The only practicable way of keeping these gall-flies in check is to collect and destroy the galls before the insect leaves them, and in every way to promote the healthy growth of the trees. If the galls are gathered when quite young they need not be destroyed, as the grub will certainly die as the gall shrivels. Some birds, such as titmice, are of great use, as they destroy the Marble galls to obtain the grubs which they contain, and pheasants devour large numbers of the Oak spangles when they fall with the leaves to the ground. One of the most abundant galls on the Oak is

The common Oak spangle (Fig. A). I have counted as many as 184 on one leaf; they are formed by an insect known as *Spathegaster baccarum*, which deposited its eggs within the leaf on the underside at the beginning of June.

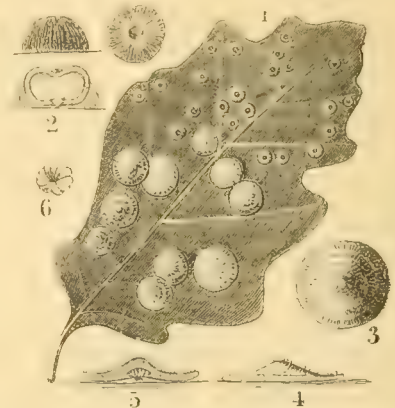


Fig. A.—1, Oak leaf with spangle galls and button galls; 2, button galls (magnified); 3, 4, 5, spangle galls (magnified); 6, grub from spangles (magnified).

The galls begin to form in July, and are fully formed in September, when they are about 2-10ths of an inch in diameter or somewhat larger. They are flat and circular, with the centre raised in a flat cone; they are of a greenish yellow colour, with tufts of short brown hairs; in the centre is the grub,

a soft, white footless maggot lying in a curved position, with its head and tail in close proximity. The insects lie dormant during the winter within the galls, and appear in the winged form in April or May. It is known as *Neuroterus lenticularis*; it is about $\frac{1}{2}$ in. long, and of a reddish brown colour; in this generation there are no males. The virgin females deposit their eggs in the buds containing the male flowers, or on the undersides of the leaves. These galls (Fig. B) when mature are round, like small balls, of a transparent green colour, often streaked and speckled with red; they are of a moist, soft consistency, with a considerable hollow space in the centre, in which is the grub. The galls formed on the male flowers are called Currant galls, from their resemblance to a bunch of Currants. The gall flies from these emerge in June, and are of both sexes; the females attack the undersides of the Oak leaves; when the grubs are hatched Oak spangles begin to form; thus the cycle of their existence is completed. The other gall shown on the leaf with the Oak spangle is formed by *Spathogaster vesixatrix*, a small species scarcely 1-10th of an inch in length, both sexes of which are found. The female deposits her eggs within the leaves, attacking the lower surface in June, and the galls which result are about 1-10th of an inch in diameter when fully grown. They much resemble a small somewhat conical button covered with silk threads, and are slightly depressed at the top. Under a low magnifying power one of these galls is a very beautiful object. The gall fly does not emerge from these galls until spring, when only females are found; these attack the undersides of the

galls are known as *Aphilotrix radialis*, and only females appear in this generation. They are much larger than their parents, measuring nearly $\frac{1}{2}$ in.



Fig. C.—Oak root gall and section.

in length; they leave the galls in April or May, and deposit their eggs in buds which will form young shoots. The presence of the grubs causes gouty swellings to form at the base of the young shoots round the grubs. This insect attains maturity and leaves the galls in August. This species, therefore, requires two years to complete the cycle of its transformation. Another very interesting gall is

The Artichoke gall (Fig. D), so called from its somewhat resembling in form a Globe Artichoke. This species is very common, and I have



Fig. D.—1, Artichoke gall; 2, ditto section; 3, internal cell (magnified).

seen branches of a young Oak nearly every bud on which was turned into one of these galls, which are formed by *Andricus pilosus*. Both sexes appear

in June. The females deposit a single egg in each bud, which they select, causing them to grow into bunches of scaly bracts. On cutting open one of these galls (Fig. D 2), when fully formed the interior will be found of a woody texture, and that partly embedded in the top is a small, hard, brown, oval, striated gall, which contains the grub. This gall (Fig. D 3) eventually falls to the ground, when the transformations of the insects are completed. In the woody portion of the outer gall may often be found cells containing grubs of some other species which has laid its eggs in the gall after its formation was begun. The perfect insects (*Aphilotrix fecundatrix*) bred from the internal galls are about 1-8th of an inch in length, and are always females. They appear in April, and attack the buds containing the male flowers, within which their eggs are laid. The galls which result are oval, pointed, about 1-10th of an inch in length, covered with stiff hairs, and of a green colour. The perfect insects, which are of both sexes, escape from the galls in June, and attack the leaf-buds, as already mentioned. One of the commonest and best known of the Oak galls is

The Oak Apple (Fig. E), which is often very abundant. It is a large gall, varying from $\frac{1}{2}$ in. to 1 $\frac{1}{2}$ in. in diameter, of a greenish white



Fig. E.—Oak Apple gall; 2, ditto section.

colour, streaked and spotted with red. Its consistency when young is much that of an Apple but it hardens when it reaches maturity. When opened it is found to contain a great number of grubs, each within a separate cell. These galls are generally found at the end of a shoot, but are at times formed on the buds at the side. The perfect insects (*Teras terminalis*), of which there are both sexes, emerge from the galls in July. The males are winged, but the females are wingless, or have only rudimentary wings; they are about $\frac{1}{8}$ in. in length. The females puncture the roots of the Oak and deposit their eggs within them. The galls vary much in size; some are only the size of a pea, but many are much larger. The gall flies (*Biorhiza aptera*) bred from these are wingless and are all females, measuring from 2-10ths to 3-10ths of an in. in length. They leave the galls in December or January, and climb up the stems and usually select the terminal buds in which to lay their eggs. The galls



Fig. B.—1, Currant gall on leaf; 2, ditto on male flowers; 3, ditto and section.

young leaves, which causes small galls, somewhat resembling the Oak spangles; from these perfect insects of both sexes are bred in June, which are the parents of the grubs forming the button-like galls.

The Oak root gall.—Fig. C is formed by *Andricus noduli*, a small species scarcely 1-10th of an inch in length, of which both sexes are present. The females deposit their eggs within the roots, which are sufficiently near the surface for them to obtain access to. A large number of eggs are laid near one another, and no doubt two or more females often lay their eggs so close together that they form one gall. Dr. Adler has bred more than 1000 from one gall, and finds that each female lays about 500 eggs. This habit of the females laying their eggs together may be accounted for by the difficulty they may have at times of gaining access to the roots except at a few points. The eggs are laid in August, and the gall begins to grow in September; but from the fall of the leaf until the spring it does not increase. In May it is full grown, but the gall flies do not emerge until the following April. The galls vary in size from about $\frac{1}{2}$ in. to 3 in. in diameter, and will be found to be full of small oval cells, each containing an insect. When young they are yellowish white with brownish spots, and are soft, like a Potato; as they become older they harden, and are darker in colour. The gall flies which issue from these

(the Oak Apples) begin to form in April or the beginning of May, and are full grown in about a month.

The common marble gall (Fig. F) produces an insect known as *Cynips Kollari*, a large species measuring $\frac{1}{2}$ in. in length (Fig. G 1), and is of a brownish colour, the body being darker than the head, thorax, or legs. The history of this insect is not yet fully made out, only one generation, that without males, being known. Where these females lay their eggs is a mystery, and the insects which pierce the buds previous to the growth of the marble galls are not known. These galls may often be found in clusters, and are exceedingly common at times on young Oaks. I have counted twenty-four on a small bough, about 2 ft. long, composed of four shoots; one bore eight, the others six, four, and six each. The full grown



Fig. F.—1, marble galls; 2, ditto section; 3, grub (magnified).

galls vary in size from $\frac{1}{2}$ in. to nearly 1 in. in diameter. When young they are green and soft, but afterwards they become hard and brown. The grub occupies the centre, and lies in a very curved position. Other grubs may often be found in the gall, but they are the progeny of some species which pierces the already formed gall. These galls about thirty years ago suddenly became very common, whereas hitherto it was hardly known, and for some time was called the Devonshire gall, from its having been first noticed in abundance in that county. G. S. S.

Extension and restriction.—I am quite as firm a believer in extension in the case of orchard trees as anyone possibly can be. But I doubt its utility in garden culture, because of the good results obtained by those who go in for moderate extension, using dwarfing stocks to do most of the restriction, merely pinching the points off the shoots in summer, but restriction it is all the same. There are plenty of instances besides Barham Court to prove what I have attempted to illustrate. In Messrs. Veitch & Sons' fruit tree nursery at Fulham, I saw in the spring of this year hundreds of little trees, treated on

what I call the restrictive system, covered with bloom buds, and although not grown for their fruit, they nevertheless produced fine crops, as any one who visited the International Fruit Show at Edinburgh, on Sept. 13 and 14, might have seen for themselves, no fewer than 165 dishes of distinct sorts being staged; while Messrs. Cheal & Sons, Crawley, Sussex, sent 100 dishes from cordons that are certainly on the restriction principle. It is evidence of this kind that makes me qualify my expression of approval of the extension system. I, therefore, still hold that there is room for both systems. "J. S. W." admits the success of the restrictive system at Barham Court, but asks if the extension system had failed. To this I answer No; all kinds of fruit are grown at Barham Court in all kinds of ways, the extension system being followed with great success there in orchards. But for special purposes their restricted Apples and Pears beat the orchard produce, though the trees are growing side by side. I therefore hold to a middle course in the garden, though fully convinced of the benefits of the extension system for orchards.—JAMES GROOM, *Seafield, Gosport.*

MESSRS. FROEBEL'S NURSERIES, ZURICH.

As an old collector and grower of alpine plants, I think many of your readers who have the same taste may be glad to see an account of a visit to these nurseries last September, which I found very interesting. This month is too late for amateurs to collect for themselves, as most of the alpine flowers are over, and comparatively few people are sufficiently familiar with the appearance of the plants when out of flower. There are, however, many who cannot get their alpine holiday in June or July, and to such persons a visit to Messrs. Froebel's establishment in passing through Zurich would be both interesting and profitable in a gardening point of view, as they would have an opportunity of seeing a great variety of alpine plants and familiarising themselves with their appearance when out of flower; they would also see them thoroughly well grown, and get many hints as to the causes of failures they may have experienced. Amongst other interesting plants I was struck with some beautiful specimens of the rare *Phyteuma comosum* excellently grown. This plant is almost impossible to get in a satisfactory condition for taking home, even if a traveller is so fortunate as to find it, as it grows out of hard perpendicular rocks, which cannot be broken so as to get the plant without proper tools and a good deal of time and labour. *Lithospermum Gastoni* I also noticed in vigorous condition, and several new species of *Ethionema*, besides the familiar and beautiful *E. coridifolium* and *E. grandiflorum*, which I was informed are equal or superior in beauty to those species. *Androsaces*, *Primulas*, *Gentians*, and other choice examples of the alpine flora were also to be seen in perfection. In fact, there was so much to see, that anything like an exhaustive account of this nursery would require a considerable space. Though not very large, it is full of objects of interest. Another class of plants seemed also to be a speciality, namely, the tuberous *Begonias*. In the cool glasshouses were a great many remarkably fine varieties of these plants raised by Messrs. Froebel, and in flower when I visited them. The following, mostly new plants, were particularly beautiful, viz., *Begonia* Robert Froebel, Blanche Jeanpierre, and *Davisi hybrida* fl.-pl. The older varieties *B. Froebeli* incomparabilis and *perfecta* were also very fine. To go back to the alpine plants, and the pleasure of growing in England plants one has brought from their native haunts, and thus securing a perpetual souvenir of pleasant hours in the mountains, I must say that success in growing them is more likely to be attained by obtaining well established plants from such a nursery as this than by digging them up when in flower and sending them home. Messrs. Froebel collect them after they have flowered and when they are going to rest, and establish them in their nurseries, so that when they are delivered at the proper time of the year, that is about this month, they are

much more likely to live than plants collected in bloom and sent home by amateurs. At any rate this has been my experience, for though I believe I have been tolerably successful with the plants I have collected myself, yet I always lose a good many, while of a number purchased last year from Messrs. Froebel, almost all have succeeded. One merit they certainly have, which I wish some of our English nurserymen would imitate, and that is they send out good sized plants, and not mere scraps, of which a large proportion die. A little wholesome competition of this sort will put our countrymen on their mettle, I hope, and check their tendency to excessive subdivision.

Aigburth.

E. H.

GARDEN FLORA.

PLATE CCCLVIII.

ARCTOTIS AUREOLA.

AMONG the numerous old plants which now, after a long period of neglect, are growing into favour, few are more deserving of attention than this and some others of the same genus. About thirty of them are known, and of that number a large proportion has at different times been cultivated, but I am not aware that there are at the present time more than two species in gardens in this country. Of these, one is the subject of the annexed plate, and the other is *A. aspera* var. *arborescens*, which, so far as I can discover, was known two years ago only in the Cambridge Botanic Garden. I have been acquainted also with *A. acaulis* and a similar plant called *A. breviscapa*, both of which, I believe, were derived from the Jardin des Plantes some years ago. Under the name *A. speciosa* I find there is now a plant cultivated at Palermo, but it is probably one of the two just alluded to. In this genus there is great variety, some of the species being annual, others herbaceous, and some more or less shrubby. It is two belonging to the latter class in which we are now chiefly interested. The first is

A. aureola.—This is well represented in the accompanying plate, prepared from specimens obtained from the Cambridge Botanic Garden. For a long time it was known as *A. grandiflora*, but recently the name *aureola* was given it at Kew as the correct one, and one by which, as I learn from Mr. Harpur Crewe, it was originally known. Quite wrongly, I think, is this plant brought with the next under the same species (*A. aspera*) in the "Flora Capensis." It should be stated, however, that the genus is a difficult one as regards classification. The two plants are quite distinct, differing greatly both in form and in habit, and, as I have been unable to cross them with each other, it may be that their relationship is not very close. In habit this plant is erect, and the stems have an inclination to become naked, but that can be overcome by judicious cutting back. It has generally a few short shoots at the base, which can be made to develop themselves. It has been tried in the open ground at Cambridge during the summer, but, although it forms a good plant in that way, the result is no great advantage, no flowers being produced until after it is potted again. Its propagation is somewhat difficult, and in this it differs wholly from *A. aspera arborescens*. The time for taking cuttings is in July and August, and the best kind of cutting is one that has some hard wood below the lowest leaves; soft wood is sure to rot. These cuttings should be placed in a moderately moist house, and must be shaded from strong sunshine. A bell-glass does not appear to help matters, but rather to invite decay. The flowers of this species are produced during a good part of the



year, but chiefly in the first half, and the best flowers have been gathered, perhaps, in April. The stems and leaves are more or less cottony and white all over, and the plate, though good, should represent the flower-heads with greater fulness and better form as regards the ray. This species, like all others but one in Abyssinia, is a native of the Cape of Good Hope.

A. aspera var. arborescens.—Whether this or the last is the finer of the two it would be difficult to say, but this is certainly a very fine plant, and rather commends itself from its free growth and easy cultivation. It does extremely well out-of-doors as well as in pots, and during the past summer it has been used for clothing the ground of a bed of *Ricinus*. The bright green Fern-like leaves alone would produce a good effect in this way, but in addition to these there are many creamy white flowers, measuring nearly 3 in. across, which contrast well with the red leaves of the *Ricinus*, so that few better subjects could, perhaps, be found for an undergrowth of the kind. Last year a bed of it was grown in the flower garden, and proved most attractive, but with this disadvantage, viz., that in dull weather the flowers did not open. For vases and other indoor decoration it is one of the most charming of composites, and under such circumstances the flowers do not close at night. This plant has rather weak branches, though out-of-doors as a rule it requires no support, and when grown in pots under glass a few sticks only are necessary. With a little management it may be had in flower probably all through the year, as it may be made to grow at any time, and when growing rarely fails to flower. It may be described as half shrubby and rather succulent; the stems branching freely and hispid; the leaves pinnatifid, with long and very wavy lobes, hispid above with thin tomentum beneath, and bearing flower-heads freely on long stalks; the ray creamy white inside, yellow at the base, and on the outside flushed with rosy pink. This flush of colour renders the buds extremely pretty. Propagation is effected so easily that little need be said with respect to it, and the only thing to guard against is rotting—the result of too much water and closeness.

Culture and position.—These plants require a greenhouse temperature in winter, and they should be as near the glass as possible. An open, loamy soil answers best, and over-potting requires to be guarded against. Water must be given sparingly when the plants are not active. No insects give any trouble.

R. I. LYNCH.

"Six Days in London."—We have before us a brochure entitled "Six jours à Londres," by M. Louis-Anatole Leroy, of Angers, in which is given a short account of the chief places seen by the party of Belgian horticulturists who visited this country in July last. M. Leroy, who was one of the party, gives a lucid and readable account of what he saw and how things are done in English gardens, dealing with them *seriatim* as they were visited. The first day was devoted to an inspection of Messrs. Cannel's nursery at Swanley and Mr. Ladd's famous market establishment at Bexley Heath. The second day was spent at the Pelargonium show and in visiting Messrs. Veitch's and Mr. Bull's nurseries. Wednesday was occupied in examining Mr. Turner's nursery at Slough, the Royal Gardens at Frogmore, and the gardens at Cliveden and Dropmore. On the fourth day the market gardens about Twickenham and Isleworth and the Richmond flower show were visited. Mr. B. S. Williams' nursery and Messrs. Cutbush's nurseries were examined on Friday, and the week was

finished by a day at Kew Gardens, Syon House, and the Royal Horticultural Society's Gardens at Chiswick. Than the foregoing, no better list of places worth attention could have been selected, and M. Leroy's notes respecting them are both interesting and instructive.

RAMBLES OF A PLANT COLLECTOR.

(Continued from p. 316.)

My China trip.—In November, 1877, I had finished my collecting in Japan, having dried my seeds, packed up my plants, and sent different consignments by several ships to England. I determined to visit Formosa, an island in the China Sea. I sailed from Yokohama and arrived in Hong-Kong on January 2, 1878. After a most unpleasant voyage, we were, in the Formosa channel, four days in one of the thickest fogs I have ever experienced. I think a fog at sea is one of the worst of dangers, particularly when near land and full in the track of steamers, as we were. I was also much upset on Christmas Day. I lost an old friend, who was supposed to have fallen overboard. He had greatly assisted me on a previous voyage from Yesso; he was a doctor in the navy. On January 5 I went to the city of Canton, four hours' steaming from Hong-Kong; it is rather a pretty trip up the Canton River. I visited the great porcelain warehouses and silk stores, but did not see much in the way of plants, except *Pæonies* and *Narcissi*. The latter are slit down the sides in three or four places, and grown in saucers of gravel and water, and I have never seen finer flowers. The Chinaman calls it the "New Year Flower," and the more spikes on a single bulb, the better his chance of success during the year, or, as he says, "plenty flower, plenty pigen." For one night in a hotel I paid 8 dols., also 3 dols. for a guide, and 50 cents for my room, and a miserable place to live in. I arrived in Hong-Kong the following day towards evening. The botanical gardens at Hong-Kong are very fine, and splendidly situated on the side of the mountain. *Araucarias*, *Grevilleas*, and *Pinus sinensis* grow splendidly, as do many other Conifers, but all suffer greatly from the violent storms that occasionally visit the place. The fernery was particularly fine when I was there, and the rare *Brainea insignis* was to be seen growing very luxuriantly. The garden is well kept, and under the care of Mr. Ford. The general collection is very good. Planting the hills of the island was being carried on when I was there. Several kinds of good forest trees were being raised for that purpose, the most useful of which I think is *Pinus sinensis*. I left Hong-Kong on January 14, 1878, for

Formosa via Amoy, and arrived at the latter place on the sixteenth morning. The races were on, and as we stayed overnight, I went to them with our captain, a jolly fellow. It was here I saw the first Chinese procession. The head man of Amoy came in state to the races, and a group of more vagabond-looking fellows I never saw—soldiers, umbrella bearers, and executioners (with tall red conical hats), probably all hired for the occasion, and a band of bagpipes, drums, and gongs. There were a great many nations represented—Parsees, Japanese, Siamese, and Hindoos. The weather was very fine, and we spent a pleasant day. I took a ramble over the bare hills, and found little to interest me in the way of plants, except enormous American *Aloes*. Here I was the guest of Elles & Co., Messrs. Jardine & Matheson's agents there. They gave me introductions to their representatives in Formosa, who proved true friends. Amoy itself is a country of barren rocks, looking like decomposing granite, scarcely a tree to be seen; the hills away in the distance have a very barren appearance. Europeans have introduced a few shrubs and trees around their houses, and as they are beginning to grow up their portion looks a little more cheerful. The Chinese portion is fearfully dirty, the streets very narrow and densely populated. A large trade in tea and camphor from Formosa is done here, all the plantations in Formosa belonging to Amoy firms. On January 18 we anchored in the Siawan-

foo roads, in the south of Formosa; we were about two miles from the low flat coast, and we were landed over the bar in a catamaran, consisting of a few bamboos lashed together and a tub on the top to sit on. The captain and I went ashore in this. I was not easy in my mind till we jumped ashore, for I thought it about the most unsafe boat I had ever been in. We were both drenched with salt water by the time we landed; it took us over an hour to go two miles.

The old Dutch fort was close to where we landed, called A'ping, and now deserted. This was a great stronghold about 200 years ago, held by the Dutch, and one of their store depôts. We walked from A'ping to the city of Siawanfoo, about three miles over a mud flat on an embankment. The sea rolls over this in the south-west monsoon, and often then it is impossible to land at A'ping fort. I took a walk round the city walls and noticed the following plants: A fine scarlet *Clerodendron*, *Ixoras*, Maiden-hair Ferns, *Pteris longifolia*, *Pteris pedata*, several *Euphorbias*, *Pandanus*, *Ficus* or *Bastard Banyan*, *Cocoa-nuts*, *Areca*, *Phoenix dactylifera*, dense masses of *Cassias* with hooked thorns forming impassable jungle, and a white *Heliotrope* to all appearance. As it was the dry season I could not get many specimens; most of the plants were at rest. I went to see a gentleman belonging to the London Presbyterian Mission, and he proposed a trip to one of the mission stations in the interior. I gladly fell in with his ideas, and we started in a day or two after in chairs carried on the shoulders of four men. The country round us on the road was very uninteresting, except in an agricultural point of view; acres of Rice, Sugarcane, Sweet Potatoes, and Ground Nuts all round, the land being well cultivated by the Chinese. This continued for about twenty miles; then we began to pass the low hills near the mountains; all was barrenness here, not a good tree or bush to be seen, scarcely a solitary flower; here and there were clumps of Bamboos and scrubby bushes; all the wood has been cut for fire. At five in the evening we arrived at a place called Boxa. There was a small chapel and a small house for the missionary to live in when he visited the place, with just a bed, table, and chair. We found it a very acceptable resting-place after our hard day's journey. We left the Chinese population behind us when we began to ascend the hills and entered another tribe of people called Pepawans. Numbers met us and saluted us with what sounded to me like "Pinamh," or as I was told in English by Mr. Campbell, my companion, "Peace be with you." But this was not all; they persisted in shaking hands with us, not always an agreeable thing. I was told the custom was introduced amongst the Pepawans when first Christianity was taken there by a certain doctor who had peculiar ideas. I have shaken hands three times in one day with the same individual, and always with the "Peace be with you." The missionaries have done a great deal of good here. There is a great contrast between these poor Pepawans and the Chinese; the former are evidently much cleaner and more civil towards Europeans than the latter. At a service held in the chapel at night there was quite a large attendance. Hymns and prayers were sung and read; it sounded very strange to me to hear some of our old church hymn tunes sung by almost savages. It was here I gained a great reputation for shooting. My revolver had not been let off for some time, so I aimed at a bunch of *Papeeta* fruit; fortunately I cut them off the tree, to the great astonishment of the admiring natives. They wanted me to shoot again, but I declined, thinking I might miss next time. I was also much amused next day when shooting birds with my gun. The natives thought it a wonderful feat to shoot a bird on the wing, and they used to pluck off the feathers to see where the bullet, as they thought, had entered. Next day we left Boxa to walk over the hills to a place called

Sacolie.—The road was very steep—up hills, down valleys, all of which were cultivated. By noon we entered thickly-wooded hills covered with *Musas*, *Calamus*, *Aralias*, evergreen Oaks

Atrocarpus. Many common Ferns were also growing in the shady valleys, but most of them were quite dried up, owing to the unusually dry season. Many fine-plumaged birds were quite common—the red and blue kingfisher, golden oriole, hoopoe, blue jays, little egret. I also saw a pair of Swinoes pheasant, a magnificent bird. We arrived at Sacolie at half-past four in the evening, and were much surprised to hear that the natives there were at war with the real savages on the other side the river close by. The Sacolie people were not yet Christians. Mr. Campbell was about opening up a church there, and many of the headmen invited him to preach to them, which he did at night. Great excitement was going on in the little town; ditches were dug round and bamboo spikes stuck at the bottom; knives were being cleaned and old guns brought out; sentries were placed on all the commanding ground near, and armed parties were on every road. We were lodged in a Chinaman's house. The headman of the town, a fine, tall, clean-looking man, had at one time been a murderer. He escaped the Chinese authorities and came to live amongst the savages. We were put into a small room with a bed and two chairs, no ventilation, and were told that about 1 cwt. of gunpowder was stored above our heads. The Chinaman offered us samsho (wine), showed us a lot of savage silver ornaments, gave us a very good dinner, and was altogether very kind for a Chinaman. We had a grand view of Mount Morrison in the evening, and as it was impossible to go further into the interior, I was obliged to satisfy myself with straining my eyes, trying to distinguish the masses of forest trees clothing the sides of the big mountain, upwards of 18,000 ft. high and snow-capped. I am certain a rich field might be opened there for the botanist; Orchids, Conifers, and probably many totally new genera will be found there. The things already known, both animal and vegetable, seem to connect the Indian with the Malayan world. I went next day on a short excursion into the jungle near Mr. Chinaman, our host, produced a very good double barrelled gun, and with about twenty men, armed with long matchlocks and knives, we went into the hills for the day. We found very little; all the Ferns were known to me, and, with the exception of a Lily, I did not get anything. However, the Lily proved to be a new one. I saw two large pods of seed standing up above the grass, and I did not remember any Lily bearing its seed like it, so I collected the seed and sent it to Messrs. Veitch at Chelsea (where I am glad to say it proved to be very distinct and hardy). I also found a fine large-leaved *Aralia*, but, unfortunately, the seeds did not germinate. We ascended 2000 ft. to the top of the next range of hills to Mount Morrison. The jungle was quite young, having been burnt or cut only a year or two before, and probably all the best plants destroyed. How I longed to go on further, but it was of no use, for we were now too far from our shelter from savages, and we were in danger at any moment to be shot or speared from the clumps of trees and long grass around us. I was more convinced that Mount Morrison would be a grand place for new plants after getting so near a view as we had. I could almost distinguish the Conifers half way up the mountain, and I am certain that species allied to the Japanese might be found there. We returned to Sacolie, and I was attacked with fever and ague, so returned to Siawanfoo and went on board a steamer that was going to the north of Formosa. We had, owing to the rough weather, to put into the Pescadore Islands, where we remained two days. We, however, reached Samsui in about five days after leaving Siawanfoo. Here, again, the weather was so wet it was quite impossible to do anything, and, as I was told, this sort of weather continued during the north-east monsoon. I went by the same steamer to Shanghai. I found the *Azalea Oldhami* growing in an old garden near Samsui. I visited many very interesting places near, and found the vegetation in all cases to be quite different from that of South Formosa. Tea, that universal beverage, is cultivated largely here, and the country everywhere is very hilly.

C. MARIES.

FRUIT GARDEN.

PACKING FRUIT FOR TRAVELLING.

I OBSERVE that no one has yet replied to Mr. Falconer's enquiry as to the kind of Moss used in packing fruit. As I have taken special note of the competitions for the prizes offered by the Messrs. Webber at South Kensington, and, further, have learnt nearly all that is to be learnt from Mr. Webber himself with respect to the packing of market fruit, perhaps I can enlighten Mr. Falconer to some extent. First, then, the kind of Moss recommended to be employed is of the usual soft packing kind, but before being used for fruit it should be well pulled to pieces and freed from dirt and rubbish. The picking and cleansing will assist to make it soft and in excellent condition for use.

To pack Grapes in, the best articles are shallow deal boxes about 9 in. in depth and 18 in. across. These should be first well lined with Moss about 1½ in. thick over the bottom and sides, and this Moss again should be covered with soft tissue paper. There will then be space in each box to hold about 20 lbs. of Grapes, which should be dropped in as closely together as possible without packing in any kind. There is always far less of friction and rubbing between berry and berry than when some paper or other foreign substance is introduced. The lids should be fixed by means of short screws, but before these are fixed a double thickness of tissue paper should be laid over the Grapes, and then some soft Moss added in sufficient quantity to press gently on the Grapes when the lid is fixed. So packed, Grapes will travel safely for hundreds of miles and come out but little rubbed. Still farther, when the lid and the top Moss and paper are removed the entire sample is at once exposed to view, and the purchaser sees at a glance what he is buying. Grapes in 20-lb. boxes are far more saleable if of good quality than when sent to market in larger bulk.

Peaches need great care in packing, especially if fully ripe when gathered. For these, shallow boxes about the same size as for Grapes, but deep enough only to hold a couple of layers of fruit, are best. These should, as in the previous case, have a good floor and lining of soft Moss first. Then each fruit being carefully wrapped in soft tissue paper, the packer using the fingers of his left hand to make a slight hollow for the first fruit, places it there with his right hand. Then, taking a small piece of Moss, he places it next the fruit, and this again is slightly hollowed to receive the next Peach, and so on till the layer is complete. A layer of Moss is placed over the fruit, and then this packing process is repeated until the box is full. A little Moss is added on the surface, and the lid is placed on and screwed down. Peaches so packed will travel just as well upside down as in any way.

Figs should be each placed first in a soft leaf of some kind, then in paper and be mossed in. Strawberries do best in shallow boxes of a single layer, and chiefly packed with leaves on a floor of Moss. When the lid and top Moss packing is removed the entire sample of fruit is seen at once. Pears will do best in soft paper wrappings and Moss, much as Peaches are packed, but in greater bulk, and choice Apples the same. It must be understood that although private gardeners have their own ways of packing fruits for transmitting long distances, the plans above mentioned are those specially desired by Mr. Webber for all fruits sent to his firm for sale in the London market.

A. D.

Peach and other trees on my garden walls I believe to be much too full of weak, thin shoots. Is it desirable now to thin them out for the purpose of allowing sun, light, and weather generally to ripen and strengthen the wood? An additional pruning I am aware would be necessary before or in February. Peach trees bear well in the south of Ireland. What sorts are best for outdoor culture? I have some Nectarines on my walls, but think of getting rid of them and placing Peaches in their room. My Fig trees also I believe require thinning. I shall be much obliged for

the names of good sorts for outdoor cultivation.—
J. L. L. Mallon.

NEW AND OLD GRAPE.

THE following passage in a communication to THE GARDEN (p. 317) from Mr. Wm. Thomson, of Clovenfords, I must refer to. In answering "J. C. C." he says, "'J. C. C.' seems to have taken his keynote from a would-be teacher of Grape growing who informed his readers that he grafted the Duke of Buccleuch on a Black Hamburgh, and that it would not only not fruit itself, but stopped the fruiting of the Hamburgh." Some of your readers may remember that I was the author of this passage about the "Duke" some time ago now, but, as will be seen, Mr. Thomson had no occasion to found any insinuation upon it. First, I have not the slightest idea who "J. C. C." is, and had not even read his paper about Mr. Thomson's Grapes; secondly, as Mr. Thomson knows, I have never abused his Grapes, and only said the "Duke" was a shy bearer and not to be trusted, an opinion shared by hundreds besides me. I only wish it bore a better name for the sake of its noble prototype, who deserves a better memorial. It was Mr. Wildsmith, I believe, who, when he saw the Vine here, said he "wondered I grew it; it was not worth a place." Not a single neighbour or acquaintance of mine who planted it has succeeded with it, and it is a fact that a good many of the first plants sent out died, as mine did. The second time I got a one-year-old cane and tried it in various ways, but it did no good, did not show fruit, and last year I cut it down. As to the Golden Champion, I have always grown it and always praised it, and I have a magnificent Vine of it now from which I last summer cut a basketful of as fine fruit as Mr. Thomson perhaps ever saw for my employer to send to the royal stall at the South Kensington Bazaar. Reverting to the "Duke," I challenge Mr. Thomson to produce a single fine bunch of it perfectly ripe and free from blemish. The way to show questionable varieties is to show single bunches, and let the public judge. Everybody cannot run to Clovenfords for that purpose, and the Duke is sometimes "just finished" when they do go. I have seen Mr. Thomson's exhibits of that Grape more than once, but they were always "baskets;" and once when I looked into the basket at Manchester, the lot seemed to be made up of picked fragments of bunches only. Mr. Thomson is not the man to show his Grapes in that way if he had presentable single bunches to show, a thing I never saw myself in the case of the Duke. One of "the hundreds" who visited Clovenfords at the time of the show, and a man friendly to Mr. Thomson as well as myself, writes a day or two ago to me that Lady Downes and Gros Colmar were fine, but he does not even mention the Duke. As to the Duke at the Edinburgh show, where Mr. Thomson says it was a "strong feature," the report states that the special prize offered for it only brought out two bunches, and no word of commendation is expressed upon it. Why did not Mr. Thomson send there some of the crowds of bunches which he says he had at the time?

J. S. W.

The Lombard Plum.—This Plum holds about the same position among other varieties that the Baldwin does among Apples, or the Bartlett amongst Pears. Although moderate in flavour, the hardness, free growth, and great productiveness of the tree, and the beauty of the brilliant fruit, render it one of the most valuable sorts for market. A fruit grower of Batavia gives special attention to the cultivation of this variety, and when on his grounds two years ago we saw many trees, then in the third year of their growth from transplanting, bearing by estimate not less than half a bushel of Plums, the central branches being covered with dense masses of brilliant violet-red fruit. He now informs us that the produce of the ninety trees which we then saw was forty-six bushels, being slightly over half a bushel each as an average. Last year, or the season following, he had only twenty-five bushels: the present season

son the crop is estimated at seventy-five bushels, this being the fifth year from transplanting.—*Country Gentleman*. [This, a culinary Plum ripe in the end of August, is sometimes called in this country Beckman's Scarlet.]

Late Peaches.—I was surprised on visiting the gardens at Hanworth Park, near here, on the 26th ult., to find a considerable number of remarkably fine and richly-coloured Peaches still hanging on the wall trees. Mr. McDonald had but just sent you the splendid samples of Lord Palmerston, to which you have already referred, but I saw other samples of that fine kind weighing from 7 oz. to 9 oz. each. Princess of Wales was also carrying fine fruit. There were still some large and rich-coloured Barringtons, and good fruit of Téton de Venus. The latter would at a slow ripening time, such as the end of September, probably hang well to the first week in October, and keep another week in the fruit room, late enough, I think, for all reasonable purposes. If a tree of the Salwey were so placed that it might be covered with glass about the middle of September, perhaps its fruits would ripen better than they do, but the one thing needful for the production of quality in Peaches—sunshine—would still be wanting. If, however, the Peach season cannot be lengthened out unduly, it can be and is easily accelerated, so that it is not difficult to have the Peach season extending over four months, and needing but little hard forcing. A couple of houses, each containing two large successional trees for forcing and one cool house, are immense helps in any garden of moderate dimensions. I noticed that the Peach trees at Hanworth Park are nearly all standards, and that these seem to stand better than dwarfs do, whilst it is easy to bring down spare wood, and thus fill up below as well as above. Can it be that the distance the sap has to traverse through the main stem ere it reaches the branches is productive of good results? Perhaps in its passage it is relieved of much of its crudeness, and hence the trees are rendered more fruitful.—A. D.

INDOOR GARDEN.

TECOMA (BIGNONIA) RADICANS.

THE genus *Tecoma*, which now includes several species formerly known as *Bignonias*, furnishes us with some of the most beautiful climbers for the stove and greenhouse, and in the above-named species an excellent subject for a sheltered situation out-of-doors. *Tecoma radicans* is an old and long-established garden plant, having been introduced as early as the middle of the seventeenth century. Miller speaks of it in his "Dictionary" as a plant worthy of a place in gardens, and in the *Botanical Magazine* a figure appeared so early as 1799, along with which the following interesting remarks occur: "This deciduous climber is very hardy, and will mount to the summit of the highest tree or spread over the loftiest wall; hence it is

recommended by Miller for covering buildings which are unsightly. In the months of August and September it puts forth its rich, magnificent, trumpet-like flowers in bunches at the extremities of the pendent branches, producing the most charming effect imaginable. One of the finest specimens we know grows against the house of Dr. Leith, near the Hospital at Greenwich. There is also a very fine specimen of it in the Apothecaries' Garden at Chelsea, the stem of which is the thickness of one's wrist." Although, as here stated, this species is quite hardy in this country in sheltered positions, yet, unless it be in the extreme south, the flowers borne by plants growing out-of-doors are by no means nearly so numerous as they are on plants under glass. Yet in a light



Flowering spray of *Tecoma (Bignonia) radicans*.

sandy soil on a sheltered wall with a southern aspect it is a free flowerer, and if carefully pruned and kept clean it never fails to produce blossoms. Where such a situation cannot be had I would recommend indoor treatment for this species. For training round pillars, up walls, or growing along the rafters of a conservatory it is an excellent plant, and if the knife be freely used, cutting in the growth just as one would prune a Grape Vine, flowers will be furnished in abundance. Heavy pruning is essential to the free flowering of this plant. It is a native of N. America, between Florida and N. Carolina, where, in the woods or along the margins of forests, it is strikingly effective in the months of May and June.

This is the only *Tecoma* which can be recommended for outdoor cultivation, but there are others quite as beautiful which only need the shelter of an ordinary greenhouse. Of these, *T. jasminoides* is perhaps the finest of all. Although reputedly a shy bloomer, this plant may, by care-

ful treatment, be made to flower freely; and there are, indeed, few climbers that are more attractive than a well-blossomed specimen of this species. It requires cool treatment, plenty of light and air, abundance of water during the summer months, and it should be kept quite dry all through the winter. A little pruning, but not so much as that recommended for *T. radicans*, is good for this species. The flowers are white with a scarlet throat, and as large as those of a *Gloxinia*, to which they bear some resemblance. They are borne in large racemes at the ends of the young branches. It is an evergreen Australian species. Another handsome greenhouse kind is *T. capensis*. This would stand out-of-doors in a mild winter, but a severe and wet winter would prove fatal to it. The flowers are red, and borne in terminal racemes not unlike the inflorescence of an *Æschynanthus*. *T. australis* is another species well adapted for greenhouse culture. The flowers of this plant are rather smaller than those of *T. capensis*, but they are borne in such large compound racemes as to have a fine effect. They are ivory-white, with a purple blotch inside the tube. Also from Australia. B.

FINELY GROWN NERINES.

AMONG the finest floral sights that we have yet seen is one which we saw a few days ago in Baron Schroöder's garden at The Dell, Egham. It consisted of about sixty plants of the old *Nerine Fothergilli*, a South American bulbous plant, and a long established favourite in gardens, but for some unaccountable reason not much grown now-a-days. The plants at The Dell are arranged in one large mass, and the effect produced by the hundreds of flower-spikes thus assembled, each bearing a dense umbel of from a dozen to a score of brilliant vermilion blossoms, is striking in the extreme, and when seen in sunlight quite dazzling. For then the blossoms show a crystalline lustre, which heightens their brilliancy. The plants range from small specimens consisting of one bulb and one flower-spike to grand examples in 12-in. pots, bearing no fewer than a dozen and a half of pikes, and some measure 2 ft. across. As Mr. Ballantine (the gardener) is so successful in the culture of this beautiful plant, it may be well to add a few lines respecting his particular mode of treatment. There can be no doubt that the main secret of success lies in the principle he strictly adheres to of giving the plants a thorough rest after the annual growth is matured; consequently the bulbs become thoroughly ripened, and unless well-ripened bulbs can be obtained, a good crop of bloom must not be expected. This resting period commences as soon as the foliage has done its work, which is about May, and from that time till about the middle of September the plants do not receive a particle of moisture. They are placed on a wooden shelf in a brick pit, as near to the glass as possible, and the lights are kept on throughout the whole of the resting season, so as to prevent rain reaching the plants. Consequently during the summer the bulbs become literally baked, the soil becomes quite warm, and of course as dry as ashes, but abundance of ventilation is given by tilting the lights.

About the beginning of September the bulbs begin to develop flower-spikes, and when these are grown a few inches high, the pots are plunged in water tanks, so as to thoroughly saturate the soil; afterwards the spikes grow apace and soon unfold their umbels of blossoms, and the leaves

also about this time begin to spring from the bulb and they attain their full size about the middle of October, when the flowers are on the wane. From the time the plants are saturated until they are put aside for their resting season in May they receive abundance of water, and occasionally by way of a treat they get a dose of weak liquid manure; in short, the successful culture of the Nerine may be said to be one of feasting and starving, with an abrupt line of demarcation between the two. We notice, too, that Mr. Ballantine does not practise overpotting; his largest specimens have not been disturbed for years, and it is only when the plants are divided for increasing the stock that they are disturbed. In some instances the bulbs are so crowded as to appear to be on the top of each other, and sometimes even hang over the rims of the pots, yet each bulb is bearing a stout, strong spike surmounted by large clusters of bloom. As regards

The temperature in which the plants are grown little can be said. During summer it fluctuates according to the amount of sun-heat, but it is regulated by ventilation so as to prevent the frame becoming like an oven. During winter and spring only sufficient fire-heat is used to maintain a temperature above freezing. While the plants are in bloom, which is usually from the second week in September to the end of October, the plan here is to take them from the pit to a small span-roofed house where the bloom can be displayed to advantage, and this house is carefully ventilated and kept cool in order to preserve the flowers in good condition as long as possible. Such is the mode of treatment which this truly handsome plant receives in this establishment, and we should not have entered into its details so minutely did we not know full well that it is an ill-understood plant. As a rule one sees it dwindling out a useless existence in plant houses, treated as other plants are, watered like them throughout the year, no regard being paid to resting the bulbs; hence failure is the result. It is a plant readily increased by means of the bulblets produced yearly by the old bulbs. As an instance of this, some fifteen or sixteen years ago the late Mr. Sigismund Rucker (who grew it to perfection) gave a single bulb to Mr. Ballantine, who by good culture and skilful propagation has obtained in the interval the magnificent group of plants that are now the glory of the garden at The Dell. W. G.

FLOWER GARDEN.

TYPES OF HOLLYHOCKS.

In large gardens and in certain positions this stately autumn-flowering plant can be planted to produce effects which could not be obtained from any other flower, hardy or exotic. Parkinson describes many varieties of it, both single and double, and of almost as many colours as those we now have in Hollyhocks. It is singular that neither Gerard nor Parkinson could give the native country of the Hollyhock. It is said to have come from China, and was cultivated in England more than 300 years ago. No doubt the magnificent double varieties at present in cultivation are the descendants of those described by Gerard and Parkinson. In "An Hour with the Hollyhock" it is stated that one of the first to bring it up to its present standard of excellence was Mr. Charles Baron, of Walden, a shoemaker, who devoted all his spare time to its improvement. He did for the Hollyhock what Mr. Dodwell is now doing for the Picotee and Carnation. At that time there were two distinct strains of Hollyhocks, viz., the Saffron Walden strain, having flowers of medium

size with high centres and narrow guard petals, and what was called the Scotch strain, which had much larger flowers with smaller centres and broad guard petals. The principal raisers in the south who took up and carried on the work which the Walden shoemaker had begun were Messrs. Chater, Paul, Parsons, Bircham, and Roake. Downie and Laird, of Edinburgh, were also raisers and exhibitors of the Hollyhock then as now. Mr. Cossar, of Kings Meadows, and others also improved the Scotch strain. About this time another worker in the same line came to the fore, viz., Mr. John Laing, gardener to the Earl of Rosslyn, at Dysart. He crossed the Scotch and English strains together and infused fresh blood into both,



Type of double Hollyhock.

obtaining flowers far in advance of anything previously raised. Mr. Laing brought his best seedlings with him to Stanstead Park Nurseries, Forest Hill, and carried on the work there which he began in Scotland, but by-and-by that fell destroyer, the Hollyhock disease, appeared, and in a very short time swept off the work of years. In a few isolated situations some choice varieties were, however, spared, and I saw some stands exhibited last year and the year previous in the north of England which contained flowers of sterling merit. They were large in size, rich and varied in colour, and of the best quality.

Culture.—Hollyhocks are not quite so easily propagated as Dahlias, but with a little care and patience, cuttings and eyes root readily at any season of the year, and they may also be increased by root grafting. Let us begin now, say in October. Plants that have done flowering should be cut over, leaving attached to the root about 6 in.

of stem. Some fine day dig them up, and pot the choicest varieties, placing them in a cool pit or greenhouse; the others may be planted rather close together in a cold frame. During winter attend to picking off withered leaves and remove any decayed spots; water only when the plants really require it, and admit air freely, removing the lights entirely in fine weather. If the plants are examined early in the year, a number of growths will be found on each. These should be carefully removed close to the stem, with a little bit of heel attached to each. One cutting ought to be allowed to remain on the old stem; the others may be planted singly in sandy soil in 2½-in. pots, or they may be grafted on a bit of root from an old plant. They should be plunged in a little bottom heat in a forcing pit, and be carefully watered, as too much moisture will cause them to decay. The work of propagation may go on from the 1st of January to the end of March; the latest propagated plants will flower in September and October. Some may say, Why all this fuss with the culture of a hardy plant like the Hollyhock? The answer is, that stock cannot be obtained of the best named varieties in sufficient quantity in any other way. Ordinary border varieties may be dug up, the plants split down the middle, and again planted; but that mode of propagating cannot be recommended in the case of choice varieties. The plants being propagated in heat, it is necessary to inure them first to a cold frame and then to the open air, so that they may be planted out in rich, deep soil early in May. Put in the permanent supports firmly (they ought to stand at least 6 ft. out of the ground), then plant out against them, and to avoid accidents tie the plants to the stakes, finishing off by mulching with rotten manure to preserve the roots in an equable temperature and to retain moisture. It may be necessary to water them after planting, and that attention will at least be needed after dry weather sets in. The stems will speedily reach the tops of the stakes, to which they must be made secure as they advance in growth. All laterals must be removed, and the eyes, if inserted singly in small pots like the eyes of Vines, will soon form plants in a gentle hotbed, and from these the earliest flowering plants next season will be produced. If single blooms are wanted for exhibition it will be necessary both to thin out the flower buds and also to cut the tops off the spikes. If spikes are to be shown, then the cultivator should cut skilfully a portion off the top, managing it so that the flowers are nearly open at that part, and fully expanded at the base on the day of exhibition. A good exhibition spike should be 3 ft. long, and well furnished throughout with large semi-globular flowers. The single and double Dahlias have rather thrown Hollyhocks into the shade, but that cannot be for any length of time. The disease seems to be well-nigh stamped out, and we may yet in a few years have a Hollyhock exhibition similar to that held in the Surrey Zoological Gardens in 1854, when over 100 spikes besides cut blooms were shown. In the foregoing my remarks have been wholly confined to named varieties. It may, however, be well to state that Hollyhocks are very readily propagated from seeds. If sown as soon as ripe, the produce will flower the following season; or the seeds may be kept and sown in May, when they will flower much stronger, but then a season is lost.

The Hollyhock disease is a species of fungus named *Puccinia malvacearum*, which, if allowed to establish itself, is fatal to the plants thus affected. In its very early stages washing with a strong solution of soft soap and flowers of sulphur might check it. It is most destructive in dry seasons. I heard of one grower who got rid of it by a peculiar process. He made up a bed of leaves, and buried his infested Hollyhocks in it to a certain depth, with the result that growths which pushed through to the surface were healthy and free from fungus. Red spider is also very troublesome in hot weather. It may be kept off by syringing the undersides of the leaves, but if badly infested, soapy water, to which some tobacco liquor has been added, must be used to

destroy it. Thrips may be got rid of in the same way, or by fumigating when the plants are under glass.

Varieties.—The names of the best varieties at present in cultivation are Acme, peach colour; Carus Chater, reddish crimson; Cheer, deep pink; Cygnet, pure white; Cream of Roses, pale rose, extra fine; Edward Hine, rich dark crimson; Empress of India, white, with puce at the base of the petals; Favourite, pink; Frank Gibb Dougall, purple; Grace Darling, reddish salmon; Hercules, pale yellow, darker at the base of the petals; Lady Decies, buff; Lord Decies, crimson; Lord Salisbury, ruby-red; Maggie Bain, reddish rose; Merry, rosy pink; Mr. Sharp, carmine-rose; Miss Meiklam, light rose; Princess, orange-buff; Perfection, flesh; Queen of Yellows, clear yellow; Regalia, pinkish red; Sanspareil, red; Sir H. Hay, rosy crimson; The Ameer, dark crimson; Walden Queen, flesh; and William Thom, rosy crimson. J. DOUGLAS.

BEDDING VIOLAS.

No one class of plants possesses a more extended period of flowering than Violas. They commence to bloom in the earliest days of spring, and continue flowering in one unbroken chain till quite late in autumn. Many, indeed, flower all the winter when the weather is open and the position favourable. Many kinds, such, for instance, as True Blue, Yellow Dwarf, and others, possess the good property of blooming both early and late; and where it is convenient to plant two batches of these, one early in November and another in March or April, it will be found that they are seldom out of flower the whole year round. Roughly speaking, Violas adapt themselves to an almost endless variety of uses in the garden proper, where they may, in conjunction with Polyantheses, Daisies, Silenes, Cheiranthus alpinus, C. Marshalli, Primula denticulata, P. rosea, P. acaulis and its various double forms, Forget-me-nots, Hyacinths and Tulips, and many others, be utilised as spring bedding plants. As permanent bedding plants they are also equally valuable, either for massing in distinct colours, for planting in lines, in ribbon borders, or for edgings. Violas, in company with Calceolaria amplexicaulis and a sprinkle of Mignonette, make a good bed, while they might with advantage be arranged with equally good effect in many flower beds from which they are now excluded. Yellow Dwarf is worthy of special notice, being admirably adapted as a companion for the blue Lobelia. Most people who have gardens are anxious to obtain both early and late bloom, and as many kinds of Violas bloom much earlier and last considerably longer in flower than others, I shall confine my remarks specially to these. Commencing with

White-flowered kinds, Mrs. Gray and Lady Polwarth, both new varieties, raised by Mr. W. Dean, Walsall, near Birmingham, may be safely said to supersede all other whites in cultivation for purity and general excellence. The former is a decided acquisition, being a lovely snowy white, entirely free from markings. The latter is also a pure white self. With these the older kinds bear no comparison; the best among the latter are Purity, a profuse and continuous bloomer with few markings; Pilgrimage Park, a well-known variety, having large, conspicuous flowers with a few pencillings of violet-black, sturdy in habit, and an early bloomer; Champion, a very free and continuous bloomer with violet markings; Vestal, a well-known self, a very free flowerer and most useful variety; and Lady in White, a distinct and pleasing variety with flowers of a satiny white, and borne in profusion.

Yellow-flowered kinds.—Of these there are abundance. The old varieties are, however, of straggling habit, though very floriferous. Of these, Lutea grandiflora, Grievei, Golden Gem may be mentioned, but their growth is too rampant. Other and better kinds are Yellow Dwarf, previously alluded to, the best of all yellows, a deep canary-coloured self. In habit it is dense and compact, and the foliage almost hidden

by the flowers. Golden Queen of Spring, also a deep golden self, is likewise good both in colour and form; it is compact in habit, and a profuse bloomer. Yellow Beauty is of a pale pleasing shade, and has large, well-shaped flowers. The last named three have been raised by Mr. W. Dean from Queen of Spring, a good kind, but now surpassed by its offspring. Sovereign is of dwarf habit, and a free and continuous bloomer; colour golden, with a few lines of black. It seems to be a compact form of Golden Gem, though deeper in colour.

Blue also constitutes an extensive group, but as selection is my aim I shall only enumerate those which are most useful and distinct. Of these, True Blue is one of the best, being one mass of flowers from March till the end of September. Its habit is dwarf and compact, and the flowers equal in size those of the well-known Pansy Blue King, whilst it far eclipses that kind for general purposes. Tory, a well-known, free-flowering bedder, stands in the foremost rank. Holyrood also possesses good substance and form; colour, deep indigo-blue, with a dark blotch; this variety, though not so early in flower as many, makes an excellent summer and autumn bedder. Lord Darnley is a seedling from the last named, and a decided improvement, having deeper and richer coloured flowers. Forerunner, a deep violet-blue, has large bold flowers, which are freely produced; it is also notable among early flowered kinds. Royal Blue is an exceedingly free and useful kind, compact in habit, and remains long in perfection. Royal Visit may be said to be the most distinct; it is a deep violet self, having bold erect flowers of large size; it is, however, adapted only for spring and early summer bedding. Sir W. Scott deserves notice as producing very large flowers of a light violet-blue.

Lavender or mauve-coloured varieties are extremely beautiful, though not numerous; indeed, a wide field is still open for the seedling raiser in this direction. Mrs. Charles Turner, new, a very lovely mauve-purple, is dwarf and compact in habit, and a very free bloomer. Elegans, light lavender shaded with lilac, is also distinct and beautiful. Duchess of Sutherland, pale lavender, is very effective and compact in habit. Formosa, lavender-mauve, has a bold, erect habit and large flowers. Princess Teck, light lavender, is good and a free bloomer.

Crimson.—The approaches to this are particularly slow, and some time must necessarily elapse ere decided shades are forthcoming. One, however, exists, viz., Crimson Gem, a kind well worth attention. It may be well to state that there are two varieties under this name, the one worthless as compared with that just alluded to.

Fancy Violas.—These have their flowers more or less distinctly flaked, marbled, or blotched. Of this section, Countess of Kintore forms a beautiful example. In colour it is deep bluish purple with a broad bordering of white. Peach Blossom is another; it has a purplish crimson ground streaked irregularly with violet and white. Attraction, rich carmine, is good and distinct. Gem of Roses, lake, with yellow eye, is a distinct and pleasing novel shade. Among miscellaneous varieties may be mentioned Queen of Lilacs, a large, free-flowering, and compact-habited plant, a wonderful bloomer and an acquisition. Queen of Purples is a seedling from Cliveden Purple; it is rich in colour, more compact in habit than the type, and a very free bloomer. These all deserve a place amongst Violas of the best kind.

Bedding Violas which are required for flowering early in spring should be planted in October, or, at the latest, early in November, so as to enable them to make a fair start before winter sets in—a method preferable to spring planting, for should the weather continue open during November and December, they will make considerable headway. Their growth may also be assisted by stirring the surface on all favourable occasions, and filling up between the plants with a compost consisting of leaves, road grit, and burnt ashes from garden rubbish, or similar

material. Thus treated, by the end of the year they will have formed numerous shoots. The bases of the plants should be kept well covered with soil, and when the warm days of spring set in it will be found on examination that they will have from ten to twenty strong, sturdy shoots ready to push through the soil, so that a display of flowers is speedily forthcoming, and considerably earlier than on those planted in spring. Where Violas can be allowed to remain for two seasons undisturbed, they well repay it. When they are allowed to remain thus, they should be cut closely over in autumn after flowering, when they will be found to flower earlier than autumn-planted ones. E. JENKINS.

PINKS AND THEIR CULTURE.

ANOTHER "special" society is on the point of being formed, namely, one for the encouragement of the culture of the Pink, and I see no reason why there should not be one, as it is obvious that if growers of any particular plant wish it to become popularised, that can be best accomplished by means of a society formed for the purpose. Twenty-five or thirty years ago there were many Pink shows, for the flower was then a very popular one with florists. There is one great advantage connected with the Pink: it is an outdoor flower; that is to say, excepting when the "pipings" or cuttings are inserted under hand-glasses, in order to root them, the Pink does well in the open air. The old custom was to plant out the rooted cuttings into store beds for the summer, and then at the end of September or early in October the flowering beds were made up and also planted.

The preparation of the bed.—One grower that we knew thirty years ago, and who was a highly successful cultivator of the Pink, prepared his beds with great care. During the summer he would trench his beds two or three times at least 2 ft. deep. Then a month or so before planting time he would throw out 6 in. or so of the top soil, and in its place put in 3 in. of cow manure thrown together for a time, and this was forked in slightly so as to mix it with the surface mould; then the remainder of the surface was filled up with a compost made up of one part rotten cow manure, one part stiff loam, and one part good garden mould, with a sprinkling of sharp grit. It is invariably the plan to raise the bed 6 in. or so above the level of the surrounding ground, so that heavy rains may not remain in gatherings of moisture about the roots, but pass away owing to the natural drainage afforded.

Planting.—It has been recommended that the plants should be planted out in the bed 6 in. apart, but as the majority of Pinks now grown are vigorous in constitution, greater space should be allowed them. Some growers put two or three plants of a variety together, forming a kind of triangle, so that if one plant fails the variety should not be lost to the bed. The plants should be healthy and well rooted; they should be planted before November if possible, but if the plants cannot be placed in the blooming beds until spring, it would be best to secure good plants in autumn, pot them, and winter them in cold frames. During the winter the main duties of the grower will be to stir the surface soil when the weather is mild and drying, and to keep the bed free from weeds.

Spring treatment.—It is in the month of March that the Pink plants become active, much, however, depending upon the state of the weather; then the quickening influences of spring are felt, and it is very important that the surface soil be frequently stirred, &c.; by allowing the mould to become hard and encrusted with a greenish moss canker is liable to attack the Pink, and plants suffer and die. Unhealthy plants cannot produce fine blooms. It is at this season of the year that top-dressing is applied, in order to give the surface roots something to feed upon. An old grower thus described his mode of procedure: "My plan is to remove 1 in. of soil from around the plants, and in its place substitute a somewhat

larger quantity of partially decayed cow manure covering this up for the sake of appearance with a portion of the mould previously removed." This would now, perhaps, be regarded as over-stimulating, but cow manure was always a favourite ingredient in the soils of the old Pink growers. Some regulation of the growth of the plants is also necessary. Many of them, and especially the strong growers among them, will show more blooming shoots than they can develop consistent with the production of fine flowers, and any that may be regarded as superfluous should be removed as early as practicable. Should the weather prove dry, as it sometimes does in April, waterings will be necessary, and an occasional soaking with weak manure water will be found very acceptable. Early in May disbudding has to be done, which means the removal of superfluous buds round the main one in order that the principal flowers may be strengthened as much as possible. The earlier disbudding is done the better. But in order to disbud judiciously, a knowledge of the varieties is necessary, some requiring to be much more closely disbudded than others. And then comes the harvest of bloom dear to the heart of the grower, the rich reward of labour, and when good, always delightfully contemplated.

Definition of a good Pink.—Here we come on to debateable ground. A northern grower would thus define a perfect Pink: Let it consist of not less than four and not more than five rows of petals, which are round, broad, stout, and wholly free from serrature, and which have a gentle inclination to cupping, a looking upwards, the calyx being of sufficient length just to reach to and support the lowest row. Such a form of petal ensures roundness of the flower of course an essential property. Each succeeding tier of petals should be less in size as they gradually approach the centre, rising step by step above each other, and thus forming at length a symmetrical, round, and well-crowned flower in the form of half a round ball. The centre colour, whatever it may be, should be decided, clear, and distinct, and extend so far from the base of the petal as not to be hid by the petal above it, and in the whole flower constitute a rich eye. The white should also be unclouded and untinted by the ground centre colour or by the lacing, and should stand well out in relief. The lacing should be unbroken, and should extend in equal breadth round the petal, its colour, whether light or dark purple or red, being clear and decided; while beyond it, and occupying the extreme edge of the petal, should there be a pure white border or lacing of equal breadth, with the coloured lacing itself, and extending round the whole petal. A southern estimate of a flower would differ in very slight degree from this, but it would contain more petals, and the full petalled flowers favoured by the south are by many northern growers somewhat contemptuously termed "mops." Notwithstanding the fact that the area of the cultivation of the Pink has of late become somewhat restricted, it is satisfactory to know that the raising of seedlings has not been wholly neglected. We have heard of some seedling Pinks raised in the neighbourhood of Wolverhampton which are said to be of great merit. If a Pink show be held, some of these will be certain to come to the fore, and a due estimate of their characters can be formed. It is to be hoped such an exhibition will be held. Every quickening influence given to the cultivation of flowers is commendable, and deserving the support of florists.

R. DEAN.

Aconitum japonicum.—Among autumn-flowering perennials it cannot be said that those producing blue flowers are abundant, and it would be difficult to point to any whose blooms are of a richer blue than those of this Aconite, which comes into bloom very late in the season, but remains in good condition until the end of October or even later. The flowers when cut keep well in water; consequently they are useful for mixing with other flowers in glasses or vases. As its name implies, it is a native of Japan, but it is perfectly hardy, and will succeed in any description of soil;

probably, however, it does best in that of a light or of even a poor character. It is easily increased by division or by seeds, which it produces freely, and if this is sown as soon as it is ripe, or in a seed-pan placed in a frame, or on a slight hotbed in spring, the produce will flower freely during the autumn of the second year.—P. G.

OCTOBER FLOWERS IN CRAVEN.

PERHAPS some of your readers may like to know what flowers are now (October 6) in full beauty at this place, 400 ft. above the sea, in a wooded valley opening to the south, in the Craven district of North-west Yorkshire. Against the wall of the house *Loniceria sempervirens* has since May produced a profusion of its lovely scarlet tubes, and is still in great beauty. Below it are some low bushes of *Hydrangea paniculata* covered with large tufts of flowers. *Desmodium penduliflorum* is now just beginning to show its elegant crimson-lilac spikes, thrown up through a stout plant of *Aloysia citriodora*, which here stands the winter in the open air, and makes shoots of 4 ft. in length during the summer. *Loasa lateritia* scrambles up into a young plant of *Cupressus macrocarpa*, and throws its large, pendulous, orange flowers out on all sides. *Indigofera decora* has just shed its last flowers, whilst *Garrya elliptica* gives promise of an unusual quantity of its elegant tassels for Christmas. *Clematis Jackmani*, a cloud of dark purple flowers, contrasts admirably with the abundant bloom of *Eccremocarpus scaber*, which has this year made an enormous growth. A pale lilac *Clematis* (Mrs. Hope) reminds one in October of what its congeners were in June. Shrubby *Veronicas*, both pink and lilac, are throwing up their spikes. *Heliotrope* sheds its fragrance beneath tall spikes of *Galtonia candicans* and large masses of *Salvia patens*, whose intense blue is contrasted by scarlet and orange *Tigridias* (which have been remarkably fine this season) and tall crimson *Pentstemons*. *Salvia interrupta* has grown vigorously, but has not bloomed here. Under a fine plant of a *Juniper* raised from Crimean seed, and which is of a bluish tinge, are tufts of *Linaria reticulata*, with velvety orange flowers—one of the prettiest of recently introduced annuals. *Cosmos bipinnatifidus*, with feathery foliage, and *Bidens atrosanguinea*, with almost black flowers, bloom side by side with *Commelina celestis*, and the group is completed by tall *Lobelias*, *Xeranthemums*, *Helichrysums*, *Mimuli*, *Monardas*, *Fuchsias*, and *Anemone japonica*. I may add that we still have a few *Roses* against the wall, amidst whose long shoots *Lophospermum erubescens* and *Tropæolum canariense* struggle for supremacy. *Cryptomeria*, *Dacrydium Franklini*, and some young *Cypresses* dotted amidst the flowers add quite a charm to this border.

R. MILNE-REDHEAD.

Holden Clough, near Clitheroe.

PORTULACAS.

A FEW days ago I saw at Reading, in the Portland Road Nurseries of Messrs. Sutton and Sons, a truly wonderful bed of *Portulacas*. This was at the end of the last week in September, and although there had been a great deal of rain and much dull weather by day and cold at night, yet there were the plants as robust and healthy as at any period of the summer, and flowering with wonderful freedom. It matters but little that a storm of rain passes over the bed, destroying its beauty; only let the sun shine out brilliantly for an hour or two, and hundreds of blossoms leap up to open their richly-coloured petals. It is the practice to give names to the varieties of double and single *Portulacas*, but they afford but a small clue to the colours of the flowers. There are nearly a dozen distinct varieties of single forms, and six or eight of the double. Of the former there are white, pink, magenta, rose, crimson, primrose, golden yellow, &c., and a few of these are reproduced in a double character. I do not think double *Portulacas* as pretty as the single varieties, but then there are many persons who regard a double flower as a great im-

provement on a single one, and value it accordingly. When the blossoms of single flowers are fully expanded at mid-day they well repay inspection.

There is one good quality about *Portulacas*, and that is they form a dense, compact green growth which covers the ground on which they are growing. They really make a good covering for the bare spots where, on a dry soil and a sunny position, little else will grow. This is just the spot for these pretty plants. But we are told by catalogues that the seed requires to be raised in heat, and the plants transplanted to a sunny border. It is not at all necessary to raise in heat. Anyone who has grown *Portulacas* will find self-sown seedlings come up the following spring from seeds that have lain in the soil all the winter. This is proof that the seeds will germinate in the open ground. The best place to grow *Portulacas* is a warm, exposed, sunny border. It does not require to be rich. The best plan is to dig the border deeply in early spring, working in some leaf mould and road grit, or siftings from the potting bench, and then when dug it should be beaten down a little hard on the surface, the seed scattered thinly over it broadcast; or, if it is desired to have lines of colours, the seeds should be sown very thinly in drills, but as they are so small in both cases the plants will need thinning out to at least 6 in., and, indeed, 9 in. apart. The plant soon fills out and covers the intervening spaces. It is of the utmost advantage that the plants be not moved after being sown, and that is why it is that I so strongly recommend the seeds being sown in the open ground where they are to flower. One great advantage is that the plants cover the ground so much more quickly, and come into flower so much earlier in consequence. April is the best month in which to sow.

R. D.

WINTERING CANNAS.

MR. FALCONER asks (p. 244) for further information as to wintering *Canna* roots out of doors. *Cannas*, I may state, permanently planted in our public gardens, as, for example, at Battersea, are greatly superior to such as are annually transplanted. No matter how good the plants may be when put out in early summer, they cannot compare in autumn with the dense masses of foliage surmounted by really handsome flowers furnished by well established plants in beds in which the roots have been protected year after year by external coverings until the soil is filled with them. I have known *Cannas* to pass safely through the winter months with only a little leaf soil put over the crowns; in fact, last winter the old leaves had hardly ceased to grow before young growths were pushing up; very sturdy, too, they proved, and were far more satisfactory during the cool weather that lasted through June and the greater part of July than plants that had been wintered and brought on under glass. It makes one shudder to see tender plants put out in such a June as we experienced this year. It is asked what kinds we find to be so hardy. Well, all kinds, I believe, may be grown with success in this way; in fact, there is nothing new in the matter, for as long ago as the severe winter of 1866-7 beds of *Cannas* were protected out of doors in Battersea Park, and although the year 1867 was wretchedly ungenial, these beds were the admiration of everybody. They attained a height of 12 ft. and flowered profusely. My impression that *Cannas* would be suitable for the wild garden was founded on some clumps of various kinds which we had planted in semi-wild portions of the grounds where they withstood ordinary winters without any protection whatever, and no more fitting subjects could be found for beautifying semi-wild places than these beautiful fine-foliaged and flowering plants; they even retain their good looks after the majority of plants used in gardens are cut down by early frosts.

As regards the amount of protection necessary to exclude frost from the roots, I may assert that I have never known a winter during which it would have been impossible to keep them perfectly safe under a covering of about 1 ft. thick of dry

forest tree leaves covered with a few evergreen branches to keep them from being blown away; and in cases of exceptionally severe frosts extra coverings of litter could be added. As regards hardness, I should not like to test roots of *Cannas* any more severely than Potatoes or tubers of a similar character. We have, however, ample evidence that the latter will grow after being frozen in the soil and allowed to thaw gradually, but such roots will perish if exposed to the slightest frost when taken out of the ground owing to the suddenness of the change in temperature rather than from any inability to withstand cold. As many may feel doubtful as regards risking *Canna* roots out of doors, I may recapitulate that I do not think they run any risk at all under a covering of dry leaves. Under such treatment I should feel perfectly safe as regards my *Cannas* during the severest frosts we ever get, and in wild gardens the material for protection will always be at hand. Do not remove the old foliage until the young shoots push up in spring, as even when they droop down frost-bitten they materially aid in the protection of the roots.—J. GROOM, *Seafield, Gosport*.

IRIS SUSIANA.

THIS singularly showy Iris was introduced to this country from the Levant as long ago as 1596. It has generally been considered to be quite hardy, but on some soils and in some situations it does not succeed well. It has lately been recommended to winter it in frames, and to treat it as a tender or at all events as a half-hardy plant. I am inclined, however, to think that anything like codling will be found to be injurious rather than otherwise to this Iris. I have grown it for years and have never known it to be injured by the severity of the winters when grown on light land; while on heavy land or in a damp situation it is almost sure to get injured, if not killed. The best bed or clump of this plant I have seen is in the garden of a farmhouse near this town, where it has occupied the same spot for many years. I cannot ascertain how many, as the present occupant of the farm thinks that it was planted by his late father, but how long since he cannot tell. The treatment it receives is merely being left undisturbed, with the exception of occasionally taking up a plant or two of it to give to friends who happen to be attracted by its beauty during the early summer months, and it is but fair to say that those who thus receive plants of it have not always succeeded in growing them to their satisfaction. The spot which the plant has occupied so long, and in which it seldom fails to bloom freely, is light and, I should add, very poor land, and the situation is both high and dry.

Bury St. Edmunds.

P. G.

White Cactus Dahlia.—It is best to say without any hesitation that no white variety, or representative of *Dahlia Juarezi* at present exists in our gardens. No one who knows the Scarlet Cactus Dahlia would think of mistaking "White Constance" for a white form of it. *D. Juarezi* has sharp pointed revolute florets, while the so-called "White Juarezi" has involute florets—is in fact merely a double white Dahlia of the old florists' type without any connection with *D. Juarezi* whatever in structure or appearance. As a decorative flower "White Constance" will be most useful in a cut state, and is *per se* a "good thing," but if it is to be offered as a white variety of *D. Juarezi*, all who know how distinct that plant really is will be very much disappointed. We have recently had the old *Cosmos bipinnatus* or *C. diversifolius* called for the nonce a "Black Dahlia," and now "White Constance" is to be misnamed "White Cactus." I earnestly protest against this being done.—F. W. BURBRIDGE.

The Blue Salvia.—I often see this fine plant very feebly shown in good gardens, and ask why so good a thing does not get the attention it merits. But at Down House, near Blandford, the other day I saw it in fine flower and in quantity on the 6th day of October, the flowers very large,

and the general effect of various large beds of it handsome. The best beds were those that had been out for several years, getting a mulching of half-decayed manure every winter. *Salvia patens* in this way is virtually a hardy plant. Where there is any doubt of its thriving in this way in other districts it may be tried as a half-hardy plant, too, and thus secured for the flower garden.—V.

Hardy plants in bloom at Hurworth Grange, near Darlington:—

<i>Acaena Nova Zelandie</i>	<i>Helianthemum</i> (various)
<i>Gnothera macrocarpa</i>	<i>Hyacinthus candicans</i>
Youngi	<i>Linaria alpina</i>
<i>Asteriocephalus caucasicus</i>	" <i>Cymbalaria maxima</i>
<i>Aponogeton disachyon</i>	<i>Lilium auratum</i> (fine)
<i>Anemone japonica</i>	" <i>lanceifolium roseum</i>
" <i>rubra</i>	" <i>album</i>
<i>Astrantia major</i>	" <i>tigrinum</i>
<i>Aster Amellus major</i>	<i>Lobelia cardinalis</i>
" <i>longifolius</i> V. <i>formosus</i>	<i>Monarda didyma</i>
" <i>horizontalis</i>	" <i>hirsuta</i>
" <i>turbinellus</i>	<i>Montbretia Pottsi</i>
<i>Coreopsis grandiflora</i>	<i>Natrixaria inodora</i> fl. -pl.
" <i>tenuifolia</i>	<i>Oenothera coccinea</i>
<i>Chelone obliqua</i>	<i>Pyrola rotundifolia</i>
<i>Cyclamen hederifolium</i>	<i>Rudbeckia intermedia</i>
<i>Campanula</i> (various)	" <i>Newmani</i>
<i>Crocus nudiflorus</i>	<i>Scabiosa lucida</i>
" <i>speciosus</i>	<i>Sedum</i> (various)
<i>Erodium macradenium</i>	<i>Solidago stricta</i>
<i>Gaillardia grandiflora</i>	<i>Silphium laciniatum</i>
<i>Gentiana Saponaria</i>	<i>Statice latifolia</i>
<i>Geranium Endressi</i>	" <i>spathulata</i>
<i>Geum coccineum</i> fl. -pl.	<i>Sida malvaeflora</i>
" <i>c. grandiflorum</i>	<i>Tradescantia virginica</i>
<i>Houstonia cerulea</i> alba	<i>Tritomas</i>
<i>Helianthus rigidus</i>	

—J. SIMPSON.

Antirrhinums are by no means so difficult to manage as some would make us believe; indeed, elaborate directions for their culture are simply discouraging. I have here a grand bed of plants which bloomed early and finely nearly all through the summer. The seed was sown in a couple of shallow pans at the end of September, and when the seedlings were up the pans still were kept in a cold greenhouse through the winter till the beginning of March, when the plants were pricked out into a cold frame, and about the middle of April were transferred into the open ground, strong, and having plenty of roots. They began blooming at the end of June, and will flower till the end of the present month, having been relieved of their seed-spikes. Another sowing made this autumn from new seed will give exactly the same results next year. As our winters are somewhat treacherous it is well to treat both *Antirrhinums* and *Pentstemons* as annuals, though it is better to sow at the end of September than in the spring.—A. D.

Begonias out-of-doors.—The writer of a short note on this subject in THE GARDEN (p. 248) has certainly done injustice to these beautiful plants by saying that they are without merit. Now, our situation in the north (Penrith) is not a very tempting one for *Begonias*, but nevertheless such varieties as *Vesuvius*, *Etna*, *M. de Massange*, and others, are always one mass of bloom from June till cut down by frost. The *Begonia* makes one of the best of bedding plants, as wet weather does not hurt it. By sowing in January good plants can be obtained for bedding in June.—A. G.

— "A Lady" writing from the neighbourhood of Cobham sends us very good specimens of *Begonias* which have been flowering out of doors in the open ground from the beginning of June till now.

SHORT NOTES.—FLOWER.

Begonias.—Which is the best *Begonia* for bedding purposes?—J. H. Torquay.

Seeding Begonia (*C. W. Baynes*). One of the best white tuberous *Begonias* we have yet seen, the blooms being large and pure white. If the habit of growth is good and the plant is a free flowerer, it is indeed worth naming and propagating.

Viola and Auricula (*W. Warren*).—The former is a beautiful variety, much in the way of Duke of Perth, well worth propagating. The *Auricula* is also good, coming between the shaded alpine and laced section, and quite worth a name.

NOTES FROM THE EDINBURGH NURSERY SERIES.

MESSRS. DOWNIE AND LAIRD'S.

THE names of Downie & Laird are known throughout the realm and beyond it by their work in connection with the improvement of hardy florists' flowers. We expected to see these grown extensively and in perfection, and we were not disappointed, but we hardly anticipated finding such an array of glass as this firm possesses at their West Coates Nursery, their headquarters. Here they have a crowd of glass houses on a comparatively small area, and in order to economise space the houses for the most part are built over the packing, potting, and other sheds, which are slightly heated in consequence. This is a capital arrangement, in a sense, as the sheds are not seen by the visitor and the nursery is more compact.

The winter garden.—The principal house is the capacious winter garden, which has a lengthy frontage to the main road, and, being lofty and ornate in character, it has a fine appearance externally. It is one of the finest structures we have yet seen in a nursery, but, like all other houses of a similar character, it is more adapted for a "show house" than a plant-growing structure; indeed the main object of building it was to afford a pleasant resort to the Edinburgh folks, especially in winter. It is not too much crowded with stages and other impedimenta; therefore, there is ample room for promenading in a genial temperature. It is occupied by large growing plants planted out for the most part, and a selection has been made of plants that flower in winter and early spring, such as *Camellias*, *Azaleas*, *Acacias*, *Rhododendrons*, &c. These, interspersed with *Palms*, *Ferns*, and other fine foliaged plants, make a charming display when in bloom. The side benches give room for crowds of pot plants, which are repeatedly changed, so as to maintain a bright display. The roof and pillars are draped with twiners and creepers, and baskets of trailers are plentifully hung about the place. Contiguous with the main building are smaller houses, including a fernery planted in a natural style, which has a pleasing effect. The numerous small houses teem with a varied assortment of plants, chiefly those most useful for indoor decoration and for cutting from, and for the latter purpose there are housefuls of the common Maiden-hair grown specially. Among other

Ferns, of which there is a particularly fine collection, we noticed Mr. Bause's latest novelty, *Adiantum Victoriae*, which is thought highly of on account of its dwarf tufted habit of growth, and its large and bold fronds of such a beautiful tone of green. It is so distinct from any other Maiden-hair, that it may be singled out at a glance. Another handsome Maiden-hair was *A. Williamsi*, a large growing species with finely cut spreading fronds, which in a young state are covered with a golden farina similar to that of *Gymnogramma*. As a stove Fern there are few, if any, to equal this Maiden-hair, and it should always be one of even a small selection. That rare Fern, *Lomaria l'herminieri*, we also saw here. It is a dwarf species with almost simple fronds, the chief beauty of which is their rich carmine hue when in a young state, and in contrast to the dark green of the mature fronds is very striking. Associated with it was the extremely handsome *Polypodium appendiculatum*, which has long pinnate fronds exquisitely veined with crimson on a metallic green ground.

Palms are grown abundantly for decoration, particularly the small growing kinds which can be raised readily from seed. For example, one sees quantities of such elegant little species as *Cocos Weddelliana* and the *Kentias*, especially *K. Belmoreana*, than which there could scarcely be a more perfectly plant for a vase. *Calamus ciliaris*, also a most elegant Palm, but not much grown, is also in the collection. It has broad pinnate arching leaves of a pale green, covered with a dense pubescence. The commoner types of decorative plants, such as *Dracenas*, *Crotons*, *Ficus*, are,

of course, indispensable in a large furnishing trade.

Pelargoniums of the zonal class were, at the date of our visit (second week in September), a great feature, and one house entirely filled with large flowering plants bearing huge trusses was only to be compared with the bright displays one sees all the year round at the Swanley Nurseries. A numerous collection of varieties is kept, including the best of the new, but a few varieties found to be the best predominate. The rich, dark crimson *Henri Jacobi*, with big, dense trusses, seems to be a favourite everywhere, and deservedly so, as it is one of the best of zonals. Among the double Ivy-leaved varieties, which are likewise grown largely for cutting from, we made note of the beautiful *Eurydice*, which has fine trusses of very double blossoms of a rich magenta-purple. Though there are several newer sorts, it is still one of the best, and when tied to a pillar and trained pyramidally there are few prettier objects.

Belladonna and *Scarborough Lilies*, *Eucharis* and *Tuberose* are found indispensable for September bloom, and good use is seemingly made of the new double *Tropæolum Hermine Grashoff*, which here bears a profusion of its bright scarlet rosette-like blossoms. A large houseful of *Lapageria*, both the red and white varieties, is among the chief points of interest in the nursery, and the plants are grown and propagated uncommonly well. Of course there is the usual quantum of hard-wooded plants, such as *Heaths*, *Epacris*, *Azaleas*, and with regard to the latter, large quantities are home-grown, and are said to turn out remarkably fine, as good as the imported plants from Belgium.

The Pink Hill Nursery, about a mile or so from the West Coates Nursery, is where most of the florists' flowers—the great speciality of the firm—are cultivated by the thousand. The nursery occupies high ground, sloping to the south and overlooking a wide extent of country, with the Pentland Hills as a background. On this warm slope, on a generous soil, open-air flowers attain great perfection, and almost throughout the year the grounds are lit up with the blooms of some tribe or other. At the date of our visit in the second week in September there was a gay display of *Dahlias*, *Pentstemons*, *Hollyhocks*, *Phloxes*, and other things, including the stragglers among *Violas*, *Pansies*, *Carnations*, and the like.

The Dahlias were remarkably fine, particularly the doubles, the show, fancy, and bouquet varieties, all of which are cultivated on an extensive scale. Rarely have we seen such fine masses of show *Dahlias*, and whether fancy or not we thought that the plants were of more compact growth and more floriferous than we are wont to see them in the south. The growth does not seem so rank; consequently the flowers stand out boldly and are seen to the best advantage. Mr. Downie assured us that their practice is not to manure heavily, so that may account for sturdy growth and floriferousness; and as to the size and quality of the blooms, those who saw the fine collections of blooms at the Edinburgh show can testify on that point; and we measured one at the nursery (one of the biggest) and found it to be 8½ in. across. The bouquet or Liliputian class are deservedly popular in the north for they make a great show in a garden, and they bear such sheaves of bloom as to be an almost inexhaustible source of cut flowers for many weeks, and they last a long time in perfection in a cut state. Since the Germans have taken this class of *Dahlias* in hand with regard to its improvement, we have a great diversity of colours in almost every conceivable shade, and by selection they have given us some compact-habited sorts yielding a wonderful crop of bloom. The single *Dahlias*, too, are grown extensively, but somehow or other they do not seem to do so well in the north as about London, and, compared with the doubles in this nursery, they made a poor show. We doubt if ever the taste for the singles will become the "rage" in Scotch gardens as they are at the present time in southern, pretty and

elegant as they are in a cut state. The almost entire absence of them at the late big show was conspicuous, more especially as all classes of doubles were shown so numerous and so finely.

Phloxes are, of course, one of the main features of the nursery, and a brilliant show they make; and though we had to see them on a pouring wet day, their beauty did not seem to be impaired thereby, and the succeeding fine day soon put them in good trim again. Prominence is given to the later flowering section, but the early or suffruticosa section is made much of, as they are so valuable for making a show before the later sorts bloom, though they are not so fine. We should much like to see the effect of the large breadths of these and other florists' flowers at this nursery in the height of the season, which must be fine indeed. A large breadth of *Hollyhocks*, with towering spikes, carrying a yard or so of rosette-like blooms, is as fine a sight as one could wish, and both the flowering and the young plants look as healthy as possible this season, and quite free from the disease which was so rife in this nursery a few years since.

Pansies and Violas are of course grown in enormous quantities, but there are but a few stragglers in bloom, one of the finest being *Countess of Kintore*, which may be best described as an improved *Magpie*, being larger, the markings more pronounced, and, what is more important, it retains its markings till late in the season, while *Magpie*, on the other hand, is liable to become self-coloured. In the crowds of houses adjoining all kinds of hardy florists' flowers are propagated by the thousand, and just at this season every house is full of cuttings in various stages of growth. Another class of plants that is largely grown here is *Indian Rhododendrons*, of which there are some large bushes, from which are propagated quantities of plants. Of the finer varieties of ordinary *Rhododendrons*, too, there are some grand specimens, which in spring must be an exhibition in themselves. These are the plants that one hears so much about at the springs shows in Edinburgh, to the attractiveness of which they so largely contribute. Great attention is paid to *Vine* culture, and a house is filled with all the leading varieties, from which eyes for propagation are obtained. There is in the collection a new variety called *John Downie*, which has every promise of developing into a first-rate late black Grape. It is in the way of *Gros Colmar*, quite as fine, and finishes much better and more certainly. It was not ripe when we saw it, so that we cannot speak of its flavour. There is quite room enough for a first-rate Grape of the *Gros Colmar* stamp if it be what gardeners call "a good doer." Other parts of this nursery are occupied with the usual run of ornamental trees and shrubs, and at another large nursery a large area is devoted to the rearing of forest trees, fruit trees, and the like. W. G.

ABERCORN NURSERY.

THIS is at Piershill, on the east side of Edinburgh. It is some three acres in extent, and entirely devoted to hardy flowering plants, with the exception of a few ornamental Conifers and some shrubs. A broad walk runs through the centre of the nursery, skirted on each side with broad borders filled with herbaceous plants. Among these in flower just now are such conspicuous plants as *Inula Hookeri*, *Helenium autumnale*, and the handsome *Helianthus multiflorus*, *Pyrethrum uliginosum*, *Rudbeckia purpurea* and *R. Newmanii*, *Arnebia echioides* (the Prophet's flower), all of which are showy enough for any garden. The various species of hardy *Asters* make a fine display, the most showy being *A. azureus* and *A. longifolius*, both good plants. The three forms of *Anemone japonica* are very showy, the whole being lighted up with *Gladioli* planted in clumps, so as to have about half-a-dozen spikes in each. These borders are so arranged that they will have flowers at every season of the year. At the end of this walk another walk intersects the entire breadth of the ground below, from which it is divided by parallel rows of

Gooseberries, with fruit trees every 20 ft.; the space between these rows is about 12 yds. wide and some 40 yds. in length, and is entirely devoted to growing popular plants for market, such as *Pansies*, of which there are no fewer than 10,000 seedlings, which, when in flower, make a grand floral display, besides *Wall-flowers*, *Polyanthus*, *Carnations*, *Pinks*, and *Daisies*, for which there is a great demand in Edinburgh. On borders beneath the shelter of a high wall are growing all kinds of spring flowers, such as *Hepaticas*, *Trilliums*, *Orchis foliosa* and *O. maculata superba*, *Primula denticulata* and its varieties *cashmeriana*, *purpurea*, &c., and a distinct handsome kind named *P. Henryi*. On the east side is a long border 100 yards in length, devoted to the dwarf growing or alpine herbaceous plants. Planted in rows across the border here are still in flower the various kinds of dwarf *Campanulas*, such as *C. isophylla alba*, *C. Hendersoni*, *C. garganica alba*, *C. muralis*, *C. rotundifolia alba*, the white *Bluebell* in fine showy tufts, also such good things as *Oenothera riparia*, *Vittadenia triloba*, *Calceolaria sulphurea splendens*, *Pentstemon heterophyllus*, a neat growing species with *Gentian* blue flowers, &c. On the opposite border, along with beds of all the leading kinds of bedding *Violas* and *Pansies*, were masses of *Matricaria inodora* fl.-pl. found very useful for cutting, and a fine double white variety of *Pyrethrum Parthenium*, which is considered even preferable to the *Matricaria* for cutting. A large space is devoted to the early flowering *Chrysanthemums*. About twelve hundred of these are now in flower, and are one of the leading features of the nursery. The most conspicuous are *Golden Gem*, a clear yellow, very free flowerer, as is also *White Queen*. *Adrastis*, though later, is also a very useful sort. *Illustration* is another light variety, which is extensively grown. *Mdme. de Grange*, just coming into flower, has large lemon-white flowers, which change to pure white under glass, and is a very distinct useful sort. Of these *Chrysanthemums* from eighty to a hundred dozen bunches are sent to market every week during September and October.

Alpines.—The rarer and choicer alpines are grown in pots and plunged in ashes, and exposed to the sun. They are carefully watered during the hot months of June and July, after which they generally look after themselves, and being in ashes are quickly drained of any superfluous water. Such choice things as *Androsace lactea*, *villosa*, *brigantica major*, *lanuginosa*, and *Chamæjasme*, *Houstonia cœrulea* and *cœrulea alba*, *Hemiphragma heterophyllum*, with its scarlet berries, *Sheffieldia repens*, *Epilobium obcordatum*, *Gentiana verna*, *G. ornata*, *Soldanella minima alba*, *Erysimum pumilum*, different species of *Dianthus*, &c. All the *Primulas* are planted in made-up beds with wood edgings, so as to raise them above the level of the paths, and, like the alpines, attended to with water during the hot months, are in excellent health. Even *P. minima* is making neat rosettes in this way. *P. Lindsayi* is a strong, vigorous hybrid, and a very free grower. *P. nivea* and *P. marginata* and various others are thriving under this treatment.

The glass, consisting of seven plant houses of various sizes, is nearly all devoted to the cultivation of Ferns, *Pelargoniums*, *Fuchsias*, &c.; these are sent to the Edinburgh market. In one of these houses is a quantity of *Begonia Listeri*, a beautiful new species with palmate foliage of a rich bronzy green copiously spotted with white; such a handsome plant as this deserves to be widely known. The walls surrounding the nursery are covered with *Tea Roses*, principally *Gloire de Dijon*, and nowhere else about Edinburgh is such quantities of these to be seen, and at all seasons they find a ready market and command remunerative prices.

Roses (M.).—*Tea Roses* in a temperature of 50° would continue to flower all the winter. Hybrid *Perpetuals* would do but little good, requiring a lower night and rather a warmer day temperature to enable them to break and grow after their necessarily closer pruning.—G. P.

JUDGING.

FROM the frequent expressions of dissatisfaction one reads concerning the judging of horticultural exhibits at the different shows, either much misapprehension exists on the subject among exhibitors or judges fail in their duties at times. The complaints of the judging at Edinburgh, for example, are strong, and I notice that even in the reports of the show in the various horticultural papers where the awards of the judges are not actually called in question, the praise bestowed upon some of the collections that were not first prize winners is of a kind to lead anyone to think that the first prizes did not at least contain the best examples. Anything which tends to promote fair play and justice in such matters would no doubt be welcomed by exhibitors, and I here beg to submit what I call "a judge's table," which if used in the way suggested would, I believe, do something towards promoting that end. The advantages claimed for the table are that it enables and compels the judges to furnish a detailed account of the reasons of their awards in each case, confines them strictly to the essential points, puts the inexperienced man at once in the right way of doing his work, and is accurate and just; while the exhibitor and the general public can also see and understand at a glance why any prize is given or withheld, and are also able to see for themselves whether any particular

The accompanying table is only suggestive, and might probably be improved. The title-heads of the columns might be altered according to circumstances, and the maximum number of points allowed would have to be decided first, but three for the highest will usually be found enough. The table could easily be printed on the prize cards, and it would be the duty of the secretary to enter the points in the columns as they proceeded from the judge's "form" or notes, which should be preserved for future reference if necessary. Such a table would be instructive to many a young gardener, because it would show every particular point of excellence or inferiority, and it would often lead him to a more correct conclusion on the subject than he would be likely to arrive at in any other way. It is after all only a common sense plan, and very similar to the "mark system" on which examinations for scholarships at schools are conducted. Surely it is reasonable when an exhibitor wins or is beaten that he should know the reason why, and not be left, as he has been left hitherto, to guess at it, without being allowed to ask.

J. S. W.

HORTICULTURAL BUILDINGS PAST AND PRESENT.

It seems to me that the time has arrived at which we may form a fair estimate of the value of the horticultural buildings of the past and those of

ten years after that. This is no exceptional case, as plenty of parallel ones might be adduced. The only explanation is that our predecessors were content to pay a fair price for a good article. The condition of the old houses to which I have alluded is such that they strike one as if they were built to last as long as good materials and good workmanship could make them. That they have fulfilled their mission I have had good reason to believe, seeing that they now stand sound and strong after more than half a century's wear and tear, while their near neighbours, built less than fifteen years ago, are getting out of form and the rafters so unsafe, that the painter is actually afraid to get on the roof to do the necessary repairs.

In another garden some miles distant is another range of houses of a new kind, and at first somewhat promising, embracing as they did some new features besides being cheap, but the end was not equal to the beginning, for in a few years the mainstays of the buildings had got so much out of order, that it was considered cheaper to pull them down and to build better class houses in their place than to repair them. I might go on enumerating cases of this kind that have come under my notice, but as it is the common experience of most people no useful purpose would be served. I have no right or wish to find fault with those who prefer cheap houses to better class structures, but there may be those who would be glad to know which is the better plan to adopt; and if my experience is of any service to them, I say most emphatically that it will be the cheapest in the end to build well, that is to say, have good material and good workmanship.

J. C. C.

TABLE OF POINTS.—COLLECTION OF SIX KINDS OF FRUIT.

	Grapes.				Pines.			Melons.		Peaches.		Necta- rines.		Figs.		Plums.		Pears.		Total No. of points.	
	Size of Bunch.	Size of Berry.	Colour.	Flavour.	Size.	Symmetry.	Finish.	Size.	Quality.	Size.	Quality.	Size.	Quality.	Size.	Quality.	Size.	Quality.	Size.	Quality.		
A	2	1	3	3	—	2	2	3	1	2	3	1	2	—	—	2	2	—	—	29	2nd prize.
B	1	3	2	1	2	1	—	1	3	3	1	2	2	—	—	—	—	2	2	26	3rd prize.
C	3	2	2	2	3	2	2	3	2	2	3	2	2	2	3	—	—	—	—	35	1st prize.

Note.—Points below par not to receive any marks.

claim has been well weighed or not. I daresay no person who has been in the habit of attending shows has failed being struck with the fact that the awards of the jurors are often a mystery to the great majority of people, and even to gardeners. All that they see is that So-and-so has got the prize; but unless the lines are very broadly drawn indeed, they do not know why So-and-so has got it, and it is scarcely allowable even at some shows for the exhibitor to ask. A judge would think himself insulted if he was questioned, and would probably appeal to the secretary for protection from his questioner if he happened to be very importunate. The horticultural judges court is the only one that is conducted with closed doors, and in which the parties most interested are prohibited from knowing or asking anything about their affairs. Many have appealed, but nothing, we believe, ever came of an appeal. Such a state of things would not be tolerated for one moment in any other concerns of life, and would simply be laughed at by a clear legal and judicial mind. The case is just this: two or three men, whom nobody perhaps knows anything about or of their fitness for the task, are set to adjudicate upon the interests of quite a multitude of people whose heart is in their work, and who have to abide by their verdict, whether it be right or wrong, and which they have no means of influencing before or altering afterwards. I submit that this is a state of things calling for a change. It is not enough to say that, as a rule, justice is done, and which may be true, but we doubt it when one considers the multitude of shows held throughout the country. Perhaps we cannot reach perfect accuracy and justice in all cases, but we should try to do so, and there are many good men who have expressed the opinion that if the judges were compelled simply to particularise in black and white the reasons of their awards they would at least be much more particular and careful in their work.

the present in regard to their relative value as durable structures, and I am further of opinion that all who are any way interested in this matter would do well to consider it on broad commercial principles. In estimating the value of glass structures in existence before the commencement of the present half century, I do not maintain that in design and utility they were better than those of the present day, but in durability I say they were much superior; and this fact established, I think it is a matter that should be seriously considered by those who are interested in horticultural buildings. I do not mean to say that there are not sound, substantial houses built at the present time, but compared with the number erected they are comparatively insignificant. The present run on cheap houses is, I am satisfied, a great mistake, a fact which I can prove by statistics. I lately saw in a large garden houses that were erected fifty years ago and others not more than fifteen years ago, and on comparing the present condition of the two the difference between them was almost incredible. Yet they have all alike been well cared for; that is to say, they have been regularly painted when necessary. Although there is a difference of thirty-five years between the two as regards the time of building, it is plain to the most superficial observer that the old houses are in far better condition than the new ones, which have only been erected fifteen years.

Respecting the cost of the two sets of houses, old and new, both of which are exactly of one size, and making allowance for the extra cost of glass fifty years ago and the increased cost of labour of recent years, there is about £17 in favour of the new houses; but although there is this difference in the first outlay, the new houses cannot possibly last longer than another ten or twelve years, while according to the present condition of the old ones they will be at the time when the new ones are worn out still in fairly good condition, and will probably last another five or

ten years after that. This is no exceptional case, as plenty of parallel ones might be adduced. The only explanation is that our predecessors were content to pay a fair price for a good article. The condition of the old houses to which I have alluded is such that they strike one as if they were built to last as long as good materials and good workmanship could make them. That they have fulfilled their mission I have had good reason to believe, seeing that they now stand sound and strong after more than half a century's wear and tear, while their near neighbours, built less than fifteen years ago, are getting out of form and the rafters so unsafe, that the painter is actually afraid to get on the roof to do the necessary repairs.

KITCHEN GARDEN.

POTATO SPORTS.

"A. D." seems unwilling to admit that a sport from a Potato can either be permanent or an advantage, but he practically admits the fact by suggesting that Messrs. Sharpe's Duke of Albany is but the white form of Beauty of Hebron, for that well-known firm are not likely to have risked their reputation by renewing an old Potato; but if Duke of Albany be a white sport from Beauty of Hebron, there can be no objection to its being so named, and it certainly does not depreciate its value; but upon the principle of calling a spade a spade, I call White Beauty of Hebron White Beauty of Hebron, although "A. D." seems to find fault with me for so doing. There is a precedent in Red Emperor and White Emperor, the one being, I believe, a tolerably permanent sport from the other. I have not tried Duke of Albany, but although I noted it at the International Show as a good-looking Potato, it did not strike me as having either the Beauty of Hebron form or appearance; but that there is a permanent white sport from Beauty of Hebron, time will show. From what I have seen of Potatoes I have no reason to think that bud sports from them differ from those of other plants in permanency, some being permanent and others not so. As regards the advantage of white over coloured sorts, "A. D." alleges that it is prejudice only against colour, and that it is chiefly in the London markets that this prejudice exists. I am afraid, however, that from the country mansion to the meanest dining house in town this prejudice exists, and that the London markets are not the only ones which are influenced by it, as the same difference in value exists both in the great midland and northern markets. I did not allege that more encouragement was given by Potato societies to coloured than to white Potatoes, but I complain that too much consideration is shown to colour. At the International Show coloured sorts predominated. On referring to the schedules of the International and Northamptonshire Potato Societies it will be seen that prizes of equal value and in equal number were offered for coloured and white sorts, whilst at the latter show, out of forty-six entries for the seedling prizes, thirty-seven were for white, and nine only for coloured sorts, and

would seem from this that raisers are beginning to appreciate the wants of consumers; undoubtedly there are plenty of good coloured as well as good white sorts, but so long as the demand is for white it is desirable that the wish should be gratified. The Potato of the future will have to be white and of good quality as well as a good producer; but, above all, it must be able to withstand the disease, and ripen earlier than either *Magnum Bonum* or *Champion*. "A. D." estimates the quality of *Magnum Bonum* as good, and implies that it is not to be got largely in the London markets. As to the quality of *Magnum Bonum* and *Champion*, there are different opinions, but I should not have expected to hear of any difficulty in getting *Magnums* in quantity in London, as from what I observed and gathered from large growers and buyers, I am inclined to think there have been more of that one variety grown in England during the past season than all others put together, and in reply to an observation I made the other day to a grower, that Mr. Clarke the raiser of *Magnum Bonum*, deserved the thanks of the civilised world, he said "it would have been better if Mr. Clarke had never been born, as he had entirely upset the trade"—most valuable testimony I thought in justification of my views, although it was not intended. Mr. Clarke has done more than make two blades of grass grow instead of one: he has doubled the amount of produce of an important article of food for millions of his fellows; accordingly deserves material recognition from others besides his gardening friends. The next generation will probably appreciate Mr. Clarke's services better than the present one.

Bedford.

T. LAXTON.

AUTUMN AND SPRING PLANTED POTATOES.

A CORRESPONDENT of the *Times* says, last year you allowed correspondents to record their testimony as to the comparative results of autumn and spring planted Potatoes. My experience that year being different from many others, inasmuch as it showed a slight advantage in favour of spring planting, I have experimented again this season, and the results are as follows: Last November I planted twenty-four sets of Sutton's *Magnum Bonum* 9 in. deep, 2 ft. apart in the row, and 1 yard distance between the rows; in March last I planted twenty-four other sets close by the others, at the usual depth, but otherwise under exactly similar conditions; and now that I have dug them up I have 110 lbs. of Potatoes from the autumn-sown as against 116 lbs. from the spring-planted, so that now, for the second year, I have found a slight advantage in the later planted ones, and in this district (Byfield) at any rate it will not be worth while to attempt autumn planting again. I should add that many of the autumn-planted Potatoes turned out to be very rough and awkward-shaped; whereas those put in in the spring were all evenly formed and smooth.

Another correspondent adds: "In the middle of October last year I planted in my garden a quarter of a peck of *Magnum Bonum*, depositing the sets 8 in. below the surface of the soil with a ridge of soil about 10 in. on each side, which, no doubt, acted as a shelter. The manure used was common farmyard. It was at a protracted period in the spring that the shoots appeared, but they showed most vigorously. In the last week of August I took up the Potatoes with the following remarkable return, viz., two bushels and one peck, the tubers being large and entirely free from disease. The winter of 1881-2 was one of exceptional mildness, and on that account this test of autumn planting, though satisfactory as regards results, must not be considered as conclusive in its favour. The Potatoes were not quite matured, and I regret that I did not leave them in the ground a fortnight longer."

Mummy Peas.—Some thirty years ago I remember my father growing some Mummy Peas in his garden at Stourbridge; he only had a few given him, and their cropping properties were considered to be excellent.—T. H., West Bromwich.

NOTES OF THE WEEK.

OSBORN'S NURSERIES.—We learn that the well-known nursery, so long the property of this firm at Fulham, has passed into the hands of Messrs. J. Veitch & Sons, of Chelsea. The property was put up at £6000, and after twenty-two subsequent biddings it was at last sold for £10,000. The New Hampton estate belonging to the firm realised £1500; that at Sunbury was bought in, the reserve price being £5600.

ORNITHOGALUM ARABICUM.—In the note accompanying the woodcut of this plant in *THE GARDEN* (p. 249) we stated that the fine truss of bloom figured was from the Hale Farm Nursery, Tottenham, whereas it was received from Mr. C. Smith, Caledonian Nursery, Guernsey, who grows it extensively.

DISTRIBUTION OF PLANTS.—The Commissioners of Her Majesty's Works and Public Buildings intend to distribute, as usual, this autumn among the working classes and the poor of London the surplus bedding plants in Battersea, Hyde, Regent's, and Victoria Parks, and in the Royal Gardens, Kew, and the pleasure-gardens Hampton Court. If the clergy, school committees, and others interested will make application to the superintendent of the park nearest to their respective parishes, or to the director of the Royal Gardens, Kew, or to the superintendent of Hampton Court Gardens, in the cases of those persons residing in those neighbourhoods, they will receive early intimation of the number of plants that can be allotted to each applicant and of the time and manner of their distribution.

NEW AMERICAN TUBEROSE (the Diamond).—This plant is described by the well known Lyons florist, Jean Sisley, in the last issue of the *Revue Horticole*, as having been obtained by a Kentucky florist (from the older variety known as the Pearl), who sold the stock of it to the firm of Nanz & Neuner, of Louisville. The flowers are said to be of the purest white and far superior to those of its parent in every way, especially for commercial purposes. Its habit is said to be dwarf, not exceeding 18 in. in height, and the flower-spikes to be stout and upright, each bearing from twenty to thirty fully double flowers quite close together, as represented in a well executed woodcut on p. 429 of the *Revue*. It is also said to succeed admirably when cultivated in pots, and to be well suited for forcing. It is to be distributed this autumn by M. H. Neuner, of Berg-Stuttgart.—W. E. G.

PLANT LABELS.—On Tuesday last Mr. Shirley Hibberd gave a lecture at South Kensington respecting the merits of some of the plant labels lately sent to the Society of Arts in competition for the prize offered by Mr. G. F. Wilson. The lecturer began by saying the object of the prize was to obtain a cheap, durable, and legible label for plants, but in none of those exhibited were all these qualities combined. Speaking of temporary labels used by nurserymen, he considered the best to be those made of thick paper, and better still if the name of the firm were imprinted on the back. Parchment labels were objectionable, as they were so liable to curl if exposed a short time to rain. Respecting the merits of the label to which the prize was awarded this year, the lecturer said that it had decidedly bad qualities, inasmuch as two patented materials were needed before the perfect label could be produced, and it also lacked that rigidity which was so necessary to a good label. He afterwards discussed the respective merits of glass, metal, and paper as materials for label making. Glass was objectionable, as it was so liable to breakage in a garden, unless well protected, and then the label becomes expensive. Printed paper labels also require efficient protection from the weather. One of his own design consisted of printed paper attached to strips of metal, preferably Bessemer steel, and the face of the paper being thoroughly sized and coated thickly with copal varnish. Such a label was comparatively cheap, very durable, and readily altered.

Waterproof paper labels were useful, the lecturer said, but in course of time acquired a shabby appearance. He spoke highly of a label made from a compound of zinc and antimony, the name of the plant being cast in a mould with the oblong plate; the latter is then firmly soldered to metal legs, which could be of various lengths. The "Acme" label, too, was considered by the lecturer to be as near perfection as any he knew, as it was neat, legible, and indestructible. Strips of zinc with the name written with chloride of platinum were likewise very durable and commendable. Samples of wood labels made of common deal were shown by Mr. G. F. Wilson, which had been boiled in paraffin (the solid form, not paraffin oil, as so called). These are said to be very lasting and to combine all the advantages of the simplicity of the common wood labels.

A NEW TIGRIDIA (T. grandiflora alba).—This is described by Mons. E. A. Carrière in the last issue of the *Revue Horticole* as a very beautiful plant, raised and recently sent out by M. Hennequin, of Angers, France. In habit and general aspect it is said to be similar to the older variety *T. conchiflora*, from which it seems to have sprung. Its flowers are large, of a dead or pearly-white colour, marked at the base of each division with large spots of a reddish brown or chestnut colour on a yellowish ground, forming a fine contrast with the white of the petals. The style column is of a bright yellow, of the form of a long hollow sheath, terminated by three mottled plates enclosing the style within them. This should be quite an acquisition to our summer borders and a good companion for the already known and admired varieties of this showy family.—W. E. G.

At a meeting of the Horticultural Club, Ashley's Hotel, Henrietta Street, Covent Garden, held last Tuesday night, an excellent portrait of Mr. John Lee, the chairman, was uncovered. It was subscribed for by the members of the club, and suspended in the room as a mark of the high esteem in which Mr. Lee is held by a large circle of friends.

SOCIETIES.

ROYAL HORTICULTURAL. OCTOBER 10.

A BRIGHTER display than that which filled the Council room at South Kensington, on Tuesday last, has seldom been seen at an October meeting. Seasonable flowers, such as Dahlias, were abundantly represented, and we scarcely knew which to admire most, the Dahlias or the Roses from the Waltham Cross Nurseries, of which there was really a grand collection, remarkably fine for October. This collection, placed in a mass at one end of the room, contrasted strangely with flowers of a true autumnal character and with Chrysanthemums, of which a small collection was shown as a sort of preliminary to the Chrysanthemum season now at hand. A few collections of choice plants of quieter hues toned down the brilliancy of the Dahlias, and in the vestibule some exceptionally fine and full collections of Apples and Pears were shown by Messrs. Veitch and others.

CERTIFICATES.—Both committees seemed to be somewhat lavish with these on this occasion, for no fewer than thirty were awarded by the floral and two by the fruit committee. To the following plants first class certificates were awarded, viz.:—

MORMODES UNICOLOR.—A handsome Mexican Orchid, a variety of the better-known *M. pardinum*, but differing from it in colour, which is a bright uniform yellow. It has stout erect pseudobulbs about 1 ft. high, and the flower-spikes, about 2 ft. long, are produced from the base of the current season's growth. The flowers, which are singularly formed, are arranged in a crowded raceme about 1 ft. long, and they possess a delicious aromatic fragrance. Messrs. J. Veitch & Sons, Royal Exotic Nursery, Chelsea.

RHODODENDRON SIR GARNET WOLSELEY.—A magnificent variety of the Javanese section, the

finest yet produced. It bears a large truss of bloom terminating the stem and surrounded by foliage. The individual flowers, which are over 3 in. across, are symmetrical in outline and of a soft pale orange-red hue, suffused with a deeper tone. It is quite a new departure as regards the size of the flowers. Shown by the raisers, Messrs. Veitch.

CYPRIPEDIUM ARTHURIANUM.—A hybrid Lady's Slipper, a cross between *C. insignis* and *C. Fairrianum*. The offspring is quite intermediate, the features of each parent being plainly discerned in the flower. The size is not altered from *C. insignis*, but there is less white on the dorsal sepal, while the lateral sepals are deflexed, wavy at the edges, and the whole flower is suffused with the purplish hue of *Fairrie's* plant. Messrs. Veitch.

RHODODENDRON SIR BEAUCHAMP SEYMOUR.—Another Javanese or greenhouse variety, not so fine in flower as the preceding, but the colour is delicate and uncommon, being a pale yellow, suffused with red, and that of the tuft of projecting stamens bright red, making a pleasing contrast. As regards form of flower it is perfect. Messrs. Veitch.

ORNITHOGALUM THYRSOIDES.—A handsome bulbous plant in the way of the commoner and almost hardy *O. arabicum*. It consists of a tuft of broad leaves, from the centre of which springs the stout erect flower-stem, about a foot high, terminated by a dense cluster of flowers, which as it grows becomes pyramidal. The blossoms are an inch or more across, pure white, with dark centre. A valuable greenhouse plant for this season, and easily grown. Mr. Robert Veitch, Exeter.

CROTON EYREI.—An extremely elegant variety stated to be a hybrid between *C. majesticus* and *C. Johannis*. The leaves are long and narrow, variegated with green and bright yellow, the latter preponderating. They recurve in a graceful way, and there is a twist in the leaves which adds to their elegance. It apparently colours highly in a small state, and is an invaluable vase plant. Shown by the raiser, Mr. Ross, gardener at Welford Park, Newbury.

ROSE EARL OF PEMBROKE.—A beautiful new variety possessing all the characters of a first-rate exhibition flower, being large and full, good in substance, and of a rich solid tone of crimson of various depths spread over the whole flower. Exhibited by the raiser, Mr. Bennett, of Shepperton (formerly of Stapleford), who showed some fine blooms of it, having regard to the lateness of the season.

PERNETTYA MUCRONATA varieties *CARNEA NANA*, *ALBA*, *SANGUINEA*, *NIGRA MAJOR*, *PURPUREA*, and *MACROCARPA*.—These six varieties were chosen for certificates from among a dozen or so of seedlings sent by Mr. L. F. Davis, Ogles Grove Nursery, Hillsborough, Co. Down. The names are sufficiently expressive as regards the colours of the berries of the plants to which they relate. These *Pernettyas* are all exceedingly pretty shrubs when in fruit, particularly those of decided colours, such as the white, red, and deep crimson-berried sorts.

PENTSTEMON MRS. MCFARLANE.—As regards size of spike and flower, as well as form, this is, we consider, an ideal florist's flower. The colour is a rich reddish purple, shaded with white towards the rim of the corolla, while the throat is deep claret, colours which make this variety pleasing and attractive. Messrs. Cannell & Sons, Swanley.

DAHLIA DUCHESS OF ALBANY.—A fancy variety, with large symmetrical blooms about 6 in. across, with shell-like florets arranged as perfectly as could be. The colour is a warm orange-yellow, streaked and spotted with crimson. Mr. Turner, Royal Nurseries, Slough.

DAHLIAS (single).—**MRS. GOLDRING**, an unusually large flower, with broad, overlapping florets of a beautiful rose-pink colour, delicately shaded with purple; **MRS. BURBRIDGE**, a rather small flower, but with flat symmetrically arranged florets of a deep rich maroon; **CHERRY**, a very pretty variety of a beautiful cherry-rose colour, deepen-

ing towards the centre; **WHITE STAR**, similar to *White Green*, but smaller, whiter, and more circular, and borne more erect; **PANTALON**, a small flower with pale pink florets, distinctly edged with crimson and tipped with white, a strangely pretty sort; **FRANCIS FELL**, rich carmine-purple, shading off to a deeper tint towards the centre. These were all exhibited by Mr. T. S. Ware, Hale Farm Nursery, Tottenham.

DAHLIAS (single).—**YELLOW GEM**, a rather small variety, with broad, overlapping florets arranged in a circle, and of a clear canary yellow; **TYRO**, a lovely variety, with flat florets of a bright red-purple, deepening towards the centre; **MARGUERITE**, with flat overlapping florets, arranged symmetrically, colour deep shaded purple, a beautiful variety. All from Messrs. Cannell.

DAHLIAS (Bouquet).—**NYPHE**, with small globular flowers; colour, buff yellow, tipped with a deeper tone and freely produced; **LITTLE DUCHESS**, a pretty variety with a rich lilac colour tipped with crimson; **LITTLE PRINCESS**, a shade or so lighter than the preceding; and **ISABEL**, a brilliant variety, the colour being a vivid vermilion-scarlet. All raised and shown by Mr. Turner.

DAHLIA HARRISON WEIR.—A show variety, perfection in point of size and shape, and of a beautiful clear yellow colour. Exhibited by Messrs. Rawlings, Romford.

DAHLIA CONSTANCE, called the *White Cactus Dahlia*.—Though devoid of the peculiar appearance of *D. Juarezi*, the flowers are large, made up of a mass of pure white florets loosely arranged, much less formal than in a show variety. It will be particularly valuable for floral decoration as it lasts much longer than the singles in a cut state, and it is said to be extremely floriferous. Messrs. Cannell and Sons.

CUPRESSUS LAWSONIANA ERECTA ALBA.—A form of this variable conifer possessing an erect habit of growth, and having a whitish grey tinge all over the plant. Mr. L. F. Davis.

PHALENOPSIS ESMERALDA.—A botanical certificate was awarded to this species, shown by Mr. B. S. Williams, Victoria and Paradise Nurseries, Upper Holloway. It has small flowers produced on tall slender spikes varying from pale pink to deep carmine-purple colour.

Dahlias, as we before remarked, were the leading feature, and certainly they were all remarkably fine, and every section was represented, show, fancy, bouquet, and single. The latter class, being the most popular for the time being, were especially numerous, there being three large collections, each containing a large percentage of new named seedlings from which the committee selected those named above. The display from Swanley was an extensive and bright one, consisting chiefly of singles, of which Messrs. Cannell appear to possess an exceptionally rich collection. Among them were several decidedly new colours, and those named *Buffalo*, deep buff-yellow; *Mr. Cannell*, very dark crimson; *Mr. Douglas*, very large maroon flower; *Mr. G. Smith*, *Arabi Pasha*, *Brilliant*, *Paragon*, we thought were the finest; some forms, too, of the *gracilis* section were conspicuous, especially one called *Perfecta*, which seems to be the best of the set. *D. Juarezi*, the *Cactus Dahlia*, *D. Mercki*, and *D. glabrata* were shown beautifully; likewise a new double sort with variegated foliage, and a sort of a vinous purple flower. The showy scarlet border variety called *Glare* of the Garden was the brightest of all. Some gigantic double *Sunflowers*, seedling *Pentstemons*, and seedling *Begonias* made a fine display from this nursery.

Mr. Ware had on the opposite side of the room a large collection of single *Dahlias*, representing the cream of the thousands of plants he grows at Tottenham. Nearly all were new varieties, either new in colour or specially commendable for size or form. From this collection, apart from those certificated, we singled out the following as being the best and most distinct from older kinds: *Lucy Ireland*, *Warrior*, *Walter Ware*, *Darkness*, *Single Zinnia*, *Cuprea*, *Thalia*, *Violet*, *Canary*, *Avalanche*, *Beacon*, *Mauve Queen*, and *Mr. Can-*

nell. The singularly attractive *D. Zimapani*, or rather *Cosmos diversifolia*, with its almost black flowers, was also shown.

Mr. Turner had a small, but very select set of show and fancy varieties, representing, we imagine, the pick of his collection. A capital selection of *Liliputian* or *Bouquet* varieties, among which those named *Peacemaker*, *Cupid*, *The Khe-dive*, *Mabel*, *Isabel*, *Coquette*, *Garnet*, and *Gem* were the most noteworthy besides those certificated. There were also a dozen varieties of singles set up extremely tastefully in large bunches in a way to show the flowers to advantage, but not too formal. As this dozen were all good, we give the names: *Yellow Queen*, *Apollo*, *Mauve Queen*, *Crusoe*, *Canary Bird*, *Gracilis*, *Perfecta*, *The Baron*, *Paragon*, *Alba*, and *Beauty of Pembroke*.

Messrs. Rawlings, of Romford, who have long made *Dahlias* their speciality, had an excellent collection of the best show and fancy varieties, as well as a large one of *Bouquet* and *Liliputian* sorts. A beautiful single variety called *Indiana*, of a rich Indian colour, and of good size and form, was sent by Mr. Green, Sir George Macleay's gardener at Pendell Court, Bletchingley, and to whom a vote of thanks was accorded.

ROSES in October so good and fine as those from Mr. W. Paul's nursery at Waltham Cross is not a common occurrence, but of course it must be borne in mind that these hundreds of blooms were gathered from a collection of thousands of plants in the open air. It was interesting to observe how much finer some sorts were than others, particularly among the *Hybrid Perpetuals*. Among the finest were *Captain Christy*, *Fishie Baumann*, *Elie Morel*, *Pride of Waltham*, *Fisher Holmes*, *Auguste Rigotard*, *Constantin Fretiakoff*, *Miss Hassard*, *Alfred Colomb*, *Comtesse Serenye*, *Star of Waltham*, *Lady Sheffield*, *Duke of Teck*, *Princess Beatrice*, *Boule de Neige*, *Boildien*, *Baroness Rothschild*, *Mabel Morrison*, and *Wilhelm Koelle*, a new variety in the way of *Alfred Colomb*. All these appear to be capital autumn bloomers at Waltham Cross. Among Teas the best were the new *Madame Barthélemy Levet*, a beautiful rich yellow flower, set off by dark foliage; *Belle Lyonnaise*, *Gloire de Dijon*, *Safrano*, *Marie Van Houtte*, and *Madame Berard*. This fine collection, which numbered some ten large boxes of single and treble trusses, was deservedly awarded a medal.

In order apparently to give a little variety to the meeting, Mr. B. S. Williams sent a choice group of October flowering *Orchids*, whose beautiful colour and elegant forms were a relief from the brilliancy of the *Dahlias*. Among them were *Dendrobium superbiens*, *Zygopetalum Clayi*, one of the finest of the genus; *Odontoglossum madrense*, a chaste and deliciously-scented *Orchid*; *O. Alexandræ*, representing the finest forms; *O. tripudians*, *Pleione Wallichii*, one of the "*Indian Crocuses*," a charming *Orchid*; *Cypripedium barbatum biflorum*, one of the finest varieties of this *Lady's Slipper*; and *Amaryllis* *Mrs. Garfield*, a lovely autumn flowering variety, a hybrid from *A. reticulata*.

In Messrs. Veitch's group there was a large panful of small plants of the new and beautiful *Balsam* (*Impatiens Sultani*), which promises to become one of the most valuable winter-flowering plants for the stove or warm greenhouse. There was also in the group the new *Cypripedium cardinale* mentioned last week; *Spathoglottis Fortunei*, a pretty *Hong-Kong Orchid* with yellow blossoms; and a new *Chrysanthemum* called *Mrs. Cullingford*, an early variety with a profusion of white or blush tinted blossoms.

A beautiful group of *Orchids* was sent by Messrs. Heath from their nurseries at Cheltenham. It was composed chiefly of *Burmese Orchids*. There were some dozens of plants of *Dendrobium formosum giganteum*, with flowers about 4 in. across, of snowy whiteness, and in contrast with these was an extremely fine variety of *Vanda cœrulea*, one of the best we have seen. The flowers were over 4 in. across, and of a rich blue faintly chequered with a paler tint. The spike bore nine flowers, and, as may be imagined, was a fine object.

The group also comprised fine flowering specimens of *Oncidium ornithorhynchum* and the Burmese variety of *Saccolabium Blumei*.

A new hybrid *Begonia* called *Smithi* was shown by the raiser, Mr. Smith, Oakfield, Wimbledon. It is a cross between *B. Schmidtii* and *B. semperflorens*, and it bears the prevailing characters of each in a striking degree. It is taller than either, the stems have the red tinge of *B. Schmidtii*, the leaves are ciliated at the edges as in that species, and the flowers are as white as in *semperflorens*, and produced as profusely as they are in the other parent. It will no doubt prove a valuable winter flowering plant, a proof of which could be had if the exhibitor would show the same plant a month or two hence.

Two finely grown and profusely flowered specimens in pots of *Pyrethrum uliginosum* were sent by Messrs. Carter, from their nursery at Forest Hill. This handsome Composite is usually seen in the open border, but lifted, potted, and placed in a conservatory it would be a fine object before *Chrysanthemums* come in. The same exhibitor sent a *Croton* called *Bealei*, which promises to be a handsome variety, but it was not at its best. A huge *Gymnogramma* bearing the name of *G. Sparyana* was sent by Mr. Spary, of Brighton. It bore a dense mass of golden fronds from 3 ft. to 5 ft. long.

Messrs. Dixon, Hackney, again showed plants of their handsome new Gold Fern with crested fronds, called *Gymnogramma Laucheana grandiceps*, and also about a dozen new sorts of Japanese *Chrysanthemums*, among which were *Chinaman* (very fine), *George Gordon*, *François Delaux*, *Mad. Bouchariat*, all of which were particularly fine. A vote of thanks was accorded.

A few good *Crotons* were among the seedlings sent up by Mr. Ross from Welford Park, Newbury, but as they were under number, we cannot particularise them. They all appear to have been obtained by intercrossing—*C. Johannis*, *majesticus*, and *Wiesmanni*. Colonel Clarke showed a tuberous *Begonia* named *Aurora*, with orange-red flowers, freely produced on spreading branches, and a vote of thanks was accorded to him.

Some extremely fine *Coleuses* were exhibited by Mr. King, Rowsham, Aylesbury, who pays a deal of attention to raising new varieties, and who has brought the *Coleus* to a high state of perfection.

The group of seedling *Pernettyas* exhibited by Mr. Davis all the way from County Down was a great source of attraction, as seldom, if ever, have they been shown to such perfection and in such variety, there being no fewer than fifteen distinct named kinds, all differing in the colour of their berries. Besides those certificated there were nine others, named *purpurea macrocarpa*, *atrosanguinea major*, *rosea lilacina*, *rosea macrocarpa*, *rosea purpurea*, *coccinea*, *lilacina*, *angustifolia*, and the original form of *P. mucronata*, from which all these forms have been raised. It would be difficult to over-estimate the value of the beautiful dwarf evergreen shrubs for the winter embellishment of gardens, for they are so hardy and neat in growth, and they retain their brightly-coloured berries so long. Mr. Davis also exhibited several varieties of *Cupressus Lawsoniana*, named respectively *gracilis*, *aurea*, *erecta viridis*, *erecta alba*, and *erecta viridis glauca*, all distinct and handsome.

A large and well grown and profusely-flowered collection of Gesneraceous plants was sent by Mr. Barron from the society's gardens at Chiswick, and they won a fair share of admirers.

FRUIT AND VEGETABLES.—There was an unusually large display of Apples and Pears. The whole of one side of the vestibule was taken up by an extensive collection consisting of some 200 dishes, representing nearly as many varieties, all grown on the Paradise stock in Messrs. Veitch's fruit tree nursery at Southfields, Fulham. The majority of the fruits shown were uncommonly fine, some sorts in particular being larger than is usually seen—*King of the Pippins*, *Blenheim Orange*, *Mère de Menage*, *Cox's Pomona*, *Cellini*, *Pott's Seedling*, *Emperor Alexander*, *Betty Geeson*,

Lady Henniker, *Manks Codlin*, and *Warner's King* being the most prominent sorts. To this fine collection a silver Knightian medal was appropriately awarded.

A fine collection of about eighty dishes of Apples and some thirty sorts of Pears came from Messrs. Lane, of Berkhamstead, among which their handsome *Prince Albert Apple* was particularly noteworthy. A bronze medal was awarded, and a similar recognition was voted to Mr. Goldsmith for a collection of about sixty kinds of Pears, among which were fine specimens of *Brockworth Park*, *Doyenné Boussoch*, and *Pitmaston Duchess* sorts, which seemingly attain perfection at *Hollanden, Tonbridge*.

A vote of thanks was accorded to Mr. Bridgeman, Thames Bank, Marlow, for about two dozen dishes of Apples and Pears, which included such fine sorts as *Lady Henniker*, *Cox's Pomona*, *Manks Codlin*, *Betty Geeson*, and *Frogmore Prolific Apples*. From Great Marlow also the Rev. Canon Smith sent a few samples of his produce of Apples, among which were some of the largest *Lord Suffield* that we have ever seen. *Manks Codlin* and *Frogmore Prolific* were also uncommonly fine. Mr. Gilbert, Burghley, Stamford, exhibited excellent bunches of *Gros Colmar*, *Black Alicante*, and *Gros Maroc* Grapes, the latter variety being remarkable for the thick surface of bloom on the black oval shaped berries.

Messrs. Veitch showed examples of *Curled Kohl Rabi*, which is not only an excellent esculent, but a handsome foliaged plant.

Some excellent Cucumbers were shown. Mr. Pettigrew, Cardiff Castle, sent a dozen fruits of the Cardiff Castle variety, which were remarkable for evenness of size (about 15 in. long), but the committee considered them deficient in flavour. Another sort, called *Challenger*, from Mr. Howe, Benham Park, Newbury, was represented by about half-a-dozen fruits about 2 ft. long and of good appearance. The same exhibitor also sent a small fruit of *Eclipse Melon*, a green-fleshed sort; and Mr. Perkins, Thornham Hall, also sent a Melon, a large oval green-fleshed variety.

Mr. Laxton sent from Girtford two dishes of *Scarlet Runner Beans* called *Girtford Giant* and *The Czar*, both large podded sorts.

First-class certificates were awarded to

MELON BURGHLEY PET, a large, round fruit, with thick, tender green flesh of a most exquisite aromatic flavour, and very juicy. It is said to be a cross between the sorts *Netted Victory* and *Dickson's Exquisite*. Shown by Mr. Gilbert, Burghley.

APPLE LANDSBERGER REINETTE, a large handsome fruit in the way of *Manks Codlin*, but larger and more angular. The colour is a pale yellow, rosy on exposed side. It is said to be excellent in every way. Exhibited by Mr. Taylor, gardener to Mr. J. McIntosh, Duneevan, Weybridge.

SPECIAL PRIZES.—The prizes offered by Messrs. Hooper & Co., of Covent Garden, for Potatoes were competed for on this occasion. In each of the classes there was a good competition, and the tubers were on the whole of high quality, and exemplified well the varieties for which the prizes were awarded. For nine tubers of *Queen of the Valley*, a large flat red kidney, the first prize (one guinea) was taken by Mr. J. Hughes, Eydon Hall, Byfield; the second (half a guinea), by Mr. J. Hill, Durward, Witham, Essex. Mr. C. Howard, Bridge, Canterbury, won the first prize for the heaviest tuber, which weighed 1 lb. 9 oz. Mr. Lloyd, Brookwood, was second with a tuber 1 lb. 7½ oz. in weight. Some half dozen others were shown, all of which were over a pound weight. For the best dish of the *Adirondack* variety, Mr. J. Hughes, Eydon Hall, Byfield, was first, and Mr. Howard was second.

Gilpin's "Forest Scenery."—Messrs. Sampson, Low & Co. are about to publish a cheap edition of the illustrated re-issue of this work, edited with notes, bringing it up to date, by Mr. F. G. Heath. It is a curious fact that the existence of the third edition of "Forest Scenery," which was revised by Gilpin himself, and which

forms the text of Mr. Heath's reprint, was unknown to Sir T. D. Lauder, first editor of this work, and there is no copy of it even in the British Museum.

Plants and trees at Battle Abbey.

When visiting the gardens at Battle Abbey recently, the Sussex residence of the Duke of Cleveland, I was struck with the many choice things growing in a long border there; many climbers protected by the abutments of a high wall, part of the ruins of the old abbey, were growing in great luxuriance. Here *Mandevilla suaveolens* grows and flowers freely, and evidently enjoys the protection thus afforded. *Habrothamnus elegans* was making robust growth; though not in flower, it gave fair promise of giving a good return in that way shortly. *Ampelopsis Veitchi* was nearly covering one of the towers of the castle; this will soon be very brilliant. *Stauntonia latifolia* has also reached large dimensions, and is perfecting many of its singular seed-pods. *Fuchsias* also grow to a large size against these old walls, whilst in the border in front of these climbers were *Tritonia aurea* in masses, flowering most abundantly. *Agapanthus umbellatus*, which stands out here all the winter, was also covered with bloom, as was also *Salvia patens*. In the vaults at the back of this old wall Mushrooms are grown with great success. No better place for them could be desired, and *Seakale* likewise does well under similar circumstances. In the grounds, and near the edge of the Lily pond, some large stools of *Pampas Grass* were throwing up quantities of spikes, which when in full beauty must be strikingly effective, such a characteristic position being chosen for them. Of *Cedars of Lebanon* there are some grand specimens in robust health; somewhat under the protection of these was also a fine plant of *Dicksonia antarctica* turned out in the open ground, and destined to remain in that position through the coming winter by way of experiment. —J. H. G.

Seedling Single Dahlias (M. & Co.).—Your seedlings, amongst which are some strikingly bright colours, are all worth cultivating, but we doubt if they are distinct from named kinds already in cultivation.

Leaf variation in Beeches (W. H. M.).—The specimens of *Beech* you send, with various forms of leaves, are uncommon, but a similar instance occurs in *Castanea vesca*.

Gorse.—I am anxious to get some Gorse to grow well, to cover a bank which is at present quite bare. Will anyone kindly tell me whether this is the best month in which to plant it, and what preparation I should give the ground? The bank at present is composed of very little else but limestone. E. M. N.

Names of Potatoes.—*G. Bloxholme*.—1, *Radstock Beauty*; 2, *Bressee's Prolific*; 3, apparently *King of Potatoes*; 4, the largest tuber resembles *Climax*; the other two tubers resemble *Porter's Excelsior*.

Names of fruits.—*G. Carpenter*.—1, *Hanwell Souring*; 2, *Mère de Menage*; 3, *Small's Admirable* probably; 4, *Hoary Morning*.—*C. Cundy*.—We are unable to name Apples from single specimens only.—*W. Johnson*.—1, not recognised; 2, *Small's Admirable*; 3, (Pear) *Beurré d'Amanlis*; 4, *Brownlee's Russet*; 5, *Rhode Island Greening*; 6, *Egg or Paradise*.

Names of plants.—*U. Fernie*.—*Cornelian Cherry* (*Cornus mascula*).—*G. F.*.—*Rudbeckia speciosa*, or, as it is generally called, *R. Newmanti*; *Harpalum rigidum* is a much larger and taller plant.—*Mac*.—1, *Polypodium Dryopteris*; 2, *Cystopteris fragilis*.—*Z. O. & Co.*—*Physalis Alkekengi*.—*H. Wilkinson*.—*Asclepias curassavica* (red flower), *Gesnera o longata*.—*Barr & Son*.—Apparently *Ampelopsis japonica*.—*Sanguinea*.—*Chrysanthemum segetum*.—*M. L. D.*—*Begonia Martiana*.

COMMUNICATIONS RECEIVED.

P. W. P. G.—J. C. C.—W. T.—H. H. D'O.—A. M.—G. S. S.—R. M.—W. E. G.—D. T.—A. D.—Max.—L.—J. A. C.—J. S. W.—J. D.—B.—T. C.—J. A.—G. S. S.—J. G.—T. B.—J. C. C.—D. T. F.—Rose grower.—J. C.—Alpha.—J. E. H.—J. G.—R. A. T.—L. H.—W. H. M.—W. R.—W. L.—E. H. W.—W. G.—L. H.—A. D.—D. W.—A. K.—W. C.—W. W.—J. D.—Mac.—H. W.—W. P. R.—K. & Co.—G. F.—H. N.—F. G. H.—R. D.—C. R. S.—D. R. J.—L. P.—H. N.—E. C.—W. J.—W. J. M.—J. H.—J. S. & Sons.—J. W. H. P.—Cambridge.—W. J. M.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

THE CEDAR AS AN ORNAMENTAL TREE.

AT Park Place, Henley-on-Thames, there are some very handsome Cedar trees on the lawn and in the surrounding park ground. On the occasion of a recent visit there my attention was specially directed to one of the more recent of these trees, growing in what was formerly a hedgerow. A question arose as to what might be the age of such a tree. It was immediately remarked that a labourer was still employed on the estate when the tree in question was planted. Richard Burfoot was sent for, and interrogated as to what he remembered about the tree. He replied that he knew all about it, for he was just eight or nine years of age when his father planted the tree; that it was 6 ft. or 7 ft. in height when planted; that it stood three or four years before it began to move, and then "he did grow a lot."

I then had the tree measured, and at a foot or more from the ground the circumference was 12 ft. 6 in., and at 32 ft. from the ground the stem measured 5 ft. 6 in. in circumference. There was no ready appliance at hand by which the exact height of the tree could be ascertained, but it is near enough the truth to say the height was 48 ft. or 50 ft.

It will be seen that, according to the statement of my informant, the tree was planted in 1820, making the age now sixty-two; but bearing in mind that the tree was 6 ft. or 7 ft. in height when planted, it will be fair to reckon the actual age seventy. It will be noticed that this gives an average annual growth of 12 in. within a fraction, and that, too, extending over a period of seventy years, with a stem growth of 4 ft. diameter near the ground, and all but 2 ft. diameter at 30 ft. in height.

I would not have ventured to enlarge upon this matter with so much minuteness of detail but in the hope that it might in some measure tend to counteract the commonly accepted belief that the Cedar is a very slow growing tree. It ought to be repeated again and again that the Cedar is one of our very hardest trees, of more than average rapid growth, and will thrive in any soil or climate wherever other common hardy trees will live and grow. As an ornamental tree the Cedar unites the grand with the picturesque in a manner unequalled by any other tree in Great Britain. It may be safely asserted that a handsome Cedar is always an object of interest and general admiration, and yet with all this the unhappy and mistaken notion that it is a tree of slow growth has hitherto proved a constant hindrance to its general use. ROBERT MARNOCK.

AN ARCHITECT'S LANDSCAPE WORK.

WHEN in Scotland the other day I visited the new hydropathic establishment lately erected on the banks of the Tweed, near the picturesque town of Peebles, and was charmed with the building and large conservatory, but the garden is most disappointing, being laid out contrary to all the principles of good taste. The building stands on a commanding eminence, and far away on all sides may be seen some of Scotland's finest hills, forming a stately framework to a lovely picture,

consisting of meadow valleys, forests, and streams, but before the eye can rest fully and contentedly on these it is attracted by a contemptible series of little grassy banks which slope from the farthest side of the gravel road in front of the house to a compass-and-rule-made bit of pleasure ground. From this point another bank leads down to the vegetable garden. In looking from the principal windows the first things that catch the eye are two or three paltry slopes, then a level piece of ground cut out and planted in the form of large squares, more slopes, and then large patches of Cabbage, Leeks, Parsnips, and all kinds of common vegetables, and away beyond comes in the charming scenery, in which the hills appear to frown in stately indignation from afar on the way in which Nature has been outraged in this otherwise lovely spot. Hydropathic establishments are common in Scotland, and in general they are large enjoyable institutions, the one in question having cost about £80,000. Their inmates come from all parts of the globe, and it is to be regretted that a place like this, which is the temporary residence throughout the year of thousands of people with refined tastes, should so poorly illustrate our modern landscape gardening. Dwarf terraces and geometrical work of all kinds are quite out of place in such a situation. I could not help asking what distinguished hand had left such an unnatural mark on this beautiful landscape, and I was told that it was that of the architect. Therefore I could not help thinking that the sooner "landscape architecture" was superseded by landscape gardening of the Marnockian type the better.

CAMBRIAN.

A HOLIDAY IN SWITZERLAND.

A JOURNEY through a mountainous district by roads and tracts little frequented by the steam tourist is always more promising and satisfactory to travellers devoted to natural history than the well trodden and explored highways and their branches, and we travelled with particular pleasure from a little hamlet not remote from Interlaken to the quiet and elevated region in which the ancient village of the castle called Chateau d'Oex is situated—a long day's excursion through scenery that presented the chief characteristic features of Swiss country life, little disturbed by the irruptive inroads of visitors, the tendency of whose contact with country rusticity is to rub off primitive simplicity, and leave a false gloss which is much less estimable. We found villages deep down in sheltered valleys, with chalets whose wide projecting roofs threw a protecting shelter over carved balconies and habitations constructed not with tasteless uniformity, and the primness of four windows and a door, but with ever varying design, the wood lavishly employed in their construction dark with age, and the shingles with which they are roofed welded with ancient Moss and Lichen, *Sempervivum* and *Saxifrage*, and where the luxury could be afforded bright flowers gleamed from ledges guarded by the overhanging eaves, giving these chalets a warmth and refinement that completed their charming character. We crossed bridges, with well constructed and impervious roofing to protect the woodwork beneath, flung across torrents, the beams of timber resting on rocky ledges, their fragility hardly seeming to give the assurance of safety which their positions demanded; then Fir forests, picturesque water-mills, and cascades leaping down the hillsides to join the roaring river deep down in the valley, scenes which recurred in every feature again and again; and then, as after wearying ascents we gained an elevation that commanded distant views, the summits capped with snow of the Diablerets range appeared and gave a savage wildness to the country in that direction. Then the journey was varied by long sweeping descents, reaching Grass-covered and populous valleys, thickly dotted with chalets and the buildings required for the housing of cattle and storage of provender, for we are entering here a district where the Gruyère cheese is largely made, and dipping deeper down into the valley reach Saanen.

Ascending again rapidly, a grand view is disclosed of the Rübhorn, the cleft Gumfluh, the snow-fields of the Sanetsch, and the great Gilton Glacier. Again bridges and the roar of rushing water, and at last in the dim twilight we entered the village of Chateau d'Oex, distinguished in earlier times by a castle occupying a central position on a considerable elevation, a building now replaced by a church, which still gives a picturesque character to the place. Established in a quiet pension, we found this spot an excellent centre for excursions to the surrounding country. Chateau d'Oex is not high enough to catch the keen mountain air, though 3500 ft. above the sea, or so low as to suffer from the chill that is felt in deep hollows by lakes or rivers. It is surrounded by mountains that have an elevation of from 6000 ft. to 8000 ft., most of them accessible, and giving glorious views when surmounted and good botanical results. Our first expedition was to the Rocher du Midi, a range of considerable altitude to the south-west. It was necessary after crossing the stream low down in the valley to traverse a broad belt of

Fir forest. These forests are very general in Switzerland, and a special interest and value belong to them from the position they occupy. They form a protective barrier that nothing can replace. The soil is clasped by roots. The whole surface below the trees is covered with Moss or Lichen or the binding growth of shade-loving plants—thus torrents may fall without displacing the earth; snow may accumulate, but, melting slowly, the water escapes imperceptibly. The importance of encouraging and preserving intact great stretches of woodland on the slopes of the mountain to check landslips and preserve the soil cannot be overrated. Looking narrowly into these closely-packed woods with the critical eye of a forester, the waste of timber seems deplorable; but the necessity of preserving a compact barrier of living trees is greater than an accurate observance of the rules of forestry.

The Spruce, of which there are three varieties, invariably predominates, and the timber it produces is of an excellent quality, supplying the wants of the people with fuel and building material, for in spite of the abundance of good stone, wood still seems to be more generally employed in all country places, and happily, for what can exceed the picturesque beauty of the chalet. The upward tract that led us through the Fir wood took us past a rustic saw-mill, the water that set its machinery in motion being conveyed from a rapid mountain stream by hollowed troughs of timber; the stream as it came leaping down the declivity sometimes ran by the side and sometimes crossed the road where a rough bridge of planks spanned it. The broad leaves of *Petasites* spread over the ground beneath the trees, and where the shade was less dense large bushes of *Spiræa Aruncus* flourished their drooping plumes, already faded. Wild Raspberries grew on the steepest banks where the soil was light and much intermixed with broken stone, and we gathered *Prenanthes purpurea* that tempted us by its graceful panicles rather than its brilliance. *Pyrolas* and *Orchises* were numerous, springing from mossy cushions below the trees; of the latter we gathered eleven species in the course of our walk. Just before emerging into the open space of upland pasture we found growing in moist ground fed by a trickling spring *Gentiana asclepiadea* in full bloom and beauty, and near it the pale yellow Foxglove, far less handsome than our own indigenous species.

The alpine pasturages which we now entered were spangled with bright flowers, not of remarkable rarity, but from their number and brightness of colouring delightful. The bright-eyed *Euphrasia* was thick on the ground; *Parnassia palustris* threw up its pale blossoms; the purple *Centaurea* and the white stars of *Chrysanthemum* mingled with *Prunella grandiflora*, *Knautia arvensis*, *Gentiana campestris*, *Campanulas pumila* and *rotundifolia*, *Astrantia major*, the dwarf stemmed Thistle, *Cnicus acaulis*, and many others combined to make the grassy knolls smile with beauty. We were, however, too late for what

must have been a glorious spring display, for the ripe seed heads of *Trollius europæus* were thick upon the ground, and smaller spikelets beneath told of *Gentiana verna*; the yellow Globe flower, springing from a blue carpet of *Gentian*, must be a sight to arrest the eye of even the stolid Swiss peasant. As we advance we find the tall, striking *Gentiana lutea* past its best, but when in perfection, as we found it, producing a spike 4 ft. in length, it is worth the care of cultivators, and may possibly bear development.

In a country where mountain range succeeds range, and the lowest depressions between them, either cut by glaciers or worked and deepened by the action of water, are properly valleys; but high up in the hilly region there are wide, irregular spaces, partly encircled by the topmost heights of the mountains, and it is to one of these alpine amphitheatres that we have ascended, gaining it by a pass which, curving round, led us behind the heights that overlook the village from which we started. We are thus shut out from all views of the surrounding scenery, and can better survey the space immediately about us; and one feature, as we look towards the rocks, is the great accumulation of débris beneath the face of the wasting perpendicular limestone cliffs, a portion of which, owing to atmospheric causes, is brought down every year, and in this way in the course of ages this débris has become piled up to form considerable eminences and slopes of rubble. Occasionally the entire mass has slipped, and given in a wide, irregular mound another feature to the upland valley. Until closely approached, this mass of disjointed stones seems the most unpromising collecting ground imaginable, but we soon find that amidst this confusion of particles many plants have found congenial resting-places; amongst them cluster *Saxifraga*, *Sempervivum*, *Sedum*, alpine *Poppies*, *Myosotis*, and *Dianthus*, and these betray themselves by their bright blossoms, but the spring flowers are less evident, and we are left to imagine the effect they give early in the year.

Some groups of trees that break the uniformity of the stretches of alpine pasture occur with picturesque irregularity, and two chalets help to complete the picture. The buildings are indeed dairies, occupied only during the summer, and supplied with milk by the herds of cows whose tinkling bells in these upland heights are often heard; both butter and cheese are made, and we have often met the men carrying down their loads of Gruyère in a little framework of wood that supports the cheese above their heads. The cows must feed largely on alpine plants in these positions, but they have discrimination enough to avoid *Gentiana lutea*, *Daphne Mezereum*, *Aconitum paniculatum*, and *Rhododendron ferrugineum*, and these plants stand out the more conspicuous for their rejection. We noticed that the large leaves of *Adenostylis albifrons* were swept off with great relish by the grazing beasts. Making our way over the piled-up fragments of rock beneath the cliffs, we found in our passage some good patches of *Saxifraga oppositifolia*, great pieces of which found their way into our plant case; also *Saxifraga Hostii*, so large that we thought we had secured *Saxifraga longifolia*. Some good plants of *Primula Auricula* were too tempting to be left, and a very handsome white variety of *Campanula rhomboidalis* was gathered, only to be lost with other treasures sent off to England; but whether intercepted by the French officials in their lively dread of *Phylloxera*, or whether otherwise appropriated, we have not yet discovered. We remember perfectly well seeing some red danger flags and some very unhealthy-looking Vines in one of the Swiss vineyards, and this may explain the awakened vigilance of the French custom house people. At last, emerging from the waste of stones, we gained the upper portion of the ravine. A grassy space was thickly dotted with the large, round-headed, silken-bearded seeds of *Anemone alpina*, and over this spot sailed trustfully the beautiful *Apollo* butterfly. Descending by another track, we found a wide, rocky space covered with *Rubus saxatilis* bearing an abundance of red refreshing berries, but with

no birds to feed upon them. People who bewail the scarcity of wild birds in England should visit this country where in a day's journey we may count the species we meet with on the fingers of our hand. A family of titmouse, two or three woodpeckers, a bullfinch with its brood, and jays, and perhaps a hawk or two constitute the sum total of a long day in the woods and hills; and we never saw anything in the shape of game, either ptarmigan, grouse, partridge, or pheasant; neither hare nor rabbit ever crossed our path. The dogs of the country, without the training or careful breeding the canine race receive in England, lose the marked character even when they are of the same breed that distinguishes the sagacious retriever, the setter, the foxhound, spaniel, and terriers; rendered imbecile by foolish petting or allowed the freedom of the valleys, they are examples of the degeneracy that may ensue even in dogs by the neglect of an education which a true dog instinctively apprehends; even the big dogs harnessed to carts in the country enjoy the work, and the lumbering, stupid St. Bernards are happy when employed, but most of the examples we met gave us the idea that time hung heavy on their shoulders. After four or five hours of

Climbing and scrambling amongst rocks we were glad to find a convenient resting-place and the opportunity of filling our flasks, for we had not acquired the habit of assuaging thirst by sucking a stalk of Grass, or keeping a pebble in our mouths, and we were happy in the discovery of a seat, which consisted of a huge mass of rock resting at the foot of a steep stony bank, capped with mountain *Rhododendrons*, and showing on its slope a toughish mass of vegetation amongst which *Streptopus amplexifolius* appeared. Below the mass of rock rested a deep clear pool—the source of the torrent we met in our passage through the Fir wood; in the depth of the pool the skeletons of Fir trees rested; the water was icy-cold and of sparkling purity; the rock was an alpine garden in miniature; *Gentians* grew in its hollows; the curious little Fern, *Botrychium Lunaria* or Moonwort, lifted its erect little frond from tufts of Moss; *Cystopteris montana* hung over the spring; clustering rosettes of *Saxifraga Aizoon* shared with *Silene acaulis* and *Veronica alpina* and *Euphrasia minima* the narrow crowded space of this rock by the spring, and in our subsequent wanderings this was always the recognised resting-place. We have spoken of the dogs, but the reflection conveyed should rest on their masters. Not that they are wilfully wrong; the kindness with which they treat all dumb animals is most commendable, and this consideration is not ostentatiously displayed, but is made evidently by the animals themselves. The gentleness of the cattle is remarkable; their sleek looks and health show their content. The sheep approach their owners or even strangers without alarm; but it is of the horses that we may speak of with the greatest admiration—handsome, strong, obedient, and untiring, they combine the good qualities of our draught and our blood horses. We thought that no horse could equal a Norwegian in its sure-footedness and ability to bear loads up the steepest ascent and down slippery ravines, but seeing the work done by Swiss horse on the mountains, we were fain to admit its equal excellence.

Belvoir.

W. I.

NOTES FROM THE INVERLEITH NURSERY.

THIS Edinburgh nursery, in extent about 36 acres, has long been noted for its excellent stock of forest trees, more especially Larch and Scotch Fir. The stock for the coming season is no exception to this rule. *Abies Douglasi* is also a speciality, being always grown here in quantity. Of *Laricio* and other Pines there is also a considerable stock. *Abies polita*, A. Parryana, A. P. glauca, and many other choice Conifers are to the fore in the home nursery, as also a fine lot of named *Rhododendrons*, variegated-leaved evergreen and deciduous ornamental trees and shrubs, especially golden and other *Hollies*, many

fine specimens of which are from 5 ft. to 8 ft. high. We noticed a fine stock of fruiting canes of the principal varieties of Grape Vines, in the raising of which Messrs. Dickson and Sons are most successful; also a good collection of *Crotons*, *Dracænas*, and other stove and greenhouse plants, *Azaleas*, *Camellias*, &c., and about 40 fine plants of *Anthurium Andreanum*. *Vallota purpurea* is also here in excellent condition. Amongst *Orchids* we noticed a fine *Lælia anceps*, throwing up twelve spikes of flowers; also *Dendrobium densiflorum*, a fine plant; *Vanda cœrulea*, *Cattleya Eldorado*, and others. Herbaceous and alpine plants likewise form a speciality, and a fine collection of them is kept in stock; and we were glad to see that particular attention is being paid to the finer class of things which are wanted badly in Scotch gardens generally, and in no places worse than in the parks and squares in Edinburgh.

J.

FRUIT GARDEN.

LOW TEMPERATURE FOR GRAPES.

MR. SIMPSON has clearly established (p. 325) that Grapes can not only be grown successfully with a lower night temperature than that recommended by the authorities, and but too frequently aimed at in practice, but that this success is attained at a lower cost. It is probable enough that his figures may be criticised, and yet I have to make the statement that he has not even reached the minimum of temperature or cost of fuel at which Grapes can be grown. Given a southern aspect, which vineries should occupy, it is possible to attain to a high degree of excellence without fire-heat at all. In proof, permit me to lay the following facts before your readers: In a vinery with a west, or rather a west by north, aspect there are growing in an inside border the old Sweetwater, Bowood Muscat, Madresfield Court and Black Hamburgh, all of which, except the latter, are supposed to be indifferent setters, except in high temperatures. As the vinery in question is quite unheated, a high or even a moderate temperature is unattainable at night, and owing to its position the sun has no power to increase it till an advanced hour in the day. Often at noon, when other houses have reached a maximum temperature with all their ventilators open, the temperature in this vinery would be so low as not to necessitate the admission of air. A few extracts, however, from a register kept this season of its temperature at 6 o'clock a.m. will best afford an idea of the disadvantages it labours under. It may be stated that no effort is made to expedite the "breaking" of the Vines; on the contrary, they are retarded as much as can be with safety to the other occupants of the house, so as to afford greater security against late frosts.

It was thus June 9 this season when they commenced to flower, on which morning the thermometer, suspended about 6 ft. from the floor, stood at 51°; on the 12th, 51°; on the 13th, 51°; on the 14th and 15th, 56°; on the 16th and 20th, 50°; and on the 24th and 25th it stood at 57° and 58°. It was in such low temperatures as these that the Grapes set, and the evil was aggravated by the sluggishness of the atmosphere, owing to the absence of artificial heat or the better influence of the morning sun. On the morning of the 26th it stood at 60°, when the Grapes were sufficiently set to get their first syringing since flowering commenced. The two succeeding mornings were the same (60°), and on the 30th it was 64°. This was a grand finish for June, and raised our hopes immensely.

July commenced with 60°, but only gave us five days at so high a temperature. In August, one day at 60° and three at 62°. September, one at 60° and six under 50°; on the 13th and the closing days of this month it was but 45°. It was under such unfavourable conditions that these Grapes swelled and coloured and attained a certain degree of ripeness. Having reached this stage, the register was not kept so regularly, but on the 2nd of October it stood at 50°, on the 3rd 48°, the 5th and 7th 50°. These latter temperatures

are safe enough for ripe Grapes to hang in if the night moisture could be dissipated by a little fire heat or the morning sun, but as we enjoy neither of these aids, the moisture remains at this time of year for the greater part of the day about the bunches. This, however, is apart from the object of this communication, which was to state facts in proof of the assertion that Grapes will set at much lower temperatures than is aimed at in practice, or is dreamt of in the philosophy of some. Had these Grapes but the most trifling assistance in the way of fire-heat even in their unfavourable aspect, or, better still, the advantage of the morning and midday sun without any fire heat, a much higher degree of excellence would have been attained. As it is, however, the different varieties have each set well; even the Muscates are all that could be wished for in that respect. The Hamburgs have coloured well, and in the matter of bloom are equal to the best. They are, however, deficient in flavour, which is not to be wondered at. The Bowood Muscat is now assuming a nice amber colour, but at this late season and in its sunless aspect it cannot be expected to attain anything like its well known excellence of colour and flavour, but even now at the eleventh hour could fire-heat be applied, a good finish could be given to them, as the leaves are in full vigour and of strong substance. Having mentioned the disadvantages, it is but right that any ameliorating circumstances they may enjoy should be stated also. These are two—the roots are altogether inside (though confined to a border less than 2 ft. wide), and the glazing of the roof, being done on Rendle's system, admits the fullest amount of light, and is quite free from drip. Notwithstanding the fair amount of success that has been attained here, I would say to any one intending to erect a vinery in such an aspect, "Don't." A. B.

LATE-RIPENED GRAPES.

LATE sorts of Grapes with long keeping properties now occupy an important position in nearly every garden, and deservedly so, for since the practicability of keeping such kinds as Lady Downes in really good, plump condition until April or May has become an established fact, the need for such unreasonably early forcing as that which prevailed a few years ago has vanished, and that with advantage to both Vines and Vine growers. But because some kinds of thick-skinned Grapes will keep for six months after they are ripe, it must not be expected that all varieties will do so. Even in the case of really suitable kinds there are various items of routine management to be observed in order to keep them in anything like perfect condition until spring. I know of nothing in connection with Grape growing on which cultivators differ so much as, for instance, the best time to apply fire-heat. Some succeed well by starting sufficiently early in spring to have their crops ripe early in September, when others are only beginning to apply fire-heat, in order to mature their crops—well satisfied if they can get their berries well coloured by the first or second week in October; and amongst the large class of cultivators who now grow for supplying the market are many advocates of this system. They not only have to utilise their houses to the utmost to make them pay, but the question of cost of fuel is an important one; in fact, it is the one that decides whether profit or loss shall be the result. No wonder, therefore, that growers for market prefer applying fire-heat only to ripen the crop rather than to forward it in spring, seeing that the houses can be utilised to much more advantage by taking the Vines out, or by using the vineries as cool shelter places at a time when every foot of space under cover is valuable. Our springs are, as a rule, more trying to vegetation than our winters, and as late Grapes to fetch really high prices must be kept well into the new year, it follows that fire-heat must be required for a long period to attain that object. There can, therefore, be no need to hasten the starting of the Vines by means of fire heat for the latest crops, for the heat will be more profitably expended in ripening both wood

and crop in the autumn, for although many state that all late Grapes to keep well should be ripened early, I feel sure that this part of the matter is capable of being overdone. We have lately in September and even in the early part of October had warm sunshine in the southern part of the kingdom, and if our Lady Downes, Alicante, &c., had been ripe instead of ripening, I do not think we could have expected such plump Grapes at Christmas as we may now look for. Even with the aid of bottling it is not advisable to cut late crops from the Vines before Christmas; in fact, I prefer the first or second week in the new year for that operation, and, as to keep the Grapes ripe or unripe some fire-heat must be applied from now to that date, it may as well be used to finish off both fruit and wood as be applied to fruit already fully ripe. There is really no fear about the thorough ripening of both crop and wood in properly heated Vineries, *i.e.*, if the crop has commenced to colour by the 1st of September, and a little heat in the pipes just to cause the air to be light, dry, and buoyant, and a gentle circulation of air on both night and day is maintained. If really late kinds like Alicante, Barbarossa, and Lady Downes, do not keep plump and good until spring, no anticipating their season of growth by means of fire-heat will make them do so, at least such is my conviction, and late heating is decidedly the most economical plan.

Seafield, Gosport.

J. GROOM.

WHEN TO PLANT VINES.

"A. D." says (p. 317), "By planting Vines now the roots will, without in any way promoting wood or leaf growth, get a good grip of the soil, and furnish an abundance of spongioles or feeders, all of which will be ready for active work the moment heat puts a pressure upon them," a statement with which I, as a Grape grower of many years, cannot agree. Ripened canes or, if "A. D." prefers it, unripened canes, will *not* make abundance of roots if planted now; indeed, it is questionable whether they would make any roots at all. I have planted in autumn more than once, and though I have carefully examined the soil for new roots, not one could I find. Why it should be so, or why the Grape Vine differs from most other fruit trees in this respect, I cannot say. I can only account for it on the ground of its being able to, as it were, store up surplus food to a greater extent than any other fruit tree. That this is a peculiarity belonging to the Grape Vine all acquainted with its culture know; even when spring planted new roots are never made till the foliage has expanded. It was the endeavour to ascertain the reason of the failure of a set of autumn planted Vines that led me to closely observe *how soon* new root action commenced after planting, and the practical outcome of the matter was the adoption of spring planting. The best guarantee of the soundness of the system is that since then we have had no failures, but, on the contrary, most satisfactory growth. I could name several instances of exactly similar experience, and it was doubtless a knowledge of such facts coupled with an assurance that spring was so generally known to be the best planting season for Vines, that led "W. C." in his reply to D. A. Scott not to think it needful to enter into particulars as to why spring was the best planting time. "A. D.'s" notions as to ripening of canes are also faulty; he says, "it matters little with planters whether 6 in. or 9 in. of wood, more or less, be ripened now, as inevitably, for the making of permanent Vines, they will be hard cut back early in spring, and the ripened wood above the cut will not be of the least use." Everyone knows that after being cut off it would be of no use, but it has previously been of the greatest service in thickening the cane and plumping up the buds at its base, conditions that can never be attained unless there is a goodly length of rod, and a long season in which to ripen it, the entire length. I look upon this maturation of canes as laying the foundation—if I may be allowed the term—for a good broad waterway,

and the larger the pipes the more abundant will be the supplies, *i.e.*, under the conditions of perfect maturation, now-a-days easy enough attained, if not by solar, certainly by artificial means. Unripened growth is of course worse than weak and well ripened growth. I note "A. D.'s" remark as to the ductility of roots in autumn merely to say that under any circumstances the roots should be spread out when planted, and, when the soil is all shaken from them, this is just as easy to do in spring as in autumn. Having said this much in reply to "A. D.," I would now recommend Mr. Scott not only not to plant now, but to throw away the canes he intended to plant, and next January select prominent buds from well ripened Vines, place them in a bit of turf, start them in gentle warmth, and as soon as the roots can be seen towards the edge of or under the turf, plant them in their permanent places, and he may expect better fruit the following year than he would be likely to get were he to plant now.

VINE GROWER.

Blackening walls.—I have lately repaired and wired a wall, the wires being close to the wall, and have cement-washed it after pointing it well with cement until it is white. In order to blacken it, how would it do to coat tar it or to paint it over with a mixture of coal tar and paraffin oil, as has been recommended to me? or would that spoil the fruit on it?—J. R. H.

Pines in small pots.—I quite agree with all that "J. G." (p. 276) says with regard to growing Pines in small pots. I have seen very good fruit produced from plants grown in 8-in. pots; as an instance I may mention that pits 39 ft. long by 10 ft. wide contain from ninety-five to one hundred 10-in. pots, and produce fruit from 3 lbs. and 4 lbs. to 5½ lbs. weight, under eighteen months, the variety being The Queen.—D.

Double grafting Marie Louise Pear.—"A. D." says (p. 317) that had this Pear been worked direct on the Quince, it would not have made such robust growth as double grafted. I have tried it and have seen it tried on the Quince, but it cannot be got to grow; hence double grafting had to be resorted to in order to render it useful. If grown on the Pear stock, it makes such strong growths, that it does not answer for upright cordons. I have seen small plants of this Pear double worked bearing from six to twelve good fruits.—W. C., *Ilkley*.

Althorpe Crassane Pear.—I find this Pear to be a sure bearer and of very fair quality. The fruit is small and pyriform, the flesh white, with a light pale green skin, very juicy and sweet, and, what is still more valuable, it is always good. It is not like some other Pears, good one year and indifferent the next. I do not know whether or not my experience as regards the growth of the tree is singular, but with me it does not grow freely, a circumstance which I have often regretted. We grow it on a west wall, and it is probable in another position it might grow better with us. The fruit ripens in November.—J. C. C., *Taunton*.

SHORT NOTES.—FRUIT.

Grape Vine cuttings.—What is the best substance in which to pack these for a journey of twenty days? Should the material in which they are packed be moistened or not? and should the package be hermetically sealed or should it have openings for the free admission of air?—VINEYARD.

Shelter for orchards.—Of the advantage of shelter in the case of Apple trees I recently saw a good example close to Templecombe Road Station. They grow on sloping ground rising towards the south-west so abruptly, that the trees on the higher ground formed good shelter for those lower down. The latter were loaded with fruit, while not an Apple could be seen on the higher ground, all being swept off by the storm in April last. It is shelter our orchards want, but they should not be overcrowded or overtopped.—WANDERER.

Pitmaston Duchess Pear.—This is unquestionably one of the handsomest of Pears, being much more perfect in outline than its namesake, the old Duchesse d'Angoulême. I also find it to be more prolific and to succeed better as an open bush or pyramid than that variety, and I believe that it would make a good standard were it not for the great weight of the fruit. When the latter are well grown they will average 1 lb. each, and therefore are liable to be blown off, and so much bruised as to be worthless. One of the great merits of the fruit is the beautifully clear yellow colour which it puts on when ripe. I have heard it remarked that the flavour of this Pear is not equal to that of the old Duchess, but this is in my opinion a matter of taste. Pears are like Melons as regards flavour; they require to be eaten at the proper stage of ripeness, and it is only by experience that one is able to catch the exact time when the flavour is at its best. Some Pears have a much longer season of usefulness than others, and for this reason tender-fleshed kinds like Pitmaston Duchess should not be grown in larger quantities in private gardens than will satisfy the demand; but as a market Pear I feel sure that it must become very popular. It is one of the few sorts that can compare favourably as regards size with the produce of the Channel Islands. It makes handsome trees on the Pear stock, but on the Quince it is more fitted for cordons—at least, such is my experience.—J. G., *Hants.*

Duke of Buccleuch Grape.—I always feel interested in anything which concerns this Grape, having been at Clovenfords when it was sent out. The plants were raised and grown in a large house under my care, and I helped to pack, take, and stage the baskets of this fruit at Manchester, of which "J. S. W." speaks (p. 338). All the young Vines sent from Clovenfords when "J. S. W." had his were robust, healthy canes, and if they failed that must have been the fault of the cultivator, and not that of the Vine. In proof of this, those left at Clovenfords until the end of the season became strong, well-developed, thoroughly matured rods. Is "J. S. W." sure that this Grape has not succeeded with a "single acquaintance" of his? For instance, has he no acquaintances at Drumlairg or at Hutton Hall? or at Clovenfords, the birthplace of the Grape? Hundreds of well developed bunches of this Grape were hanging on the Vines at Clovenfords when "J. S. W." could not, according to his own admission, keep the Vine alive, and now when he has discarded it, it is fruiting at Clovenfords as freely and perfectly as it has hitherto done. "J. S. W.'s" friend informing him of Gros Colmar and Lady Downes being fine at Clovenfords, and not mentioning the Duke, proves nothing. I have been present when many baskets of the Duke were filled at Clovenfords, and it is certainly new to me to be told that they, especially the exhibition ones, were made up of "fragments." It could be proved over and over again that such an assertion is incorrect.—CAMBRIAN.

Extension v. restriction.—Surely Mr. Groom cannot expect me or anyone else to accept the examples he quotes in *THE GARDEN* (p. 336) as throwing the least light upon the comparative merits of these two systems. He seems to miss the mark completely. It is not a question of finding "room for both systems," but as to which is the best. I notice he now uses the words "moderate extension" for restricted trees in which "the dwarfing stocks do the most of the restriction." Exactly. If Mr. Groom will refer to my articles on this subject a few years back he will find I called this "extension," and said the way to utilise the dwarf stock to the utmost was to let the branches grow, my words being "curtail the roots and extend the branches," instead of curtailing both and defeating our purpose. Mr. Groom has appropriated my definition of extension and used it against me. Unpruned trees on dwarf stocks is not restriction according to my meaning, but extension, and is quite another thing from dwarf stocks and pinched and pruned tops, also as advocated by all the notable authorities

on the subject. If Mr. Groom calls a restricted tree one which is only or mainly restricted by the stock or its roots, then he and I are quite agreed on the subject, but all his communications will not bear this construction. As to Barham Court, I am led to understand that nothing like a test of the two systems there has ever been attempted. Mr. Groom has clearly not made up his mind where the one system begins and the other ends; whereas I have clearly explained this many times, and to Mr. Groom in particular, that it is the formal and fanciful shapes, the constant finger-and-thumb pinching, and still closer winter pruning, so accurately described by those who have originated and advocated the system that I condemn. Only this I will add, that if he is going to maintain that extension is best for orchard trees and unsuitable for dwarf trees grown as bushes or standards away from walls, I would advise him to observe and consider accurately how an Apple or Pear tree behaves when allowed to develop itself naturally, with just sufficient guidance to preserve a general, but not too strict a balance and proportion among the branches, and afterwards apply those observations to dwarf trees or trees on dwarf stocks growing anywhere else, and see if he can discover a single reason why the system should not be as successfully applied in the one case as in the other. This is just my difficulty. Turn the matter over as I may, I cannot discover any "reason" of this kind, nor has anyone else furnished me with one, hence my conclusions on the subject of pruning and training.—J. S. W.

ROSE GARDEN.

PROTECTING THE TOPS OF ROSES.

Few rosarians now doubt or call in question the fact that some protection for the tops of Roses is needful. Writing broadly, hardly any of our Teas, unless it be Gloire de Dijon, and not many of our Hybrid Perpetuals worthy of the name, can bear 15° of frost with impunity. The later Roses bloom in the autumn the more tender they become. And this of necessity; growth implies tenderness as a rule. There may be exceptions to this general law, but assuredly these will not generally be found among Roses. Hence all that special culture, breeding, and selection that result in supplying the greatest Rose want of the age, perpetuity of blooming, render the need of some kind of protection for the tops of Roses in winter more imperative. Nor is this all. Experience has abundantly demonstrated alike the possibility and success of protecting the heads of Roses in winter. For several of our past seasons those protected were saved, while those left exposed to the full severities of our climate were lost. All this has been already pointed out. But as last winter was so mild and not a few cultivators, especially amateurs, have short memories, the time is seasonable for once more urging the necessity of protecting the heads as well as the roots of Roses. The two evils to avoid are

Paucity and excess of covering, and the latter is by far the greater evil of the two. Better not protect at all than overload the tops of Roses with a burden they can hardly bear with safety in winter nor get rid of in the spring without imminent risk of a chilling check, which might result in disease or total destruction. There is far less danger from a paucity of covering; indeed, our experience would seem to indicate that it is hardly possible to cover too lightly. Many of the discoveries of our modern science seem a well-merited tribute to the potentialities of litters. The invisible germ or odour becomes the messenger of death or a panoply of safety. In accordance with the same general law, though affording far more tangible illustration of it, the small handful of withered Bracken thrust into the head of a Rose tree or bush acquires new significance; and what is of even more importance to our present purpose, it ensures the safety of most of our Roses against 15 or more degrees of frost. This simple, natural substance, which has been mostly overlooked or neglected until quite recently, forms,

in fact, our model protection for the heads of Roses. It is light, an excellent non-conductor, and lasts long enough for our purpose. Its extreme porosity also enables water to pass quickly through, and to dry with great rapidity, and these qualities render the Bracken well-nigh perfect for the protection of the tops of Roses. It has been tried against straw, dried Grass, hay, long Moss, tree boughs, &c., and found the most efficient and cleanly of them all. Where it can be had nothing better can be used. It is so efficient, in fact, that it ought to become an article of merchandise, and be sold by the bag or ton like white Sphagnum, peat, Cocoa fibre refuse, and other horticultural adjuncts or auxiliaries. To secure it in the best condition, the Bracken should be cut before it is quite ripe, and carefully made and stored. Thus treated, it is far tougher and more durable than when allowed to die down naturally, and left in the wood or copse or on the heath till wanted. In this tough state it may be thrust or twisted into the heads of Roses, where it will remain without tying, or with one slight tie only. The looser it is left in reason the more effective it is as a protection. This, as other protective matters, are often made too tight. The smoother and closer they are forced together, the less efficient. This is almost the only horticultural operation in which all attempts at neatness must be eschewed. Neither is there any better protection for

Tea Roses on walls or in the open beds or borders than a layer from 4 in. to 8 in. in thickness of the leaves and stems of this common wild Fern. One of the simplest means of keeping the Bracken in position is to tie on or peg down Spruce, Yew, or long Larch branches over all. This renders the protection wind proof, and ensures its being kept in position so long as it is wanted. Where it is impossible to obtain this perfect protector, other substances may be used. In addition to those already named,

Rough Cocoa-nut fibre refuse is one of the best substances for protecting Tea Roses in the open. The best of the branches should be pegged down, and the whole covered with a few inches of rough fibre. This will carry all safely through the winter. If sufficient judgment is used in uncovering such Roses in the spring, they will flower much earlier and more profusely than if the branches had been frozen down to the collars of the plants, as is often the case with Teas. As to the time to apply these protectors to the tops of Roses, much depends on seasons and localities. As a general rule, however, it is wise to apply them early in November, for after that time we are never secure against sudden and sharp frosts; and it must be borne in mind that it is mostly the first and the last frosts that kill. In other words, the majority of deaths among our tender Roses occur before they are protected or after protection is withdrawn; hence the wisdom of such mottoes as cover early, uncover tentatively, and be in no hurry to withdraw the last shred of protection in the spring. To cover sufficiently early is often the most important of all; for it is the first frosts that inflict the most damage, though the injury is frequently not apparent till the next spring or summer. The folly of locking the stable after the steed has been stolen has passed into a proverb; but this is wisdom itself compared to the futility and folly of protecting Roses that have been already frozen through. Protect early, and thus take the first, and perhaps the longest and surest, step to protecting thoroughly and well.

D. T. FISH.

Root disturbance.—"I. T.'s" remarks (p. 328) are utterly irrelevant to this subject. To confute my statements about the Rose he recites a story about a Gooseberry bush, transplanted at an unrecorded date and for another purpose, and the roots of which he never appears to have examined or compared from that day to this to see whether it had more or less roots than the others. His example is a dubious one altogether. He planted his bush in summer, he tells us, when the leaves were on it, and then seeks to make it apply to the case of a Rose planted at this season of the

year—October. His next example is a Carrot, from which another lesson on Rose culture is inculcated, but I pass it over. My offer of a reward in the same page is open to "I. T.," and let me state that the offer is made for a Rose planted in October "with far more numerous and stronger roots to it, produced by December, than one that has not been moved at all," the plants to be the same kind, with the same degree of vigour and quantity of roots to begin with, and both grown under the same conditions.—ROSE GROWER.

—Some one, I see, is attacking Mr. Fish in reference to this subject. The writer, too, is wrong in saying Roses "planted in October will make no roots, and if they do they are killed by winter." If this is true, then all early planting must be fruitless, which I for one deny.—W. H. F.

PROPAGATION OF ROSES FROM CUTTINGS.

I HAVE been selecting cuttings and putting them in for the last few days, and as the time has now come for this purpose, and as I believe every Rose grower, extensive or limited, should grow some in this way—if only to compare results—a few words as to the method that gives me the maximum of success may be *apropos*. 1. I always take cuttings from those that succeed best with me the previous season, or that I note doing well similarly with others. For instance, as one can hardly have too many of Gloire de Dijon, I always take as many cuttings as I can get. This year, on the Manetti from Mr. Saunders, Cork, I found the most persistent H. P. bloomers, and with the finest flowers, to be François Michelin, Dupuy Jamain, Dr. Andry, Fisher Holmes—here as good as A. K. Williams, and in many respects similar—Thomas Mills, Beauty of Waltham, Alfred Colomb, and Charles Lefebvre; others, often good with others, as Hippolyte Jamain, Miss Hassard, and Comtesse Chabillant, I shall not try to propagate. The last gave me not a single bloom, though carefully pruned, fed, and treated. So much for selection from the parents. 2. The cuttings—I invariably prefer them with "a heel," or cut at an eye, or joint, or at a leaf-stalk. The object should be to get enough of organisable matter to form a callus. In many strong grown Roses, as M^{me}. Thérèse Levet, the shoots are soft and the wood unripened at this time, and it is only by chance or special treatment a hard ripened side cutting can be procured that will not rot off almost as soon as inserted. I like firm pieces from 6 in. to 10 in. long, and special care must be taken to remove them with a clean cut, and slightly dress them afterwards. A jagged rough cut that leaves the bark loose and hanging at the base merely assists rot, and causes disappointment. 3. As to the method and place of insertion, I have tried many plans; and think the least troublesome—that requires the least care—the best. I do not believe in the rough-and-ready plan of putting them in a trench like Cabbage plants with a spade, and tramping in the clay. A few may succeed, but those who treat the queen of flowers in that way deserve failure. I find the critical period is not now, but in the end of March or April next, when buds burst out and root growth commences. These buds are very tender, and dread a biting north-easter as much, if not more, than a sharp frost. To meet this I insert in boxes, say 12 in. deep, and half filled with soil, so that the edges of the boxes protect against inclement winds. On one occasion I lifted the callused cuttings in March, and put them to root on a mild hotbed, but the success was not in proportion to the trouble. At other times I fairly succeeded by inserting under cloches or bell-glasses, but, everything considered, I prefer open-air treatment. I had some splendid blooms this autumn from cuttings thus inserted last October. I must not forget to mention that when about to insert the cuttings, I put some washed river or road sand into the hole first for the base of the cutting to rest on; the soil may be ordinary loam, and it must be firmly pressed around with the fingers. No further care is necessary until spring. W. J. M.

(Clemet.)

FIRST PULL AT THE BRIERS.

THERE is more in this than appears on the surface. Some people are always rushing behind their opportunities, forgetting that opportunity is bald-pated behind and has only one lock in front. It is vitally important to success that those who intend to plant Briers or Roses should set about it early. With not more certainty does the early bird gather the worm than the first collector obtains the best Briers. He can afford to reject all indifferent ones, as the hedgerow or wood is then full of straight, strong, healthy plants. He also has his choice of place as well as of material, and the former is almost of more moment than the latter. It is almost impossible to secure well rooted Briers out of the middle of a thicket or hedge; but those on the outskirts can be got out with more and healthier roots. The Briers themselves are also better. There is indeed all the difference in the world between the brown, well ripened Briers on the outskirts of a hedgerow or belt of wood and those green, succulent things dug or torn out of thickets. The early Brier hunter can also afford to reject all but brown barked Briers; green ones may prove useful, but brown barked ones are invariably the best. The wood is firmer and the plants are more hardy as well as break stronger, and are longer lived. Nor are the advantages of those that have the first pull confined to the Briers only. The earth favours them as well as the woods and hedgerows.

The advantages of early planting are so obvious and have been so often adverted to, that it is hardly necessary to repeat them. The chief advantage is twofold. The plant itself is not yet at rest, and there is still considerable solar heat in the earth and the vital power remaining in the plant and the solar heat existing in the soil favour and foster an immediate fresh start for the roots. This I have proved by actual demonstration again and again, notwithstanding what other Rose growers may say on the subject. The earlier in reason Briers are planted the earlier they root, and the more numerous and stronger the roots become before or during winter or early in the spring. This is of vital importance to the insurance of an early and vigorous growth in the Brier. An early pull at the Roses is of equal or more importance than being first among the Briers. In the matter of planting Roses it is not more true that what is worth doing at all is worth doing well, than that it should likewise be done early. Rose growers almost perforce and by instinct pull the best plants first, and as the demand very often outruns the supply, the last served may very often have plants that were not intended to be sent out at all. With orders flowing in it is difficult to resist the temptation of executing them to the best of one's ability. True, the dregs or leavings may be supplied at a cheap rate. But a weedy Rose plant is dear at any price, even as a gift, while the best plants are ever the cheapest. Nor is the risk of getting indifferent plants the worst that the late planter runs. The plants may have been subjected to so much rough treatment as to be half dead before he gets them, and this without the grower or seller being greatly to blame. As breaks of Roses get cleared out the residue are mostly lifted and laid in by the heels. After a time the best of them are planted for stock or flowering. Thus the rosarian who sends his orders late may have weakly plants that have already been lifted twice or oftener, and it is a well known fact that there are few more sure and certain recipes for weakening Roses into worthlessness or killing them outright than moving their roots several times in succession within a few weeks.

Lifting Roses.—The trade in Roses is now so enormous that early orders enable growers to lift and pack their plants with the utmost care; whereas, when late orders come pouring in all together, the energies of men and managers are alike strained to the utmost to keep pace with them. Express rather than safe modes of lifting and packing are likely to be resorted to under such extreme pressure, and the plants must needs suffer that trade may flourish and orders be executed before the end of the planting season. It is,

therefore, as much to the interest of the growers of Roses for sale as for those who purchase them that the orders should be given and the plants should go out early. Finally, I would advise all who are within reasonable distance of their Rose merchants to go and choose their plants, and see them lifted and taken home with them. Of course, to the great majority of Rose growers, this is impossible, and most of our best growers may be trusted to execute orders in the best manner and deliver the plants in prime condition. Still, where the private grower can go for his Roses, I should counsel him to do so. His presence, if announced in time, will ensure prompt execution of his orders, and he will probably learn more about how to treat and cultivate his own Roses by visiting a large nursery or farm at the planting season than he would in the great blooming months of June, July, or August. He would be able to compare notes on soils, modes of planting, and other matters, and would, best of all, carry his own new Roses home with him, and see that they were planted at once. Having thus obtained an early pull at the Roses under the most advantageous circumstances, and committing them to his own beds and borders under the impetus of the fresh zeal and new knowledge acquired from his contact with numbers in the nursery, the plants are almost sure to turn out to the entire satisfaction of the rosarian. The aphorism is emphatically true in regard to Roses, that late-planted ones may succeed, while those planted early, other conditions being favourable, must.

D. T. FISH.

PLANTS IN FLOWER.

VANDA HOOKERIANA.—We learn that this Orchid described at page 239, is flowering for the second time, in cultivation in Mr. Bockett's garden, at the Hall, Stamford Hill. Mr. Ebbage, the gardener, has grown it much in the same way in which the plant was treated at Tring Park. We shall shortly give a coloured illustration of this beautiful Orchid.

WHITE SCENTED FLOWERS.—Among a boxful of seasonable autumn flowers which Messrs. Morley send from their nursery at Preston are some fine specimens of double Tuberoses, one of the most valuable white flowers for the season; Dahlia White Queen, now an established favourite; Nicotiana tubiflora, a night flowering, sweet scented Tobacco; and a fine white Bouvardia, stated to be a good winter flowering variety.

AURICULA J. C. NIEN.—Flowers of a pretty seedling laced variety of Auricula under this name have been sent to us by the raiser, Dr. W. H. Browne, The Laurels, Aldboro', Hull. It is a very pretty variety, with an even-edged pip, intensely deep purple, finely edged with pale mauve. It is named in memory of the late curator of the Hull Botanic Garden.

DOUBLE MEADOW SAFFRONS.—Mr. J. T. Poë sends from his garden at Riverston, Nenagh, flowers of the pure white and mauve varieties of Colchicum autumnale, both beautiful and invaluable for enlivening the flower border in autumn. They give little or no trouble if planted well at the outset in a good loamy soil, in a fully-exposed border. Their flowers, Mr. Poë assures us, last well in a cut state.

LILIUM CATESBEI, the Southern Red Lily of North America, is now beautifully in flower in the Hale Farm Nursery, Tottenham. It is one of the handsomest of Lilies. It is dwarf in growth, and bears on the point of a slender stem a solitary well-shaped flower, scarlet spotted, with dark purple and yellow. If it habitually flowers at this season it would be a desirable plant to possess, but we are inclined to think that its flowering now is accidental.

SINGLE DAHLIAS FROM OXFORD.—We have received another batch of single Dahlia blooms from Messrs. Jefferies, Oxford, who seem to be paying a deal of attention to this popular class of flowers. The blooms sent represent some of this

year's seedlings, which are remarkable for the perfectness of their form and richness of colour. On some there is around the central disk a distinct and conspicuous ring of bright yellow or bronzy orange which we have not noticed in other varieties, and which adds considerably to the attractiveness of the flower. These, as indeed, are all those sent us by Messrs. Jefferies, have been raised by Mr. W. H. Baxter, curator of the Botanic Garden, Oxford, who appears to be highly successful in raising new varieties of merit.

BILLBERGIA THYRSOIDEA, of which there are now several plants in beautiful bloom in the Kew collection, is among the handsomest of Bromeliads, and worthy of general culture. It has a tuft of leaves 1 ft. or 2 ft. in length, arranged in a vase-form way, and from this tuft arises an erect flower-stem about 1 ft. high, furnished with showy bracts of a bright carmine-crimson colour. The flowers, about 2 in. long, and of the same colour, are gathered in a dense thyrsoid cluster terminating the stem. It is one of the easiest to cultivate, and, being a native of Brazil, it requires the heat of the stove and plenty of moisture. It never fails to flower in October or November, and continues in beauty some weeks. There is a variety called *splendida* (Lemaire), and one plant is so named at Kew, but we could not detect any material difference between it and the type.

COBÆA SCANDENS IN THE OPEN AIR.—I send a couple of blossoms of *Cobæa scandens* from a plant growing on the front of my house; also a half-ripe fruit-pod. The plant was raised from seed in 1881, and grown during that summer and last winter in a cool stove, where it made very slender growth, and was very dirty. It was planted out against the south wall of my dwelling-house in May, and has since grown with great luxuriance, and has flowered; it is still (October 16) flowering abundantly, and it will, doubtless, continue to do so till cut off by frost. Is it not unusual for this climber to flower, much less fruit, in the open air? I may say that it divides the wall with *Wistaria sinensis*, *Tropæolum canariense*, and *Roses*, and that in the neighbourhood are *Bignonia grandiflora* and *Mandevilla suaveolens*, growing fairly well, but they have not yet flowered.—G. PIM, *Monkstown, Dublin*.

OCTOBER FLOWERS.—Single-flowered Dahlias, Michaelmas Daisies of the best kinds, *Crocus speciosus*, and the varieties of *Colchicum*, double and single, the single-blossomed perennial Sunflower, several *Rudbeckias*, *R. Newmani* or *R. chrysomela* being the best, and the white-starred *Pyrethrum uliginosum* (*P. serotinum*) are yet very effective. As a contrast to the blue autumnal *Crocus*, the little *Sternbergia aetnensis* is worth culture. It is a little bit of pure gold, as bright as a spring *Crocus* which we recently saw at the Hale Farm, Tottenham, where even yet the Tiger flower opens its latest blossoms in the sunshine. *Nicotiana affinis* has everywhere been very effective this season, both in pots and planted out in the open border. Like the Dahlias, it blooms outdoors until the frost cuts it down. Grown in pots in a sunny greenhouse, it flowers all the winter, and cut in the bud stage its flowers endure fresh and sweet a long time indoors in vases or glasses. *Chrysanthemums* remind one of the waning year, the early blooming kinds being especially valuable, as being certain to be at their best long before the frosts are severe enough to destroy their beauty.—F. W. B.

PLANTS IN BLOOM IN HAMPSHIRE.—*Pernettya speciosa* is now in great beauty here. I wonder one does not meet with it oftener; it seems to propagate so readily, and at this season, when bloom is getting scarce, one prizes it all the more. The last things left in bloom with me now are *Desmodium penduliflorum* (lovely), *Hypericum sinense*, *Liatrix pycnostachya*, yellow *Fumitory*, *Fragaria indica*, *Polygonum vacciniifolium* and *Brunonis*, *Potentilla dubia*, *Daboecia polifolia*, *Rudbeckia Newmani*, a yellow (bright canary coloured) *Calceolaria*, which I fancy is not hardy, but it seeds itself and comes up annually. I have lost its specific name, but had seed of it originally

from Chiswick. In addition to these I have also *Anemone japonica*, Sunflowers, and late *Asters* of course. Of these latter, *A. Novæ-Angliæ ruber* is very handsome just now, and *A. pyrenaicus* and *bes-sarabicus*. *Lobelia syphilitica* has been gay up till now, though it has been thought it would not do in this soil. My herbaceous things having now grown into goodly clumps, I have been lately dividing them and planting them in scattered groups. The white *Ceanothus*, as a bush in the open (not against a wall), is lovely now and full of pearl-coloured blooms. *C. americanus* is the name under which it was sent to me. *Cytisus capitatus*, a small bush, is also gay, its yellow heads of flower being very showy.—M. R.

FLOWER GARDEN.

SINGLE DAHLIAS AT TOTTENHAM.

ONE of the most striking proofs, if such were needed, of the growing popularity of single Dahlias is the quantities of them that are grown for sale about London as well as in the country generally, and the most remarkable collection of them with which we are acquainted is that at the Hale Farm Nursery, Tottenham, where Mr. Ware has something like five acres wholly devoted to them, the plants numbering some five or six thousand. For the past six or eight weeks this Dahlia ground has been a wonderful sight, literally a sea of colour of almost every conceivable shade. The reason why so much space has been set apart here for single Dahlias this year is that Mr. Ware intended to procure from all available sources every sort that seemed likely to be worth cultivating, so as to make a selection of the very best for propagating on an extensive scale next season. Anyone seeing this collection can at once perceive the propriety of making a selection, for though all single Dahlias are pretty, there are large numbers that rank much below the standard of excellence. In his new catalogue Mr. Ware enumerates nearly a hundred named sorts, and this number will be considerably augmented by the numerous new seedlings selected for naming out of the thousands raised here this season. Seeing that the list of named sorts is already such a bulky one, it is necessary to select for naming seedlings of the highest merit only, and this is strictly carried out here.

Dahlias up to the standard require a good habit of growth, vigorous, but not too exuberant as to become coarse, and they must be compact and not too tall. They must, moreover, be extremely floriferous, and the flower-stems rigid enough to hold the blooms well erect. The flowers may vary as to size, that is if not abnormally large or small. The florets must be broad, so as to leave no interstices between them; and flat, so that the whole row is on the same horizontal plane; and lastly of firm substance, so that they can withstand the weather. Some say that the outline of the florets ought to be as circular as possible, and the whole flower as nearly round as can be, but this is a matter of fancy. The colour is the chief point; if the claimant does not vary in this respect from an older variety, it is not advisable to name it unless it excels it in other points. Rarely, however, are two seedlings alike.

The type that Mr. Ware aims at in perfecting is that of which the beautiful White Queen is one of the best, and of which we give an illustration last year in THE GARDEN. This variety is no doubt the perfection of a single Dahlia, and if sorts of a similar stamp could be obtained possessing the rich colours of Paragon, Gracilis Perfecta, Beauty of Cambridge, and others of the better-known high coloured sorts, it would be again. In course of time no doubt with such a large amount of attention that there is being paid to single Dahlias we shall get all we want, for the Dahlia is above all other popular flowers one of the most amenable to improvement. In the vast array of varieties here it is a singular fact that some of the older sorts have not been surpassed by newer kinds, and of these one of the most re-

markable still is Paragon, whose exquisite beauty initiated the now universal liking for single Dahlias. At Tottenham it is a great favourite, and is allowed to occupy broad breadths by itself, and then its true beauty is seen to the best advantage. We are inclined to think that the best way to deal with single Dahlias in order to obtain the best effect in a garden is to plant them in masses of one colour, and arrange the masses so that those in juxtaposition blend with each other in colour. At this nursery one may see some fine effects in this way on a large scale; for instance, there are scores of plants of White Queen together in one mass or in a line, or another of a clear yellow, another a brilliant scarlet, and so on. In going through the collection of

Newer kinds, that is, those of the last and this season, we singled out two or three dozen that we considered uncommonly fine and distinct from older kinds. There are about half a dozen good yellows, the best of all being Yellow Queen, which has fine large flowers of good shape and of a beautiful clear colour, and the habit, too, is good. The other good yellows are Cloth of Gold, *Lutea grandiflora*, Aurea, and Canary, an admirable kind, so free in bloom, and dwarf and compact in growth. Of warm yellows there are Indian Red and Orange-man, both excellent, and the former recently named is admired by everyone. Among whites here are two fine novelties, viz., Albattross and White Star. The latter is a seedling from White Queen, to which it bids fair to be a formidable rival. The flowers are not so large as those of White Queen, but they are more symmetrical if that be an improvement; the white is purer, and the flowers are borne almost erect on stiff stalks, while those of White Queen hang vertically. The habit of growth, too, is an improvement, being denser and not less spreading. It remains to be proved, however, if White Star will eclipse White Queen as a garden variety. White Pet is another good white, but it is not made such a pet of as White Star, which was awarded a first-class certificate last week at South Kensington. Among other new seedlings the following struck us as being remarkably fine, viz., Mauve Queen, rich mauve; Thalia, bright amaranth; Lucy Ireland, beautiful carmine-purple; Francis Fell, bright purple shaded with rose; Darkness, deep mulberry; Nora, delicate pink; Mrs. Goldring, a very fine delicate rose-pink flower; The Baron, rich deep crimson; Zulu, deep crimson; Walter Ware, intensely deep velvety crimson, fine flower; Single Zinnia, similar, but lighter; Mrs. Burbridge, an exquisite deep maroon flower; William Gordon, rich pink shaded with mauve; Hero, creamy white; Fusilier, pale pink; Pataloon, small, but strangely striped with crimson and white; Clown and Harlequin, similar and both showy; Ne Plus Ultra, deep crimson; and Falcon, in the way of Paragon, but lighter. These may be said to be the cream of the new sorts, and those from which the floral committee at South Kensington last week selected for certificates. Among

Other kinds that have become established favourites may be named Beauty of Cambridge, a glowing crimson, kind that can be readily picked out from amongst the thousands of plants grown here. One or two of the Gracilis type are also indispensable, particularly that called Perfecta, which is indeed the perfection of a single Dahlia as regards the flower, but it lacks a little in growth. It is extremely floriferous, and must be counted among the very best. Other forms of the Gracilis type are grown here in large beds, pegged down so that the plants become prostrate, and such as some would like Dahlias to be in a garden. As has already been remarked, Paragon is grown largely here, and there are some beautiful sports of it which have become fixed and named. These are Albion, Pentagon, Oregon, Endymion, and Lovely, the latter being extremely handsome and quite distinct from the parent. Other older kinds still holding their own are Lothair, Vivid, Kisber, Cynthia, Scarlet Gem, and Ceres; and among the species, coccinea, and its varieties. W. J.

DOUBLE LILIUM AURATUM.

This was flowered by Mr. A. Higgs, of 38, King Street, Covent Garden. On more than one occasion I have heard of a double *Lilium auratum*. I have flowered many thousands of this Lily, and have been in the habit of examining each plant, but on no occasion have I been able to trace any deviation from the normal six petals, and it was an unlooked-for pleasure when Mr. Higgs brought me the subject of the annexed woodcut. The flower is in all respects perfect, no adhesion whatever of the petals to the stamens or pistil, but a graceful development of three inner petals free and distinct from the six outer petals. I felt deeply interested in the subject, and asked Mr.

sider exceptional and owing to favourable circumstances. I have had *C. pyramidalis* in the open air for the last three years in both exposed and sheltered positions, the spikes averaging 4 ft. to 5 ft. high, some even more. The soil here is very poor and chalky, requiring heavy top-dressings every autumn to yield any good result. From my experience *C. pyramidalis* should be as hardy as any member of the genus.—R. A. TODD, *Hill House, Stratteley*.

BOUQUET OR POMPONE DAHLIAS.

SOMETHING akin to a revolution has taken place in regard to this most useful class of flowers. English florists became first acquainted with this section about twenty-five years ago. They, it is believed, originated among the German florists, but

in saying they are to be preferred to them, and for these reasons: they are much more floriferous; they are much more lasting in a cut state; and they are singularly handsome and symmetrical in form as well as varied in colour. It is surprising what an enormous number of flowers a plant will produce; their abundance is far more liberal than that of the single forms.

Take, for instance, Lady Blanche, with its charming Ranunculus-like pure white flowers. How novel in appearance are the blossoms; how pure in colour; how marked the profusion with which they are produced. There is no single Dahlia can compare with it for the abundance of its blooms, and the more frequently they are cut the more floriferous are the plants. Then to Lady Blanche can be added Little Eva, pale ground, edged with rose; Isabel, orange-scarlet; Adonis, rosy carmine on a white ground; German Favourite, crimson-lake, heavily edged; E. F. Jungker, amber, a very pleasing and handsomely-shaped flower; Prince of Liliputians, very dark maroon; White Aster, white, very free and good; Professor Bergeat, rosy crimson, very bright and free; Grass an Wien, shaded buff, very pretty and distinct; Narcisse, primrose, tipped with white; Comtesse von Sternberg, yellow, tipped with white, very pretty and free; Princesse Sophie Sophieha, pale ground, shaded with lake, very pretty and free; Furstmeister Gschwind, white, peculiarly tipped with scarlet; Coquette, orange-red; Little Duchess, white, tipped with claret-crimson, very pleasing; The Khedive, pale ground, heavily tipped with deep crimson, very fine; Weimar, yellow, slightly tipped with bright red; Northern Light, rich scarlet; Rosetta, rosy purple; Dora, white and primrose; and Lilacina, pale lilac, very free.

The foregoing is a list of some of the most attractive varieties in cultivation. They may not all be dwarf in the ordinary acceptation of the term; but varying heights of growth is a positive advantage in forming beds, so that the tallest growers can go in the centre, and the dwarfier forms come to the outside. These Pomponé Dahlias are comparatively little known in gardens. It has been the practice among gardeners to look askance upon Dahlias as cut flowers; but the single varieties having challenged public attention, they are being grown and praised by many who have a very slight acquaintance with the Bouquet varieties. Only let a trial be made of them, and they will give great satisfaction. In order to get early flowers a few of the strongest plants, as soon as they are received from the nursery, should be potted and grown on in pots, and put out in the open ground as soon as it is deemed safe to do so. These, being well rooted, scarcely feel the change, and they come into flower quickly. The later planted plants come in to maintain the succession. A supply of pot roots of many of the varieties could, no doubt, be had in March and April, and where these are potted and started into growth in a little warmth, they make fine bushy plants by the end of May, when they can be placed out in the open ground.

R. DEAN.

HARDY PLANTS IN BEDS.

Now that gardeners are beginning to acknowledge the possibility of using hardy plants in permanent positions in parterre beds as a skeleton to spring and summer bedding there is hope that the exclusive use of tender plants for outdoor decoration in summer will gradually be abandoned. Mr. Wildsmith suggests the use of dwarf evergreen plants as a permanent feature, filling the spaces between them with dwarf shrubs and bulbs in winter and spring, and bedding plants in summer; a still better plan would be not only to choose flowering evergreen plants as permanent features, but to fill nearly the whole of the beds with permanent hardy plants, mixed with such as require renewal from cuttings or seeds, and use tender plants only to follow spring bulbs which can be lifted or to shade those plants which cannot stand the summer sun. With such planting the necessity of getting the tender plants out by a certain date ceases; those cold



Double Lilium auratum (much reduced in size).

Higgs to take particular notice of each blossom as it expanded, and also to have the bulb marked and left undisturbed with the view of noting in 1883 whether this was a fixed character or a temporary freak. I am inclined to think it is but a freak, but one that might be turned to account. On the plant there were four flower buds; the two first that expanded were like that shown in the annexed illustration; the last two that opened, viz., 29th September and 1st October, were single, but not with the usual finish of petals remarkable in the general run of *Lilium auratum* flowers, but with short broad petals, which I have on many occasions noticed on plants not quite happy. I think this is the first time a double *L. auratum* has been figured.

PETER BARR.

Campanula pyramidalis.—I see "J. C." writes that one seldom sees this *Campanula* doing well in the open air, and mentions an instance of spikes 3 ft. to 4 ft. high, which he seems to con-

sider how or as a result of what crosses has not been distinctly set forth. The first forms were generally of tall growth, and were named Liliputian Dahlias, and it was naturally enough supposed the plants were of dwarf growth. But the reverse was the fact. In course of time dwarf-growing types were introduced, and the tall-growing forms have almost gone out of cultivation. This section of Dahlias is now known as Pomponé or Bouquet varieties, because of their small flowers and their adaptability for cutting from. New varieties are constantly being raised on the Continent, and English raisers are now turning their attention to the production of new varieties. Mr. C. Turner, of the Royal Nursery, Slough, having this season flowered a batch of seedlings of a very high order of merit.

All the newer varieties of the Bouquet Dahlias are characterised by an erect, compact habit of growth, and they are therefore well adapted for bedding and border purposes. For freedom of bloom they are far ahead of the single varieties. The latter are now so popular, that it appears like a kind of heresy to put the Bouquet varieties in comparison with them; but I have no hesitation

Mays and Junes which ruin bedding plants, and leave the *parterre* flowerless for half the summer, also make the spring flowers late and keep them in flower longer, so that if the plants which are to follow them do not form a leading part of the summer arrangements, something which will come into flower quicker can be substituted for what was originally intended should follow had the spring flowers been earlier. The great drawback of the bedding system from a decorative point of view is the want of late spring and early summer flowers. I am very diffident in recommending anything to men whose business it is to understand that which with me is only an occasional recreation in hours of rest; but having tested almost the whole of the plants I am about to name in my own garden, I can speak of their decorative capabilities with confidence. The one or two I have not grown—*Pentstemons*, *Campanula pyramidalis*, and *Statice latifolia*—I have either seen growing in other gardens, or I have grown something myself of the same family requiring the same position, soil, and cultivation. The use of the best hardy plants for garden decoration requires perhaps nearly as much labour as bedding plants. *Carnations* must be layered; *Pinks* piped; *Primroses*, *Polyanthuses*, and *Auriculas* divided and kept up from seed; *Pyrethrums*, *Delphiniums*, *Sweet Rockets*, &c., lifted, divided, and replanted in fresh soil; and *Phloxes*, *Antirrhinums*, and *Pentstemons* raised from cuttings annually; so that the only advantage that can be claimed for hardy flowers on that score is that they require little or no attention of any kind during the winter months, and allow undivided attention to be given to the indoor garden during that season. The following arrangements would look well in round beds from 20 ft. to 30 ft. across:—

Bed No. 1.—Centre, twelve white Lilies mixed with twelve *Lilium tigrinum*; round these plant Bearded Iris of such distinct sorts as *Apollon*, with sulphur standard petals and crimson lower petals; *Atro-violeacea*, purple self; *Augustus*, azure-blue and violet; *Dr. Bernice*, coppery brown and ruby purple; *Favourite*, canary, lilac, and primrose; *Judith*, nankeen, crimson, and maroon; *Lady Jane*, coppery red and red-brown; *Magnet*, canary and red, with black shading and white veins; *Panrace*, canary and yellow, with white veins; *Spectabilis*, purple, shaded black; and *Duchesse de Nemours*, white and violet. Between these plant *Michauxia campanuloides* for autumn bloom, or red and white *Fuchsias*. Next plant a broad band one-third of the radius of the bed with single seedling *Primroses* of all colours, intermixed here and there with clumps 18 in. in diameter of *Tulips*, to be followed by *Lupinus hybridus atro-coccineus* and double Stock-flowered *Larkspurs* alternately, and also with clumps of *Gladiolus brenchleyensis* and *Tigridia Pavonia*. Outside this plant a band half the width of alternate blocks of red and white *Daisies*. In a small circle in the centre of each red block plant a clump of double *Narcissus poeticus*; in the centre of each white block a clump of *Parrot Tulips*; in a circle over the junction of the blocks a circle of *Scilla sibirica*. The *Tulips* can be lifted in time to substitute a large old *Pelargonium*; while if the *Scillas* and *Narcissi* have a space left in the centre of each clump, *Schizanthus*, *Coreopsis*, or *Belladonna Lilies* in pots can follow them in bloom. For edging, plant a border a foot wide of border *Pinks* and *Aubrietia Eyrei* alternately.

Bed No. 2.—Centre, three plants of white *Gloxinia*-flowered *Foxglove*, surrounded by *Delphinium formosum*; round these *Phlox decussata*, white varieties with dark eyes, every third plant being of the very dark kinds; round these a band 3 ft. or 4 ft. wide of mixed alpine *Auriculas*, with spaces left for *Gladiolus Colvillei*; the rose and the white varieties in separate clumps of twelve roots, also for light feathery plants to shade the *Auriculas* in summer, such as *Sutherlandias*, with scarlet or white flowers, and *Candelabrum annual Larkspurs*, *Coreopsis*, or *Gaura Lindheimeri*. Outside these a band of

early flowering *Chrysanthemums*, alternating with bright pink and bright red *Phloxes*, such as *coccinea*, *Gideon*, and *Triomphe du Parc de Neuilly*. Pinch out the centre of these while young to make them round bushes. From these to the edging carpet the ground with *Veronica rupestris*, *Silene Schafta*, *Sedum spurium*, and *Gentiana acaulis*, and plant amongst these some clumps of English and Spanish Iris of the choicer varieties, and some clumps of *Narcissus Grand Monarque*, of single and double *Jonquils*, and of *Iris obliensis* and *Iris pumila*. Edge the bed with white giant *Polyanthus*. The soil for this bed should be heavier than that for beds 1 and 3.

Bed No. 3.—Centre, six plants of *Campanula pyramidalis*, three blue and three white; round these one row of seedling *Remontant Carnations*. These must have the true *Remontant* habit, forming dense bushes. Round these plant a broad belt of *Achillea tomentosa*, *Phlox Nelsoni*, *Phlox setacea* in variety, and *Silene alpestris*, with an outer line of *Oenothera macrocarpa*. Dot this belt of plants with clumps of spring *Tulips*, followed by *Cantaurea ragusina* or *C. Clementei*, alternating with *Salvia patens*. Outside these plant a broad band of Belgian *Pansies* mixed with *Saxifraga cordifolia* 4 ft. apart. Edge the bed with *Arabis albidia variegata*. If the season should prove too hot for the *Pansies* they can be moved and dwarf *Tropaeolums* substituted.

Long beds along walks, which are usually so tame and uninteresting, can be varied almost infinitely by using hardy plants. The rainbow-like effect of winding lines of scarlet, pink, blue, yellow, and white was very striking when first seen, but gets disgusting when one sees it in every garden repeated every season, and the same may be said of the oval, serpentine, star, and circle and panel beds cut out on the turf. A series of simple rectangular beds parallel to the walks varied in planting, soil, and cultivation would have a far better effect. For these beds there are many plants suitable which look well in a mass, and yet bear close inspection even better than bedding plants. Tender plants need not be excluded, but can be used freely without destroying the effect of the hardy flowers, and their use in summer would allow more latitude in the arrangements. What ought to be aimed at, however, is not sameness, but variety; instead of the beds being as nearly as possible the same throughout the season, the aim should be to produce the variety of Nature. This can be managed and unsightliness avoided by using for tall plants late flowering ones principally along with those early flowering ones which can be cut down immediately their flowering is over without injury. Then as to cultivation, that is easily managed. Many florists' flowers require rich cultivation; these can be planted in separate beds, which can be dug and manured every year and still form part of a decorative scheme. Every accident of position can be used to produce variety. Beds facing due south give an opportunity for planting florists' *Anemones* and *Primulas* on the north side, afterwards shaded by tall plants. Beds partially or wholly shaded by trees may be planted with things that like such positions, while beds so placed that they get no sun during winter and sunshine nearly the whole day in summer afford good positions for plants from regions where winter and summer are more decidedly marked in their beginnings and endings than in our climate, and the plants from which are started into growth by unseasonable high temperature early in the year only to be partially checked by late frosts. For conspicuous positions where a certain amount of uniformity is often desired, florists' flowers offer the best material for decorative effects, as uniform beds can be formed with them only differing in colour, as with *Pelargoniums* and *Verbenas*, while a great variety can also be got if desired. In using hardy flowers of tall growth, no attempt should be made to form masses of them. I have noticed many beds of *Dahlias*, *Cannas*, and sub-tropical plants ruined in effect by that treatment. Tall plants should stand alone, or in clumps wide enough apart for their individual beauty to be appreciated, and separated

by something wholly distinct. The following are a few arrangements suitable for

Parterre beds, about 20 ft. long by 5 ft. wide. For a bed in rich soil facing due south: Two feet from the back, three *primrose Dahlias*, alternating with three dark maroon *Dahlias*, and between the *Dahlias* *Delphinium formosum*. In front of the *Dahlias* six clumps of white and olive Spanish Iris, and in front of the *Delphiniums* five plants of *Phlox decussata*, *coccinea* alternating with any good white. On the north side plant alpine *Auriculas* mixed with double scarlet *Anemones*. In front of *Phloxes* plant bedding *Violas* with clumps of spring *Tulips*, followed by annuals. For a bed in light soil facing due south: About 2 feet from the north side plant clumps of English Iris and *Gladiolus brenchleyensis* alternating, separated by clumps of common white Lily. In front of these, border *Carnations* and *Tigridias*. For front line, Iris *pumila*, *Statice latifolia*, and *Oenothera macrocarpa* and *O. taraxacifolia*; at the back of the bed plant *Primroses* in variety, double and single. For a bed in a much shaded position, getting only the morning sun in summer, but plenty of sunshine in winter, near each end and in the centre put three clumps of *Anemone Honorine Jobert*; between these two plants *Spiraea palmata* and four plants *Spiraea Filipendula flore-pleno*; behind these *Pyrethrum roseum* in variety, alternating with *Christmas Roses*. In front plant *Anemone apennina*, *Anemone fulgens*, and *Anemone coronaria* and *stellata*, interspersed with clumps of *Tulips*, followed by a white-flowered *Pelargonium*. Multitudes of other combinations will suggest themselves to gardeners who know hardy plants.

Single beds.—A very choice bed of hardy plants, 20 ft. by 40 ft., to form the principal embellishment of a small garden, would be one planted as follows: In the centre have a circle 6 ft. across of choice hardy Lilies, choosing those which have proved suitable to the soil and climate. Round these put a circle of *Iris orientalis*, violet-blue, alternating with *Iris florentina*, white; next these a circle of *Phlox decussata*, and joining that two straight lines of *Phloxes* running out in the central line of the longest way of the bed to within 3 ft. of its ends; for these *Phloxes* tall-habited kinds should be chosen and preference given to those forming large trusses. They may be arranged in any way as suits the taste, but the two wings should be the lightest in colour, and the two outermost plants should be a tall white, such as *Miss Wallace*. Next draw a line 3 ft. from the edge of the bed all round, and plant a light *Dahlia* at each corner in the line, and divide the long sides into equal spaces by another two *Dahlias*. On each side plant a dwarf *Antirrhinum* between the *Dahlias*, and fill the rest of the line with mixed *Pentstemons*. Carpet the four spaces enclosed between the above line and the *Phloxes* with *Primroses* of all colours, alpine *Auriculas*, white *Polyanthus*, and dwarf *Anemones* of sorts already named, and amongst these plant clumps of choice *Gladiolus*, early and late, *Tigridias*, a few plants of *Geum coccineum plenum*, *Polemonium cœruleum*, *Sparaxis pulcherrima*, and *Coreopsis grandiflora*. In the 2 ft. 6 in. available outside the *Pentstemons* plant clumps of *Gentiana acaulis*, show *Pinks*, choice English and Spanish Iris, Iris *pumila* and *Iris persica*, *Pansies*, *Scilla peruviana*, *Narcissi*, and *Tulips* and German *Wallflowers*, followed by half hardy annuals and bedding plants. Any treading amongst the plants will thus be avoided, any changing of plants being within reach from the edge of the bed. A good edging for the north side of beds and borders filled with plants of medium height I find to be *Gentiana acaulis*, alternating with *Pinks* *Anne Boleyn* and *Nell Gwynne*, with two clumps of *Scilla sibirica*, and a clump of *Snowdrops* between them; inside these, *Anemone apennina*, alternating with mixed single *Anemone stellata*. For third line, dark coloured seedling alpine *Auriculas*, mixed with white *Polyanthus*. Fourth line, *Gaura Lindheimeri* and Indian *Pinks*. A good substitute for these would be *Matricaria inodora fl.-pl.*, alternating with the yellow variety

of it, which is to be sent out in spring, 1883. One caution is necessary in planting hardy flowers together. No plants should be used close together without having been previously tested in a like position; because two plants will thrive with the same soil and treatment, it does not follow that they will do equally well in close companionship, and there are other things to be taken into account. Two failures I have had this year are typical of the kind of thing to be guarded against. I planted Phloxes in front of show Pinks and Anemones thinking the Pinks would have bloomed before the Phloxes were tall enough to shade them, but the mild winter started the Phloxes early, and they grew on without check, while the cold early summer kept the Pinks back, so that being much shaded they bloomed poorly. Some self-sown Poppies were allowed to stand through the winter amongst clumps of Phloxes to fill the centre of a bed before the Phloxes came into bloom, but they appropriated the whole manure and moisture of the bed, grew to a great size, and so completely starved the Phloxes, that they scarcely grew at all.

The arrangements of flowers herein set forth would not of course please everybody; those who care for hardy flowers for their own sake will always be satisfied if they get their flowers to grow well and show their individual beauties to advantage, and generally have but little sympathy with the class of mind which regards flowers and plants merely as so much beautiful material to be worked up into decorative effects. The picturesque garden in which every varied growth of plants tells by contrast with other habits of growth is undoubtedly the highest, but public taste has a long road to travel before that kind of garden can be appreciated by those whom Mr. Wildsmith aptly names the "don't-care-for-anything-in-particulars." These, unfortunately, will always be in the majority, and to suit them and bring those out from amongst them who have higher capabilities we must be content, like the negro's new clergyman, not to put all the leaves on the top shelf for the big people, but plenty of them on the lower shelves for the little people as well.

J. D.

Escallonia macrantha.—Although we have many fine flowering shrubs, few are more lovely than this when seen in its best condition. It is most frequently met with as a wall plant, the assistance of which in cold districts it needs and well deserves. But it looks best when grown as a bush in a border where the situation is suitable. When passing through the pleasure gardens at Bournemouth in September last, I was pleased to see this shrub in fine condition; planted in front of borders, where it seemed to be quite at home, its fine green leaves set off the trusses of lovely blooms to advantage. Associated with *Hypericum oblongifolium*, *Clethra alnifolia*, *Hydrangea paniculata grandiflora*, and similar shrubs that bloom at this season, it would have a fine appearance wherever the climate, like that at Bournemouth, happens to suit it.—J. C. F.

Xiphion Aitchisoni.—This delicate little plant is very nearly allied to *X. Sisyrinchium* figured in the *Botanical Magazine*, tab. 6096, and is that mentioned as having been found by Dr. Aitchison in North-west Punjaub. It differs from *Sisyrinchium* in its more slender growth, in the flower-stalk bearing almost without exception only one flower, and in the laxer form of the flower itself; the inner segments of the perianth tube are also more curved and less erect and of the same shade of blue-purple as the outer segments. The plant is found at about 2000 ft. above sea level, and prefers moist, green banks or swards. It flowers in February or March, and grows to a height of 12 in. or 15 in. It would probably be quite hardy in England. The *Xiphions* differ little from the *Irises* except in the bulbous root. They inhabit chiefly the Mediterranean region, Spain, Portugal, Syria, Asia Minor, and through Persia and Afghanistan to North-west Punjaub. The genus is monographed by Mr. J. G. Baker in the *Journal of Botany* for 1871, where

he gives fourteen species, excluding *Aitchisoni*.—C. F. ELLIOTT, *Rawal Pindi*.

STERNBERGIA AETNENSIS.

A LITTLE bulbous plant—quite a gem—is now in flower in the Hale Farm Nursery, Tottenham, under this name. The accompanying woodcut represents it just when the golden flowers are



Sternbergia aetnensis (natural size).

pushing above the surface of the ground. We know nothing of its culture or history except that in Kunth's "Enumeratio Plantarum" it is described as growing among Ferns in wooded places in Sicily. It is a near ally of *S. colchiciflora*, and is probably quite a hardy perennial.

MORE GOOD THINGS.

ANEMONE ALPINA is very handsome as a fine foliated plant. It grows freely in rich, moist soil, and seems to prefer a little shade in the hottest part of the day. The leaves are large and elegantly cut; it increases in beauty annually until it becomes a goodly tuft; the flower-stem grows to the height of 1½ ft. or 2 ft.; flowers large, silky white, remaining long in good condition. *Anemone alpina sulphurea* is the counterpart of above, with pale, yellow blossoms, and equally deserves attention.

ANEMONE SYLVESTRIS, in a half shady position, grows with great freedom and makes a fine evergreen tuft, producing freely its pure white nodding flowers early in summer. In the distance it bears considerable resemblance to *Anemone vitifolia*, which, however, flowers in autumn.

AGROSTEMMA FLOS-JOVIS.—In its season, and that a long one, it is one of the brightest ornaments of any garden, growing with great freedom in open, sandy, rather dry soil. It does best in full exposure, its brilliant, rosy scarlet blossoms being produced in the greatest freedom, and conspicuous even at a long distance off. It is, moreover, a plant easily raised from seeds, which it produces freely.

AUBRIETIA HENDERSONI is a beautiful low-growing, spring-blooming plant with deep purple flowers. It is a selection from *A. purpurea*. It soon forms a wide tuft either on the rockery or open border, and makes a charming permanent edging to a bed. It flowers so freely as to quite hide the foliage. There are other deep-coloured sorts, but this is one of the best.

BOCCONIA CORDATA (JAPONICA), of sub-tropical port, should have a place in every garden, however small. It is handsome when just emerging from the ground in spring, and handsome also in summer, with its stately stems (often 6 ft. or 8 ft. high) and beautifully cut leaves. It is handsome, too, late in the season when surmounted by its feathery plumes of cream-coloured small flowers. I find it to succeed under various conditions, even in a damp spot near water, but where the soil is

nearly always cold and saturated it does not attain to its full height. Planted at the foot of a dry Beech hedge in full sun, at the foot of a warm wall, in a shady place under trees, or in the open border—in all such situations it is distinct and desirable.

CAMPANULA PERSICIFOLIA CORONATA ALBA is one of the most continuous blooming plants grown here; it falls into the category mentioned by "F. W. B." of plants which are the better for annual division. If not divided, but allowed to grow into a clump, one gets a flush of blossom in the early summer and very little afterwards, but if youthful vigour is infused into the stock by pulling the plants into pieces in the late autumn, it continues to throw up fresh flower-stems all the season. It is indeed as fresh now in October as it was in May and June. *Campanula p. alba fl.-pl.* is a very good continuous white flowering plant similar in habit to that just named, but not so good here; the flowers being very double and our climate moist, they quickly decay.

CAMPANULA TURBINATA DICKSONI is, I think, the most floriferous plant we have here. It grows taller than the typical *C. turbinata* and the flowers are smaller, but produced in branched spikes and so numerous as to present a solid mound of the purest white.

GERANIUM ROSEUM is a favourite of mine. It makes a tuft 2 ft. high or more, and blooms continuously all through the season. It was in flower in May, and its blossoms are quite fresh now in October; they are of moderate size and borne in profusion.

HELLEBORUS COMMISSIONER BENARY must be placed quite at the head of this beautiful race of plants. The leaves are persistent, the flower-scapes 18 in. to 2 ft. high, the flowers numerous, nodding, creamy white, and profusely spotted inside with rosy purple. It is by far the best of the German hybrids, but unfortunately it is not plentiful.

HEMEROCALLIS THUNBERGI.—This, to my mind, is the most dainty of its handsome race. Its dimensions are altogether smaller than those of *H. Kwanso* and allied species, and so it falls into that useful category—"suitable for small gardens." With me it does not grow more than from 18 in. to 2 ft. in height. It flowers early and remains a long time in bloom; its waxy, golden trumpets, crisp and beautiful, are also useful in a cut state, and if cut when in bud or when just on the point of opening, they last a long time in water. This species seems to prefer a drier position than either *H. fulva* or *Kwanso*, both of which here grow well in water.

IRIS AUREA.—I rather think I have spoken favourably of this plant before, but too much can scarcely be said in its praise. It is by far the handsomest of the tall-growing, yellow-flowered group; the leaves are evergreen and the flower-stems 5 ft. high, slender, and graceful; the rich, golden blossoms measure about 8 in. across, and the falls, which are beautifully fringed, remain open for many days at a time.

IRIS KEMPFERI.—I do not suppose for a moment that the fine group of Irises of which this is the type will ever be got to do at all well in dry and poor borders of which too many are everywhere met with, but here in rich damp borders they have grown into large tufts and flower well annually. They have been planted in various positions. A very fine clump is placed on a little rocky promontory jutting out into the water of a pond, and only about 9 in. or 10 in. above it; this season it bore twenty-five large, rich purple flowers each as big as a cheese plate. It has been increasing in size and beauty ever since it occupied its present position, four years ago; others of various colours are placed in similar situations and are doing equally well. I have tried this spring the experiment of growing them in water, and for that purpose dug up a clump about a barrowful in size and put it into half a paraffin cask of water; at first it seemed inclined to resent aquatic treatment, but after some time it commenced to grow and bloomed in due course, and it is now a most flourishing clump. I will not fail to

record its winter and next spring behaviour. I planted a number this summer around the edge of some new ornamental water, just above the water level. It was afterwards decided to raise this level 9 in., and now they are submerged, but look happy.

LEUCOJUM VERNUM (Spring Snowflake) is one of the very best of hardy spring blooming bulbous plants. In good, rather damp soil it grows 9 in. or 10 in. high sometimes, though seldom higher; the flowers are larger than those of the summer Snowflake; at first they stand erect, and then they gradually droop. Colour creamy white, with yellowish green tips to the segments. It is not often met with in gardens, but is now becoming much more plentiful and consequently cheaper than it has been.

LILIUM BATEMANNIÆ has been of great value here, finishing up the hardy Lily season with a glorious feast of 2–3 ft. stems, furnished with green leaves to the base and surmounted from three to five erect blossoms each of a lovely ripe apricot colour, with a touch of salmon. They began blooming in the beginning of September, and now (middle of October) are not quite over. I sowed the bed over with *Origanum gracile*, which formed a thick, tufty undergrowth a foot deep, and may have had something to do with their success.

FERULA COMMUNIS.—Where beautiful feathery green plumes would be at all desired during the dull and dreary months of autumn and winter, this handsome plant supplies that want. It is a gigantic Fennel without smell. Its season of growth begins in autumn, and it goes on throughout the winter; no amount of cold injures it, though severe cold may arrest growth for a time. As material for cutting it has no equal, and when cut it lasts many weeks quite fresh.

LOBELIA PURPUREA (Milleri) gives us a distinct clump of beautiful purple, forming a fine contrast with the scarlet fulgens. I do not know whether it is a species or only a hybrid; in habit and foliage it closely resembles fulgens, but it seems to survive the winter in a greater variety of positions than that does.

MORINA ELEGANS (longifolia) is one of the most attractive plants now in bloom here. It forms a rosette of Acanthus-like leaves, and produces a 3-ft. spike, closely set with spiny whorls, from amongst which the flowers spring numerous. These are white at first, then pink, and afterwards deep crimson, so one has white, pink, and crimson flowers at the same time. It seems to prefer a slightly raised position, with a deep, rich layer beneath.

ENOTHERA FRASERI is one of the good things that will grow anywhere and in any soil, though, like many other plants, repays generous treatment by attaining a greater stature and producing more and larger blossoms. Its height is from 2 ft. to 2½ ft., colour rich golden yellow, and the flowers are produced in great abundance and for many weeks at a time.

ENOTHERA TARAXACIFOLIA surprises most people when they see it for the first time, and owing to that circumstance I apprehend that it is far from being well known. Fancy a spreading mass of Dandelion-like leaves interspersed with large cup-shaped blossoms, milk white, others pink, and others deep rose. They open in the evening white and by the second day have become red. What has puzzled me much in reference to this *Enothera* is this: last year six or eight plants of it were planted on a raised part of the rockery 2 ft. or so above the general level. They grew beautifully that year, but not one has appeared this, though all those planted on the level and much moister soil came away vigorously. T. SMITH.

Nevry.

Shade for the Moccason flower.—There is a remarkably large and fine plant of *Cypripedium spectabile* in the hardy plant garden at Down House, Blandford, which is nicely shaded with an elegant growth of *Clematis* over it supported on a tent-like trellis. This a clever way of

giving partial shade without consigning either one's plants or their admirers to a wood. There the trees too soon find out the good soil given to favourite plants. In some cool districts this showiest of hardy Orchids grows well without shade, but there are in nearly every garden plants which would do best in shade, and this wire tent with slender climbers is a capital way of securing it without taking the plants away from the flower garden.—V.

Calceolaria sulphurea splendens.—As regards the hardness of this plant I can testify that I have grown it for upwards of thirty years in my flower borders the whole year round, but in severe winters I have lost a good many plants. They are, however, replaced by dividing the roots of the plants left. I have at present hundreds of this *Calceolaria* in full flower.—WM. CRAWFORD, *Market Gardens, Stenhouse, Liberton, near Edinburgh.*

—Mr. Alexander Fraser (p. 511) is in error in stating that Mr. Crawford is the source from which "all others in this neighbourhood got their plants." Last year I got several plants of this *Calceolaria* from Mr. Gourlay, Musselburgh, who informed me that it has been grown about Inveresk for thirty years, and that Mr. Young, secretary to the Royal Caledonian Horticultural Society, has grown it for some forty years, from which it appears that several others may have the plant without being aware of its merits. A more singular fact is that none of the recognised authorities about Edinburgh, with the exception of Mr. McKenzie, manager of the Warriston Nurseries, knew the plant, although Mr. McKenzie says it was the *Calceolaria* thirty-five years ago, and he was quite aware of its hardness. The nearest figured plant to it is that in the *Botanical Magazine*, under the name of *C. floribunda* (not *aureo-floribunda*) of more recent times.—ROBERTSON MUNRO, *Abercorn Nursery, Piershill, Edinburgh.*

Worms on lawns.—"S. A. M." complains of worms being a nuisance in his lawn tennis ground, and wishes to know how to get rid of them. At Langholm, Dumfriesshire, the bowling-green was greatly disfigured by worm casts, and the following is the method adopted to get rid of them as described in a local paper: "Last week effectual means were taken for thinning the number of worms on the old town bowling-green. The specific applied was a decoction of corrosive sublimate, half a pound of which was dissolved in four gallons of water, and to each half pint of this solution four gallons more water were added. It will thus be seen that a very large amount of water was needed ere the poison was sufficiently diluted. Notwithstanding this, when the green was watered with the decoction, the effect on the worms was instantaneous, and the rapid manner in which they came up in thousands to the surface of the Grass to seek relief will not be readily forgotten by those who witnessed it. The number of worms thus destroyed defied calculation, but we may state that the boys employed to lift them gathered no less than 15½ bucketfuls. It is anticipated that the effect on the over-populated green will be most beneficial."—W. LITTLE, *Ardgovan.*

—If "S. A. M." will moisten the Grass with lime water he will find the worms will come up so as to cover the ground. The principal thing to be avoided is not to use lime water too strong, or the Grass will be destroyed. Of course, in wet weather it will bear being much stronger than in dry and sunny weather. Experience only will indicate the strength the wet or dry matter will permit it being used.—J. W.

Paris Daisies in autumn.—Few flowering plants are more constantly attractive than the various forms of Paris Daisies as under anything like fair treatment they bloom steadily on throughout the year. In late autumn their merits are very conspicuous, as they not only resist with impunity the drenching rains which mark that season and which destroy the beauty of so many tender bedding subjects, but they bear without injury a considerable amount of frost, and when grown in

an open position they at that time present almost as gay an appearance as in the middle of summer. This capacity for enduring an excessive rainfall renders Paris Daisies extremely valuable for open air decoration, and as they thrive in the poorest of soils and curiously enough bear with equal indifference strong heat and prolonged drought, thriving also in town gardens, it may truly be said of them that they are indispensable to every garden, and I may add to every greenhouse.—J. C. B.

GARDEN FLORA.

PLATE CCCLIX.

THE IMANTOPHYLLUMS.

FEW classes of plants exhibit such marked improvement since the time of their first introduction to this country as this genus of South African Amaryllidaceous plants, and yet in their case there is still room for further improvement. For example, the *Imantophyllums* are all, as it were, of one colour—different shades of yellow and orange—but, nevertheless, they obstinately refuse to intercross with any of the other allied species. I, in common with many others, have repeatedly tried to cross them with *Valota*, *Hippeastrum*, and others, always hoping against hope, for I believed that the bulb-like form of the seeds of the *Imantophyllum* presented an awkward barrier to the hybridist who wished to cross the plant with others bearing small granulate or flat scale-like seeds. Nevertheless, I persisted, and often have had different people written to me to say that they had succeeded, that cross-bred plants were coming on, but in every case I found them to be simply seedlings of *I. miniatum* or the opposite plant, as the case might be. Notwithstanding, however, all this, as great improvement in point of beauty has been made in the *Imantophyllums* as if a blue or a red one had been obtained. Some of the success may, of course, be accounted for by the importation from South Africa in later years of better varieties, but the greater part of it must be attributed to the perseverance of cultivators both in this country and on the Continent, who, by seeding from the best varieties and again and again selecting the best forms, have succeeded in obtaining varieties greatly superior to any of the imported plants.

Imantophyllum Aitoni (*Clivia nobilis*) was the first introduction some sixty years ago, and it is yet thought much of in many old gardens. It has broad, rather upright, dark green leaves and stout scapes bearing thirty to fifty flowers, each being about 1 in. in length, curved inward and drooping. Its colour is yellow, tinged with orange and tipped with green. *I. cyrtanthiflorum* comes next as a decided improvement on the preceding; it has all the appearance of a large form of *I. Aitoni*, and is supposed to be the result of a cross between that plant and *I. miniatum*, a statement about the correctness of which I have no doubt, as I have succeeded in reproducing the plant by that means. *I. Gardnerianum* is the last and best of what may be called the drooping flowered varieties; when well grown it is a noble plant either in or out of flower. Its leaves are often 3 ft. in length, narrow, arching, and pointed; the scapes are between 2 ft. and 3 ft. in height; the flowers are like those of *I. cyrtanthiflorum*, but more loosely arranged.

I. miniatum, the parent of the fine varieties which now command so much attention, was in-

Our plate was prepared from a plant in Mr. B. S. Williams' Nursery, Upper Holloway.



introduced about thirty years ago, and has ever since been a great favourite on account of the showiness of its flowers, the freedom with which they are produced, its beauty as an evergreen foliaged plant, and the readiness with which it adapts itself to any mode of culture which may be most convenient. At first it was mostly grown as a stove plant, but it was soon found that it succeeded better and that the flowers became brighter in a cooler house, and it is now classed amongst greenhouse plants; indeed, I have frequently had plants of it frosted without their being much damaged, but I always found, in order to grow it to perfection, that it required a cool intermediate house of a rather dry atmosphere; for this reason it is in common with all the other varieties of *Imantophyllum* are among the very best plants for dwelling-house culture, and are largely used, particularly on the Continent, for that purpose. The original species has narrow-pointed leaves, readily breaks up from the bottom, and produces a number of flower-scapes from 1 ft. to 1½ ft. in height, tapering towards the top, and bearing from eight to twelve light orange flowers. *I. miniatum superbum*, a variety resembling that previously named, but stronger growing and having a white centre, next appeared. This, too, had the habit of breaking up from the bottom. *I. miniatum maximum* came into notice about fifteen years ago. I saw it in several places about the same time, and am not certain about its origin, but I believe it was imported. Mr. Wilson Saunders' plant, which was an improvement on the variety *maximum*, Mr. Green informed me was imported. This was the first of the plants from which the new varieties sprang, and is still worth growing. The whole plant is unlike the original species, being much larger and more robust, the leaves broader, darker green, and very bluntly pointed. It exhibits a great disinclination to break up from the bottom, but grows on year after year. The flowers are large and bright orange in colour. *I. miniatum giganteum* is another of the recent introductions. It is an improvement on the variety *maximum*. I have only seen it in Messrs. Veitch's nursery at Chelsea. This and all the previously named kinds have emanated from English gardens. On the Continent a great many varieties are catalogued, all excellent, particularly the varieties Van Houttei and Mad. Van Houtte, but many of them resemble those already known to us too closely. An exception to that, however, is

I. miniatum Martha Reimers, which is certainly by a long way the best *Imantophyllum* ever introduced, a fact confirmed by the readiness with which the highest certificates have been awarded to it on every occasion on which it has been staged for that purpose. The plant is a strong grower, very ornamental, and bears large flower-spikes, which differ from those of the species in being larger at the top than at the bottom. The head of bloom, which often consists of eighteen large orange-scarlet flowers, sometimes measures as much as 1½ ft. across. It is indeed a plant to be coveted. The progression in *I. miniatum* may be marked from the time of the introduction of the variety *superbum*; in this commenced the enlargement of the top of the scape, a peculiarity which increased in the case of *maximum* and *giganteum*, and culminated in the variety now under notice.

Culture.—*Imantophyllums* are all summer and autumn flowering plants; all have thick, fleshy roots, and are of easy culture. They succeed best

in turfy yellow loam, with, if it can be had, a fourth part of fibry peat. When growing freely occasional watering with weak liquid manure is beneficial. The beauty of the whole genus is greatly augmented by the large red fruits which follow the blooms, and which last in perfection over a year.

JAMES O'BRIEN.

Harrow-on-the-Hill.

CELSIA ARCTURUS.

I HAVE intended for some time to write you a note concerning a plant which I have always believed to be *Celsia Arcturus*, but I am not certain whether it is that sort or not. At any rate, it differs from the variety figured in your plate last Saturday, and as soon as I get home to Sussex, if still in bloom, I will send you a specimen. For greenhouse or house decoration it is one of the most useful things I know, the bright yellow flowers always telling among green and other colours. What I would wish specially to call attention to is the fact that even in a dark room the flowers open almost all along the spike, and last in perfection for quite three weeks. On a plant grown from seed about three years ago I have had this summer seven spikes open at once; another year I hope to have many more. They seem to require but little attention, the chief thing being to cut off the old flower-stalks as soon as withered, when a new one will soon break out. I have given away a number of plants to people, who have seen and been much pleased with it, but though uncommon I never considered it to be at all scarce. It would probably be quite hardy in the warmer parts of England, but the rain and wind knock the flowers off so much if not protected, that its beauty is spoilt; and it seems right to take advantage of its growing well, as I said before, in a dark or shaded place, where many other things would probably not do at all, or would get "drawn." I may perhaps add that the plants are grown in 4½-in. or 3-in. pots, that the summer shoots are hardened in the autumn, and that after being wintered in a cool frame or greenhouse, they flower readily in April, and would no doubt do so earlier with a little heat, but in spring one has plenty of yellow flowers for pot plants. Another year I am going to try to grow some small plants of the purple *Mullein* to contrast with the *Celsia*, for they too would, I think, make a better spike if sheltered from wind and rain.—C. R. SCRASE DICKENS, *St. Enoch Station Hotel, Glasgow*. [*C. Arcturus* is the name of the plant of which you have sent a specimen. We have also received this plant from Mr. Poë, Riverston, Nenagh.]

—"W. G." will doubtless be pleased to learn that *Celsia Arcturus* at all events is by no means lost, as he supposes, as plenty of this pretty plant is to be found at Belgrove, where it is much valued as an almost perpetual blooming greenhouse plant, young cuttings sending out nice little spikes of bloom almost as soon as struck. It was sent here from a neighbour's garden under the name of *C. cretica*, but a reference to the figure in the *Botanical Magazine* (vol. 45, tab. 1962) soon proved it not to be that variety, but the true *C. Arcturus*.—W. E. GUMBLETON, *Belgrove, Queenstown, Co. Cork*.

—Of the several *Celsias* referred to in THE GARDEN last week (p. 314) as apparently lost, I may say that *C. Arcturus* is used with fine effect as a greenhouse or conservatory plant in the Botanic Garden at Cambridge.—R. I. L.

Maiden-hair Ferns in the cool greenhouse.—In Mrs. Davidson's greenhouse, only heated by a small lamp apparatus in winter, may be seen the common stove Maiden-hair (*Adiantum cuneatum*) and Williams' small-leaved variety of it in perfect health; indeed, *Adiantum gracillimum* looks in better health than usual. In the same house our native Maiden-hair Fern also grows, but that is more likely to be expected to thrive in the cool greenhouse.—V.

RAMBLES OF A PLANT COLLECTOR.

(Concluded from p. 338.)

Shanghai from Formosa, with a little fever and ague. The weather was very cool, and in a few days I was quite well. I refitted my stock of necessities for collecting, and laid in a stock of "tinned" provisions for my trip up the Yangtse River. I made several excursions from Shanghai; one to Ningpo and the hills near, and another to Feng-wah hills, near Shanghai, both places pretty well denuded of vegetation by the natives. The only thing I got was a lot of *Daphne Genkwa*, a very pretty deciduous shrub, not unlike Persian Lilac. I also visited an old ruined city about thirty miles from Shanghai, but, as usual, no plants to be found, and the country perfectly bare. One thing struck me as peculiar. All over the country were long boxes on four legs, generally thatched, some standing almost in every field near the villages. These were the dead. It seems they are exposed for a certain period and then buried in the family grave. From an English point of view they are not nice things to be scattered all over the country.

When on the Feng-wah hills (about 750 ft. high), it struck me that they were originally islands in the mouth of a big river; the alluvial deposit all round for miles has evidently been left by the river Yangtse at some distant date. The hills are composed of rocks. The country round is highly cultivated, and a perfect network of canals. It was here I saw cormorants fishing in the canals, and I may say droves of thousands of ducks being fed for market. I went on from Shanghai to Chinkiang, an open port on the Yangtse, and about thirty miles from Nankin. I arrived there in time to see *Daphne Genkwa* in full flower. It was growing in the deposit called loess, a very close, hard soil not unlike sandy clay in appearance. The soil is very rich. Growing with the *Daphne* were *Spiraea grandiflora* (*Exochorda*), a glorious plant as one sees it in China; *Spiraea Reevesiana*, *Indigofera decora*, several *Hypericums*, and a dwarf *Crataegus* with a large white flower; several kinds of *Euonymus*, *Deutzias*, *Weigelas*, and stunted *Pinus sinensis*. In the more sheltered places grew *Forsythias*, *Loniceras*, *Akebias*, and wild *Cherries*. Stunted Oaks were everywhere, and *Ilex cornuta*. Most of the plants I saw on the snowy valley hills at Ningpo are common here. I was able to get plenty of sport with my gun whilst rambling over these hills. I lived in a temple with an old Bhuddist priest; my hammock was slung between two large pillars before three huge gilt images of Bhudda. I did not interfere much with their religious duties, as they seldom came in to pray, and the only ceremony I saw was ringing a bell and beating a big drum, the bell always rung at sunrise and sunset. I shot almost every day a wild boar, and always as many pheasants as I could eat. I got also some porcupines. I saw and shot several woodcock. Plenty of snipe were to be got for the walking at the bottom of the hills. The Chinese here were very civil. I collected a lot of plants of different kinds, amongst which was a rare Lily. From Chinkiang I went on by steamer to

Kuikiang, and was favoured with the use of a nice bungalow on the mountains, inland from that place. There are no decent roads in China: the main path is generally only about 6 ft. wide, and often paved with irregularly shaped stones, or rather was once upon a time; now there are a few stepping stones for a few feet, then a few yards of mud. If a horse or coolie chair comes along one has to either step down into a mud rice field or dispute the way with the comers. Near Kuikiang the Chinese are not of the best disposition, and I avoided the villages and generally turned off the road if I saw many people coming. I was stopped several times by the natives and told I had no right there, or that I must go back; once I had all the plants I had collected taken from me by a priest and a gang of cut-throat-looking fellows. I, however, fetched them again at night. Once I was surrounded in a village, and I thought the curiosity of the natives would have resulted in stripping me of all I had. The frightful diseases with which some

of the Chinese are afflicted, it is sickening to behold. The miserable wretches had made me almost mad to be clear of them. Most indescribable skin diseases, others just recovered from small-pox, others with toes and fingers completely rotted off with disease. I have many times walked two and three miles to avoid the villages, and even then a crowd would follow me, shouting "foreign devil," &c. The Kuikiang Mountains extend from north to south of the Poyang Lake. It is a fine range; the highest point is 2000 ft., I should think, and called Looshan Mountain. As I left Kuikiang and rambled along amongst the old graves and bushes on the roadside I noticed several light-coloured varieties of the *Daphne Genkwa*. It struck me there might be a white one, and I was somehow always looking for a white variety. When near the hills I saw in the distance, across the paddy fields, a white patch of flowers. I went, and found to my inexpressible delight a pure white variety of the *Daphne*, with much larger flowers than the lilac one, and slightly scented. I took up the plant carefully, and sent to Kuikiang for pots, and potted it. It grew, and was eventually safely landed at Coombe Wood Nursery, where it thrives well. It was growing in stiff yellow loam; in fact, I never found *Daphne Genkwa* in anything else except loam and stiff yellow loam. It thrives admirably in gravel at Coombe Wood. The best way to grow it is to prune it down after flowering, so as to get long young growths, on which the flowers are produced the following spring from the ground to the top of the branches. I have seen it 4 ft. long in China, just as Mr. Van Volxem described it to me—a "grappe des fleurs." The white variety is evidently a rarity, as the Chinese said they never saw a white one before. I only found one plant. I settled myself in the bungalow on the Looshan Mountain—a most beautiful place on the side of a rushing mountain stream, a large, deep, clear pool and small waterfall being just in front, and a little further up the hill a splendid gorge with perpendicular cliffs 500 ft. high, covered with all sorts of interesting plants, the finest of which was the large yellow *Azalea*, like a fine *Azalea mollis*, only much larger. There was also another of the tribe with flowers like *Azalea*, but foliage and habit of a *Rhododendron*; *Cephalotaxus Fortunei* hung in large bushes from ledges, and in damp shady places a Lily like *cordifolium*. I also got a very finely cut-leaved variety of *Lastrea aristata*, a most beautiful Fern. Wild Tea grows with several wild *Camellias* all over the hills, and enormous quantities of *Azaleas*, red, lilac, and salmon. A beautiful yellow *Cassia*, and the largest leaved evergreen Oak I ever saw was growing together on one point. One day I rambled to the top of

The Looshan Mountain, and found a *Rhododendron Fortunei* in full flower; it is a grand flower, and as I saw it I consider it for size and form one of the finest of the *Rhododendron* family. I collected a lot of seed, which came up freely at Coombe Wood, and I left lots of plants there. Another very pretty plant common here, covering the stones in the old mountain stream, is *Lauro-petalum chinense*, and a small Banksian-like Rose; also an evergreen Rose with a delicious odour, seeds of which I sent and plants were planted out at Coombe. *Viburnums*, *Weigelas*, *Elæagnus*, *Deutzias*, *Spiræas*, were the common shrubs, and some of the masses I saw in flower were truly grand. The conifers were *Pinus sinensis*, *Cunninghamia sinensis*, *Cephalotaxus*, and two species of *Juniper*. Violets were everywhere, and several *Calanthes*, (?) yellow and pink. Many of the trees were unknown to me—a fine *Liquidambar*, and Maples, probably *Acer crataegifolium* and *trinerium*, with blue leaf-stalks. *Magnolia conspicua* was here too, but originally planted, I think, by the old Buddhists, who were very powerful in this part some hundreds of years ago. *Smilax*, *Rubus*, *Akebias*, *Stauntonias* were rambling everywhere, and I collected about seven species of *Paris*; one grew 3 ft. high with large flowers. *Thalictrum* many sorts, *Saxifrages*, and one *Hymenophyllum* I found on the shaded rocks under the gorges. I

told you in another column about how the Chinese dispose of their dead at Shanghai. They are little better here. Go where you will there are graveyards in the fields, on the hills, in the valleys. You can always see the end of a coffin sticking out of the bank, and perhaps a skull or a few bones near. Here people are not placed outside to dry up, but they are buried as soon as dead, not always in the strongest made coffins, and often (if the man be poor) not deep in the ground. Most of the rich Chinese choose a place near the hills, and are buried in a brick tomb with a tablet with name, &c., on it in front. A mound of earth is thrown up round the tomb and trees planted—Willows, *Cupressus*, and *Junipers* generally, also *Yews*, with a small road cut through the mound in front of the tablet. The relations of the deceased come every year to pray, or, as they say, "Chin-chin." They then fire off a lot of crackers, offer food to the departed spirit, have a ramble and enjoy themselves generally, and go home for another year. The only few decent trees one sees are either round a temple or near a grave. The coin in use here is called "cash," small round coins with a square hole in centre to thread them on a string. I bought 1100 for 4s. Chickens and eggs with rice, Bamboo shoots, Beans, and Cucumbers formed my diet; all of them very cheap. After I had rambled over this part of the mountains for three weeks, I decided to visit a temple I had been told of at the south end of the mountains, called

The "Teen Cha" temple, known also as "Yellow Dragon" and "Heavenly Pool" temple. I therefore laid in provisions and started to walk about twenty-five miles. We descended from the bungalow and skirted the hills for about twelve miles, then passed near an old temple where an enormous *Podocarpus* was growing, said by the priests to be 500 years old. It looked quite that. It was a round-headed tree. There were also some *Salishuria adiantifolia* growing with it. I passed over a fine stone-arched bridge spanning the mountain stream, and began to ascend. For three hours I was going up rough boulders and stone steps, till I had ascended 2000 ft. It was awfully hot, not a blade of green vegetation, and the stones bleached. I had left my baggage behind, and when on the top I sat down. Whether I slept or fainted I do not know; but when I roused up my Chinese boy was pouring a bottle of claret down my throat. I had a splitting headache, and could scarcely walk. I rested some time in a ruined pagoda, and felt better. This proved to be the germs of a sunstroke that came on in a severe form a few days afterwards. I passed by huge perpendicular rocks quite 100 ft. high, covered with large Chinese characters cut in the stone. I wished I could have made them out; they must relate something very interesting. Here and there were boulders also covered with carvings and writings. I was told the large temple and pagoda were destroyed by the Taiping rebels. I saw in the old temple yard a purple *Magnolia* bush, and a clump of a Lily growing like *Lilium umbellatum*, if that should be the yellow one I had been told of. I was too ill to get it as I came back, and then probably I should have lost it, being unable to look after it myself. I continued on down the other side of the mountain into the valley to a large dilapidated temple, and with great difficulty obtained permission to live in it. The priests were a sect called *Tauists*. What a sight was here in the temple yard, surrounded with large trees of *Larix Kämpferi*, and in front two of the largest *Cryptomerias* I have ever seen, one measuring 9 ft. in diameter, and the other over 8 ft. and quite 200 ft. high. Just below were growing lots of fine trees of *Magnolia conspicua* in full flower, and the *Liriodendron tulipiferum*, hitherto only known from North America. It was in flower, and I gathered dried specimens to send to England. I consider it to be a different species from the American, though very near it. It is not so large as the American tree. The ones I saw were probably 70 ft. high, and leaves very small compared with the American variety. The priests said the trees were planted by the old Buddhist priests,

together with the *Magnolias*, *Cryptomerias*, and *Larix*. I think it very probable that both the *Salisburia*, *Liriodendron*, and *Podocarpus* will some day be found wild in the mountainous portion of Chinese Thibet, from whence they were probably brought by the old Buddhist missionaries, just the same as the *Cryptomeria* was taken by them to China, for I believe the *Cryptomeria* does not grow wild in any other country but Japan. It certainly is not wild in China, as is generally supposed. I might say that I did not find young seedling trees of *Liriodendron*, *Cryptomeria*, and *Magnolia*; if they were indigenous, one would think that there would be plenty of young seedlings as with other trees. These sacred trees of the old Buddhists are mysteries still, and will be till the unknown recesses of Thibet be opened up. They may be the remains of old forest trees. Many grand trees and shrubs must have been completely lost by the unmerciful cutting and burning of all vegetation on the hills in China; none but the toughest could possibly survive. Year after year they are lopped to the ground, and when the coarse Grass gets too thick they burn, or if a tiger or leopard is in the mountain they burn again. This has been going on for centuries now. They never plant or take the slightest trouble to grow trees, and the result is bare, barren tracts of mountain land, once evidently forest, now useless. I visited Kuikiang Mountains in April, 1878, when the hills were covered with a growth of two or three years. I went to the same places in December the same year, and all was either cut or burnt. It was with the greatest difficulty I was able to get a few of the fine plants I found there the April before. Many of the plants when growing in England still bore the marks of the Chinese mountain fire. I will return to

The Yellow Dragon temple.—It was a new place, and although newly built was beginning to tumble down and look old. Three fine gilt images were inside, and the same drum, bell, and triangle trio were played at sunrise and sunset, all the prayers consisting of a single bow to the images, the priests being most ignorant men. They treated me very well, but I had a suspicion they were more robbers than priests, particularly when I left; I did not give them enough money, and they laid hold of my baggage, and not till I produced my revolver would they let me take my things. The whole time I was there I was afraid they would make an attempt to rob me. The first night I stayed in this temple I could not sleep, and I heard people about the whole time. The second day I went over the range of mountains to the side of the Poyang Lake, and I was fully repaid with the splendid scenery. After walking for about a mile I passed over a swamp with nothing but coarse grass and a large green *Calanthe* (?) growing in clumps 2 ft. and 3 ft. through and 5 ft. high. It was growing by the streams that ran through the swamp; all the shrubs had been burnt the year before, and scarcely the remains of a bush could be seen. After this walk I returned to the temple very tired, only having collected a few plants of a very fine *Nipholobolus*. Near the temple I noticed one very fine *Deutzia* and some *Weigelas* having several coloured flowers.

My second night in the temple was spent without sleep, and I was quite worn out, so in the morning I set out for the bungalow again. I walked to the Chinese village at the foot of the hills, where I was fortunate enough to get a chair from the priests at a temple there and was carried to the bungalow, where I met a lot of old English friends from Kuikiang.

I was heartily welcomed by the doctor and the other fellows, and was advised to rest, as they thought I had fever. However, it proved to be sunstroke. I was quite invalided for three weeks, and was advised to take a trip down the river. Having made rather a big collection of plants, and having a lot in boxes without anyone to care for them, I decided to take them to Shanghai, where I had a man looking after my things. I did this, and so saved all my plants, for when I returned to Shanghai in the autumn I found all had grown

vigorously, and the Chinaman had propagated a lot of them under my instructions.

C. MARIES.

TREES AND SHRUBS.

FUCHSIA GLOBOSA.

THE florists' varieties of the Fuchsia are now practically unlimited, including, as they do, both light and dark kinds, single and double; but, showy as they are when laden with blossoms, they all need the protection of a greenhouse, while some of the older kinds are so hardy as to withstand most winters out-of-doors in the neighbourhood of London, and, indeed, much further north, while in the south and west of England,

character they have few if any rivals amongst flowering shrubs, taking into consideration the length of time during which they continue in blossom. Escallonias, pretty and free as they are, do not in this respect approach them. Fuchsias of the hardy class succeed perfectly well near the sea; indeed, it is along our southern coasts that some of the finest specimens are met with. Where just protected from the full force of the sea spray they form magnificent objects, being especially remarkable towards the end of the summer, when nearly all other flowering shrubs are past their best.

Well, however, as these Fuchsias succeed out-of-doors, they are even better under glass, either grown as small plants in 6-in. pots or as large spe-



Flowering spray of *Fuchsia globosa*.

in Ireland, and in the Isles of Wight and Man they form huge bushes, profusely laden during the whole of the summer months with bright and showy blossoms, small in size, it is true, but, owing to their bright colour and the profusion in which they are borne, very conspicuous.

At the present time a good deal is said in favour of permanent bedding, *i.e.*, employing plants for the flower garden that will withstand the winter and furnish the beds, season after season, without the trouble of replanting each succeeding spring. For this purpose some of the Fuchsias are well adapted, such as *F. gracilis*, *Riccartoni*, and *globosa*. They are usually cut down to the ground every winter, but they break again strongly from the old stools in spring and flower all through the summer. In the colder parts of England all that is necessary is to place a few shovelfuls of dry ashes over the crown of the plant, when it will readily survive even the most severe winters; but in most places no care or attention is needed, as the Fuchsias just named are quite capable of taking care of themselves. Where they retain their bushy

specimens. *F. coccinea*, *virgata*, *thymifolia*, and *microphylla* may also be so treated, the miniature flowers of the two last being always attractive. One of the best plants with which I am acquainted for covering the roof of a cool greenhouse is *F. gracilis*, the loose, open growth of which is well adapted for that purpose. It soon covers a considerable area, and when laden with its slender flowers it is very effective. Of this there is a variegated variety equally desirable as the type, with which it affords a pleasing contrast. The closer and more compact growth of *F. globosa* renders it not so well adapted for this purpose, but as a bush planted out or in pots it is quite equal to any of the kinds I have named.

H. P.

Variously-coloured Hydrangeas.—Hydrangeas grow very plentifully here. The largest of our bushes has produced as many as 700 heads of bloom, and about this time there is nothing in the pleasure grounds to equal them in attractiveness. In some situations the blooms are a beautiful bright pink, and in others they are a

clear sky blue, while not a few have a mixture of pink, blue, and white heads. Differences in soil is said to change the colours in the case of bushes of wholly different tints, and this may be so, but I would be glad to know what causes flowers of all colours to come on the same bush.—J. MUIR, *Margam, Tŷbach, Glamorgan*.

The old Yew tree at Crowhurst.—Passing through the village of Crowhurst the other day, I walked into the churchyard and looked at this old Yew tree. Twenty-five years have elapsed since last I looked upon it, and now I can see no difference in its appearance. I measured the trunk as exactly as I could, and I made it out to be just over 32 ft. in circumference about 5 ft. from the ground. About 10 ft. from the ground it breaks into five arms or trunks, two of great size, the others smaller. One of these seems to be decaying and unable to bear its own weight, but it has been carefully supported by an iron band above and a prop beneath. It is supposed to be 1500 years old, though how the estimate has been arrived at I do not know. It is a grand old tree.—E. H.

The Mountain Ash in town gardens.—Amongst berry-bearing trees and shrubs this certainly takes a high position, and were I limited to a dozen trees this would be one of them. Being of moderate growth, it is well fitted for gardens of limited dimensions, and if I had to furnish a list of half a dozen ornamental trees suitable for a town garden I almost think I should place the Mountain Ash at the head thereof. Passing last autumn through a thickly populated district, I remarked two moderate-sized, but well-developed specimens which stood on each side of the main entrance to a villa garden. Nearly every terminal shoot was furnished with a large cluster of bright berries, the vivid colouring of which was enhanced by the contrast which they afforded to the rich green of the foliage and the white stonework of the dwelling. I never remember to have seen anything more cheerful than this in the autumn, and I strongly recommend intending planters not to forget this fine berry-bearing tree.—J. C. B.

Influence of forests on climate.—Dr. Schomburgk, Director of the Botanical Gardens at Adelaide, has added to his recently issued report an appendix on the subject of the influence of forests on climate. The object of this paper is to prove that the destruction of forests usually has the effect of reducing the rainfall, while, on the contrary, the planting of trees broadcast over a country is one of the best methods which can be adopted for ameliorating its climate and increasing the annual fall of rain. It cannot, indeed, be proved that the climate of South Australia is altering for the worse in this respect. In fact, a comparison of the meteorological records will show that the annual average rainfall for the colony during the past ten years has been 21.1 in., as compared with 20.1 in. for the previous ten years. The fact is that in the agricultural districts, and especially in those which were not originally timbered, the bringing of the land into cultivation has had the effect of slightly favouring the fall of rain. Ploughed land attracts moisture to a much greater degree than the unbroken soil. Dr. Schomburgk, in searching for illustrations of the effect of trees on climate, brings forward some striking instances in which it is evident that loss of forests means loss of rainfall, and *vice versa*. He recalls how the Russians, by burning down some of the Transcaucasian forests at the time of their struggle with the Circassians, converted the country from a fertile land into a desert, simply through the cutting off of the supply of rain. Similar instances of rain having deserted a country denuded of forests have occurred in the Mauritius, in Jamaica, the Azores, and it may also be added to a still more remarkable extent in several of the smaller West India islands. No sooner had the forests of these places been destroyed than the springs and rivulets ceased to flow, the rainfall became irregular, and even the deposition of dew was almost entirely checked. On the other hand, it is generally accepted as a fact that Mehemet Ali increased the fertility of Egypt enormously by

planting trees. He alone planted some 20,000,000 on the delta, his successors followed up the work, and it is a noteworthy circumstance that the rainfall rose from 6 in. to 40 in. Planting has also, it would seem, produced remarkable effects in France and Algiers. Extensive regions have been planted with Gums and other trees, which, for the most part, grew to about 30 ft. or 40 ft. in height, and it is noticed that the quantities of rain and dew which now fall on the adjacent land are double what they formerly were.

A Scotch Fir avenue.—Among the trees chosen for avenues one does not often see the Scotch Fir. An avenue of it at Sir W. Marriott's, Down House, Dorset, is very good in effect—old trees, and as usual very varied in their forms, some with Ivy, some with a Clematis, some bare. The making of avenues is very easily overdone, but if we are to make one now and then of coniferous trees, it is better to make it of a tried tree like this than of the Wellingtonia, which often will last in good health only till the first cold east wind catches it after it has got into the natural soil of the spot and its head above the sheltering shrubs.

Sea-side shrubs.—Mr. Groom (p. 303) points to the *Euonymus* as a good sea-side shrub. With us it was completely killed in the severe winter of 1880-81, while *Griseinia littoralis* and *Escallonia macrantha* stood the winter well. We have close upon 1000 *Escallonias* in our plantation, some of which are 12 ft. high and 6 ft. through. These are the best sea-side shrubs we have for our cold, heavy soil.—J. A. CALTHORPE, *Summerville, Waterford*.

KITCHEN GARDEN.

BROAD BEANS AND THEIR CULTURE.

ALTHOUGH the Broad Bean is not considered to be one of the choicest of vegetables, yet it occupies a place in almost every garden. Throughout the summer, when Peas can be had in abundance, Broad Beans are not much valued, but early in spring and late in autumn they are in great demand, and the small-podded variety here illustrated is one of the best to grow for securing a



Improved Windsor Bean.

supply at those times; it belongs to the Green Gem type, is dwarf in growth, prolific, and early. As a midseason kind the Seville Longpod is one of the best, and for purposes of exhibition *Levia-*

than and *Aguadulce* are unsurpassed. In August last we had pods of the latter 16 in. in length and 3 in. wide. They were well filled and very handsome. Our collection consists of the small one here shown for early and late use, *Seville Longpod* for the intermediate season, and the two named above for exhibition. For the benefit of those who cannot grow more than one or two sorts at the most I would recommend the *Seville Longpod* as being the best of all, taking everything into consideration. The contents of its fine pods are always good, and it may be grown so as to form a good Bean for purposes of exhibition. The *Improved Windsor* is another variety which has found favour with many cultivators; it is a robust grower and produces abundance of well-filled pods. These are quite green in colour, and so are the Beans. It may be grown along with the *Seville* variety, or those who fancy it most may cultivate it in the place of that sort. Broad Beans of the *Windsor* type are numerous, but the one here illustrated is the best.

Culture.—In dealing with this part of the subject, it may be stated at the outset that a poor soil does not suit any variety of Bean, and to grow any one of the kinds just named well a deep rich soil must be provided. It is very seldom we make special preparations for Broad Beans, but we always select a good place for them, and by this much is gained, as from one row, say 12 yds. long, on good soil, we get a longer succession, and gather more pods than we could obtain from a row three times that length on poor, unsuitable soil. Land for Broad Beans should be deeply dug before sowing. If the sub-soil be clay it will do no harm to bring some of this to the surface, as Beans have a liking for stiff soil, and in turning it over plenty of cow manure should be incorporated with it. This will insure free growth and abundance of well-filled pods. This digging or trenching in of manure should be done for crops at all seasons, and the time of sowing Broad Beans extends over a long period. The best time to sow the seed for the earliest spring crop is at the end of October or beginning of November, and seed for the latest need not be sown until July. The chance of

Autumn sowing should not be missed; therefore the ground should be prepared and the seed put in at once. A south border or some part well exposed to the sun should be chosen for the autumn seed. Drills may be drawn from 2 ft. to 3 ft. apart and about 3 in. deep, and in these the seeds should be placed about 2 in. apart. They may then be covered over with soil taken from the drills, and care must be taken that mice or other vermin do not destroy the seed. By the end of November the young plants will be above ground, and when they are a few inches high a little soil should be drawn on each side of their stems to keep them steady and prevent them from being broken by wind. During the shortest days little growth will be made, and the best way is to leave them alone, and not coddle them in any way. There is no danger of their being killed by severe weather. When they begin to grow in spring it may be necessary to draw a little more soil to their stems, but this will be all the attention they will require until they are ready for use, and that will be some weeks before any could be obtained from spring-sown seed. In beginning their

Cultivation in spring the first seed may be sown in January or February, according to the state of the soil and the weather. The same rules as regards putting in the seed should be observed, and the way in which the soil is prepared should not be altered. To keep up a constant supply seed may be put in every month from January until July. In sowing the big podding kinds for exhibition the seed may be put in singly from 6 in. to 18 in. apart. At this distance they will produce much finer pods than when the plants are crowded together. When it is desired to hurry any of them into bearing the points should be pinched off each stem before or when they are in bloom. This will cause pods to form and fill much sooner than they would do if the growth of the stems was not checked. This stopping of the shoots has

also a tendency to cause young growths to be emitted from the bases of the main stems, and these come into bloom and bear pods after the first produce is over. When it is desired to keep them



Early dwarf Broad Bean.

bearing as long as possible the pods must be constantly gathered before they become too old. Those who wish to save seed and improve their strains should grow some purposely for seed, and only select the finest pods. J. MUIR.

Margam, Taibach.

GLOBE ARTICHOKE.

THERE are several varieties of this esculent, but those most in demand are the green and purple kinds. The conical-headed sort is said to possess the best flavour. The ground for their reception should be trenched early in the autumn, and roughly ridged for winter. The trenching enables the roots to run deep into the ground, and when done early the soil gets well pulverised by the winter frosts, the action of which is always beneficial in cases of heavy clay or very stiff soils. The ground should be trenched from 2 ft. to 3 ft. deep, working in plenty of rotten manure as the operation proceeds. If the soil is very heavy, ashes or some opening material may be also worked into it. Care must be taken not to select ground naturally wet or a stiff, heavy clay, for if very damp and wet, Artichokes will suffer during severe frosts. The soil most suitable for their growth is a good, sandy loam, in which they will make quick growth. Where the soil has been trenched during autumn or winter and laid up in ridges, the latter must be levelled down in spring and a dressing of rotten manure dug into the ground; rake the surface level, and if the plants are intended to be planted in beds, mark out the alleys 18 in. wide and the beds 9 ft. wide, so as to accommodate three rows of plants in each bed. The first row should be planted 18 in. from the alley, and 3 ft. from the centre row, the third row being also 18 in. from the alley. Plant 4 ft. asunder in the rows. Where not planted in beds let the rows be 3 ft. apart, and the plants 4 ft. asunder. Early in April will be found to be a good time to plant rooted suckers, making pits sufficiently deep to accommodate the roots, and allowing room for some rich soil to be carefully shaken over them. The pits may then be filled in, and the ground firmly trodden with the feet; give each plant a good soaking of water when planting is finished. Seedlings are best placed in their permanent quarters in May or early in

June, but little attention will be needed during summer except watering them occasionally in dry weather. Liquid manure may be used once every three weeks or so; keep the ground free from weeds and the surface open, which is always beneficial to growing crops. The heads will be ready for use in August or early in September; they should be cut as soon as they are fully grown, for if allowed to remain longer upon the plants they become useless for cooking purposes. Some time in the end of October or early in November, according to the season, the offshoots must be cut off the plants, and a heavy mulching of dry straw or Fern placed round them to protect them from the frosts, as if not protected in some way they are often killed in winter. Early in April the protecting material should be cleared away, when a good dressing of rotted manure should be dug into the ground. Where convenient a few stools may be lifted during November, planted in pots or boxes, and introduced into a cool house or pit where a crop may be had before that out-of-doors is fit for use.

Propagation.—This may either be by means of seeds or suckers taken off the old stools, an operation which is best performed in April. In cutting the shoots off, take care to have as many roots to each as possible, as shoots having but little root seldom give satisfaction. The old stools will grow and be profitable for a number of years, provided they receive plenty of feeding during the time when they are making their summer growth. Liquid manure from the farmyard is best for Artichokes; it induces robust growth and fine large fleshy heads. Guano and superphosphates or bone meal may also be used with success sown between the rows and mixed with the surface soil by means of a draw hoe. Plants from seed may be made to produce a good crop of heads the first year. In order to effect this end the seed must be sown early in the year, keeping the plants in a good moist house or pit during their early stages of growth. A good time to sow is early in February; prepare some light sandy soil, using either pots or pans; sow thinly upon the surface, and cover lightly with fine soil. Water through a fine rose, and place the pots in a warm house or pit. In the course of a few days the seeds will germinate, and as soon as the young seedlings are large enough to handle prick them off singly in pots or boxes, placing them in a warm temperature for a time. In due course they must be potted in $4\frac{1}{2}$ -in. pots and placed in a cool pit for a time, taking care to exclude frost. They may be placed out-of-doors to harden early in May, and after being exposed in a sheltered place for a few days they will be ready to be planted in the quarter intended for them. WM. CHRISTISON.

Potato sports—I did not find fault with Mr. Laxton for naming his so-called sport White Beauty of Hebron. I simply said that, being a sport, it is but Beauty of Hebron in everything except in colour; therefore it could not be accepted as a truly distinct variety. I did not say that Sharpe's Duke of Albany was a sport from Beauty of Hebron. It may have originated in the same way as Mr. Laxton's kind, doing what the Ethiopian cannot do—change its skin, or it may be a seedling, but in either case with me here it is exactly a reproduction of Beauty of Hebron except in colour. If I am right in this matter then Mr. Laxton's white sport has been anticipated, while Emperor is not a sport from Red Emperor. It is a totally distinct Potato in every respect, and its name was but a chance suggestion. As to the relative merits of white and coloured Potatoes, I may state that at the Crystal Palace white seedlings outnumbered coloured ones by three to one. And indeed in the coloured round class no prize or certificate was awarded. I did not say that Magnum Bonum was not to be had in quantity in the London market; I simply included it with several others that are not yet abundant, though that kind is fast becoming so. —A. D.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J., SURREY.

A GOOD mass of flowering Laurustinus and berried twigs of the black variety handsomely fill a silver bunch-bowl. A large and tall glass is dressed with three or four whole shoots of Alexandrian Laurel, and a well arranged tangle of Clematis Flammula and Smilax, with some Lamarque Roses cut from the ends of long, straggling shoots. A sheaf-shaped bouquet of Schizostylis coccinea, the flower-stems cut from a foot to eighteen inches long, stands by itself in a slender, clear glass. Heliotrope and Sweet Geranium fill a large bowl—perhaps the last picking before frost. A brass dish, broad and deep, is heaped with sprays of golden-green foliage of Chasselas Vine, with pink Tea Roses loosely grouped among the leaves. Pink China Roses and flowering Ivy combine well in a grey German jar. Yellow French Daisies, with the most golden-coloured sprays of Japan Honeysuckle, make a bright and cheerful-looking table bouquet. A low, dish-shaped bowl of white china has flowering Laurustinus cut short, pink Japan Anemones and red-tinted leaves of Ampelopsis Veitchi. A silver cup holds Marie Louise Violets with their own leaves. In pots are Marantas, stove Ferns, and the finely-foliaged Begonias.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Spring bedding.—Where spring gaiety has to be studied, no time should be lost in clearing out the summer bedders and giving the necessary dressing to and digging over of the beds. This can now be done without much sacrifice, as although there has not yet been sufficient frost to cut off many of the plants, it may occur any night now; besides it is very desirable that spring-flowering plants, and particularly bulbs, should be planted soon. As to the arrangement of the plants, much depends on the size and the number of beds to be filled and the plants at command. Provided there is no stint or limit as to plants, then preference should be given to planting them in masses; but when plants and bulbs are short, then plant thinly and fill the intervening space with hardy carpeting plants. Small, choice, evergreen shrubs are also excellent for dotting about the beds as single plants in central positions, thus saving a certain number of bulbs or plants, and at the same time imparting an immediate finished effect to the beds. Hyacinths, Crocuses, Narcissi, Primroses, Forget-me-nots, Daisies, Pansies, Wall-flowers, Stocks, Silenes, Candytufts, Limnanthes, Saponaria, and hardy annuals generally are among the kinds that ought now to be planted, and as soon as done, if the ground be not clothed with surfacing plants, it should be with Cocoa-fibre if only for neatness sake, though it is, I believe, of some little value manurally.

Winter bedding.—In those places where spring effectiveness is of less importance than winter, a much better effect can at once be made than is possible with spring bedding plants. This is done by using dwarf shrubs principally, though many other species of plants can be worked in well; among them are Thyme—green and variegated—Lamiums, Ajugas, Veronica incana, Sedums, Saxifrages, and hardy Heaths. These all do well for outer lines and ground-work, the shrubs being used for central masses or as standards. The best kind of shrubs are the Retinosporas, Thujas, Cupressus, Osmanthus, Aucubas, Cotoneasters, variegated Hollies, variegated Yews, variegated Ivies, green and variegated Periwinkles, green and variegated Euonymuses, Box, and Berberis. In the disposition or arranging of shrubs for winter bedding the colours being so nearly allied, care is needed to keep them as distinct as possible by planting the lightest greens with the variegated kinds, the darkest with the silvery greens, and the formal growing kinds with those

of an opposite habit. By attention to this simple rule, sameness of colour and a nursery-like appearance will be avoided.

General work.—Lift all plants that must be saved; any that are not valued, and of which there is sufficient stock for another year, may be left till frost has destroyed them. Get all kinds of tender plants under cover, but air freely in favourable weather. Damp, atmospheric and at the root, is at this season the sole cause of plants rotting off; hence this should be guarded against. Proceed with shrub and tree planting as opportunity offers, there being more time for such extraneous jobs at this time of year than there is in the busy spring-time, besides the additional incentive there is for doing such work now, namely, that the plants as a rule flourish better.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Azaleas.—Plants that bloomed early last winter and completed their growth at a correspondingly early period will be in a condition to again force early this season. The time that they can be brought into flower will in a great measure be dependent upon the way they have been treated. If kept warm through the early spring until their flower-buds were large and prominent, they may now be brought into bloom by subjecting them to moderate heat in five or six weeks, as in many cases the buds will be almost ready to burst. A temperature of 60° in the night will not be too much, but if they are less forward than here indicated they must not be kept too warm, or the blooms will be soft and subject to flag when cut, for which purpose many of these early-forced flowers will most likely be required. See that the plants are quite clear from thrips or their eggs before being placed in heat, otherwise these will quickly increase and cause much trouble afterwards. Keep them well up to the glass in the lightest position available, and do not at this season syringe them much overhead or keep much moisture in the atmosphere, as water applied now, except sparingly, either by the use of the syringe or in the form of vapour, tends to a soft condition of the flowers much more than in the spring, when there is more daylight and a drier condition of the external air.

Azalea mollis.—This ranks amongst the best forcing hardy shrubs in existence, and is calculated to supersede the old Ghent varieties. When well managed, by full exposure to the sun where planted out in an open situation with attention as to watering during dry summer weather, it sets its buds so freely that even small plants, not more than 1 ft. high, are a complete mass of flowers when in bloom. The obvious advantage of this is that so much flower can be had from plants in very small pots. Enough stock to give a succession by starting at different times through the winter should be now at once potted up, securing all the roots possible with no more breakage than cannot be avoided. Whilst the weather is open they may be stood out of doors, but on the appearance of frost should be put in pits or frames.

Chrysanthemums.—If flowers of these have not already been thinned, this operation should be no longer deferred. The extent to which the disbudding is carried requires to be regulated in accordance with the nature of the varieties to be operated upon. There is very great difference even amongst the large-flowered section in the ability of particular kinds to produce fully developed flowers, some of the largest exhibition sorts are not able, even in the case of strong, vigorous examples in large pots, to mature more than a single bloom on the top of each shoot, whilst other kinds bearing medium sized flowers will carry four or five times the number. In like manner the larger bloomed Pompone varieties should have their buds thinned more freely than the smallest flowered section, which, for general purposes, need little thinning. It is well to bear in mind that even for ordinary decorative use

where there is no disposition to grow flowers up to the exhibition standard, it is advisable to thus thin them moderately, especially in the case of the latest blooming kinds, as where the buds are in this way sufficiently thinned the flowers that are allowed to remain have correspondingly more substance in them, and when expanded will last on the plants proportionately longer, in this way prolonging their season of bloom. There are now a number of new varieties of these plants, mostly of Continental origin, that bloom early, coming into flower by the end of September, filling up the time between the summer blooming varieties and the ordinary later flowerers, and where there is a demand for cut flowers in considerable quantities, note of these should be taken with a view to obtaining stock for another year.

Mignonette.—Plants raised from the earliest sowing will now have attained considerable size, and if they have been properly attended to, ought to be well furnished with plenty of stout, healthy foliage. If the pots are very full of roots they must be assisted by the occasional use of manure water, or the application of some concentrated solid manure to the surface of the soil that will invigorate them as it is washed down to the roots in the operation of watering, otherwise the plants get a yellow, unhealthy appearance, and there is a premature loss of foliage, and a correspondingly weak condition of the advancing flowers. Where this sweet-smelling favourite is in regular demand, a sufficient stock of the new double white variety ought to be grown, for although it does not seed so as to be raised in the usual way, it can be readily struck from cuttings. The enduring character of the flowers and its general excellent qualities are such as to make it well worth the little extra trouble involved in its propagation. Where young plants of it exist that are at all short of pot-room, they ought to have a shift at once, using good loam well enriched with manure, and to which has been added a moderate amount of leaf mould, a material in which Mignonette, in common with most other soft-wooded plants, makes roots more freely than in loam alone. After this the plants should be kept in a light, airy pit with an ordinary greenhouse temperature, never allowing them to get too cold.

Lachenalias.—Many who force these pretty bulbs allow them to remain too long in the same pots without either giving them more room or dividing the clumps; the result is that they become too much enfeebled to flower freely. If means have not been taken to correct this before they have started into growth, the balls may be turned out of the pots and divided, each into three or four, without more disturbance of the roots than can be avoided; drain the pots sufficiently, use soil thoroughly enriched with rotten manure, and add enough sand to allow the water to pass freely through.

Tropæolums.—Tubers of the tricolor section will now be about commencing growth; as soon as this is apparent they ought at once to be repotted. They thrive in either peat or loam, but it should be of a good open character, and as these plants require directly they commence growing to have whatever support they are to receive in the way of a trellis to train them on applied, it is necessary to put them in the pots in which they are to bloom; on this account it is requisite to be careful in the application of water until the new roots begin to move freely in it. Give them a light position in the greenhouse and look diligently for the appearance of green fly.

Fuchsias.—Young plants struck about the end of July or beginning of August, if not already transferred to the pots in which they are to remain for some time yet, which should be 5 in. or 6 in. in diameter, ought, without further delay, to be moved into them; use good loam, with about one-fourth or one-fifth of leaf-mould added, which will assist their rooting freely through the winter; they ought to be kept all but touching the glass in a night temperature of about 50°, and syringed overhead two or three times a week, so as to keep

own any red spider that may be about them for though this pest does not increase much during the winter, still it is so partial to Fuchsias that it sometimes gets established on them at this season. Old examples that have done flowering should now be sparingly watered to induce a state of rest; when the leaves are partially fallen they may be cut back as close as it is deemed advisable to shorten them, and if a corner can be spared for them in a house or pit out of the reach of frost they will be better if the soil is not allowed to become quite dry; so treated, they will not be subject to so much loss of root, and will start away much freer when submitted to a little warmth after the turn of the days. If subjected to a sort of semi-dark treatment, such as under a greenhouse stage, or where there is insufficient light for any healthy growth to be kept up, the soil may be allowed to get quite dry.

Schizanthus.—There are few more effective plants for greenhouse decoration in spring than this showy annual when well managed in pots. If plants are at hand, the result of a little seed sown about the end of August, they should be wintered singly in 4-in. or 5-in. pots, keeping them on a shelf close to the glass with a stick to support the main shoot of each, nipping off the points of the side growths to induce them to break out bushy. This is all they require until well into the new year, when they must have a liberal amount of pot room.

Roman Hyacinths.—Where these were potted early they will by this time have made plenty of roots, so as to admit of their being moved into heat previous to exposing the crowns, which will be in a blanched condition when taken from the material in which they have been plunged. They should be shielded from the full light, for if suddenly exposed when in this state to its influence it has the effect of crippling the foliage. After they have been thus gradually brought to bear its power they are better for having a light position, especially if subjected to a high temperature, for in forcing these and all other plants it is well to bear in mind that wherever much heat is used the amount of light should be proportionate, with enough air on all favourable occasions. Only by these counteracting influences can the growth be kept sufficiently short and stout.

ORCHIDS.

J. DOUGLAS, LOXFORD HALL.

East India house.—Shading should now be entirely dispensed with, the plants needing all the sun they can get after the middle of October. We could not have had better weather for ripening the growth of Orchids than we have had this season; the temperature has been kept up with quite a minimum of artificial heat. No one, however, can say how long the weather will continue mild, and we must not be caught napping. A sharp frost may set in suddenly and lower the temperature to 55° when it ought to be 65°; this must, if possible, be avoided. The deciduous *Calanthes*, such as *C. vestita lutea*, *C. v. rubra*, *C. Veitchi*, and *C. Turneri*, are now throwing up their flower-spikes; they succeed best in a temperature of 65°, although they are harder than some other Orchids that like that temperature—*Phalænopsis* and *Angraecums*, for instance. We have had some *Calanthes* in a very low temperature; certainly it was oftener at 55° than 65°, and yet they look remarkably healthy and promise to flower well, though later. *Aerides suavis* is now flowering well in the warmest house; its long spikes of prettily spotted flowers are distinct from those of any other species, and seldom fail to give satisfaction. *Saccolabium giganteum*, also in flower at this season, is not only one of the handsomest of the species, but also one of the most attractive, owing to its sweet perfume. The *Angraecums* will also be showing their flower-spikes in some cases, and should be watched in case they should be injured by slugs. Thrips are also very troublesome, and should be destroyed as soon as detected. *Phalænopsis*, of which there are now numerous species, has become by far the most important genus of our winter flowering Orchids. The recently introduced *P. Stuartiana* is the most beautiful as

well as most recent addition, and it has become very reasonable in price. *P. violacea* may, however, be more valued by connoisseurs, owing to its more distinct character and its vigorous growth. *P. Schilleriana* is also throwing up its flower-spikes, and all of them now require strict attention. Some say, keep them comparatively dry during winter. Others say, that is of no importance. I think it is a mistake to keep them dry at any time. Indeed, some of the best collections I have seen have been kept in a state of moisture sufficient to keep the Sphagnum of a lively green colour all through the winter. I would avoid wetting the leaves, and keep the minimum temperature as near to 65° as possible. Admit as much air as possible, as ventilation is quite as important in winter as it is in summer.

Cattleya house.—Among *Cattleyas* there may now be a considerable proportion in flower and many more to follow. The lovely *Vanda cœrulea* is now a charming feature, and as it has recently been imported in quantity, it is to be seen in many collections. When the plants are in flower they must be placed in the best positions to show them off to advantage; after that a light situation near the glass is best for them. There are other *Vandas* at present very attractive in the intermediate house, such as the various forms of *V. tricolor*. The true *V. insignis* has now become plentiful; it is as much a distinct species as *V. suavis*. Now is a good time to add it to collections. It is necessary to make room in this house now for some that may have been growing in the cool house during summer. Some species of *Masdevallia* ought to be in a warmer temperature than that afforded them in the cool house, that is if the temperature of the latter is allowed to fall frequently as low as 40°. If 50° is the usual minimum, then I fancy such as *M. tovarensis* will do well enough in the cool house temperature. *Odontoglossum vexillarium* and *O. Phalænopsis* should be placed in the intermediate house. Both are now making growth and like a temperature of about 55°. They should also be placed near the glass all through the winter. Too much cannot be said in favour of the new *Cattleya fausta* and its varieties for flowering in October; this seems to be one of the most variable of all the hybrids, as no fewer than seven distinct forms of it have flowered in Messrs. Veitch's nursery, Chelsea. Unfortunately, it is yet too scarce to be sent out. The true old form of *C. labiata* is now pushing its flowers through the sheaths, as is also the rare green-sheathed form. Come of the varieties of *Cattleya intermedia* may also be seen in flower now, and also *C. guttata*. The treatment of all the different varieties and species of *Cattleya* must vary according to the stage of growth they are in. Those in flower will remain in beauty longest when kept rather dry at the roots, and keeping them in that state does not injure them at this season. Others not making any growth should also be kept rather dry, but all making new roots should have more water. A very moist atmosphere is not desirable.

Cool house.—This house can compare favourably with either of the other two just named as regards wealth of bloom this month. *Odontoglossum crispum* in its almost numberless varieties is now in flower, or showing spikes plentifully. In a little while *O. Rossi* will be in flower, and it is interesting to watch its rising spikes. *Oncidium tigrinum* does well in this house, and a spike or two of it perfumes the whole house. Stray flowers of *Masdevallia Harryana* and *M. Veitchi* yet charm us with their brilliantly coloured flowers. Those in our collection have most of the flowers picked off in order that they may bloom more strongly in spring. Some few of the *Masdevallias* require repotting, and it answers well to do it this month; they both grow and make roots freely at this time, and consequently soon lay hold of the new potting material. *Odontoglossums* starting to grow may also be repotted. Indeed, my experience leads me to believe that cool Orchids are so easily grown and so little liable to be injured by repotting, that the operation may be per-

formed at any time of the year. I have done it in all the months and in all sorts of weather with good results. The only exception is that I would avoid pulling *Masdevallias* to pieces, or shaking the compost from their roots or that of *Odontoglossums* in very hot weather. As yet we have had no artificial heat in this house, nor will we apply it until the temperature falls to 45° at night. It is necessary to watch for the sudden appearance of frosts, but if the shading is up it may be let down in case of any emergency.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Hardy fruits.—With the exception of a few late Apples, which will be quite fit for gathering, all the fruit will now be in the fruit room, and the weather being so mild and favourable for ground work, every operation pertaining to the disturbance of the roots of the trees will require and repay early attention. On high and dry soils the importance of root pruning is not always appreciated; but in cold, damp gardens it forms the keystone of success in the production of good crops of nearly every kind of fruit. Another important matter in the management of wall trees is good coping, temporary or otherwise, for protecting the blossoms from frost. It is generally discussed once a year, and is again forgotten until the early flowers remind us that time is on the wing, and it is again too late to carry out the good intentions formed after the sharp frost of the preceding month of May. It is not for me to advise the kind of protector, as circumstances alter cases, but I may say I give preference to portable glass lights 2 ft. in depth, which can be taken down and stored away as soon as the fruit is set and safe from spring frosts; and as there is now a period of barely four months before us, my duty will have been performed when I say now is the time to set about making, purchasing, or providing protectors for next spring. It will not, however, be well to put them up until they are actually wanted, as constant protection makes the trees tender and more liable to be injured by severe frost. When the usual routine of root pruning and planting of what may be termed modern trees has been brought to a close, there generally remains a large section formed of old friends in the orchards which would well repay the smallest favour, and as many of the trees are profuse bearers, the old-fashioned plan of taking away the surface soil down to the roots, and replacing it with a rich mixture made up of fresh turf, manure, charred refuse, road scrapings, or almost anything that can be got together for the purpose, will have the desired effect in increasing the size and quality of the fruit. We will assume that the ground is properly drained and the heads of the trees well thinned out to let in sun and air, but if these matters are not satisfactory, the dead months now before us will be profitably employed in making them so.

Pruning and nailing.—Where the winter dressing of fruit trees forms a heavy item, an effort should be made to get the work forward before severe weather sets in, as men can get on much faster, the work is performed in a better manner, and the early removal of all superfluous matter exposes the trees and walls to the cleansing influence of frost and rain. With us the Currant is now ready for pruning; then will follow the Plum, the Cherry, and the Raspberry. The latter will have the canes securely tied to stakes or trellises, the shortening back being deferred until later on, and a good mulch of rotten manure will make all safe for the winter. Peaches and Nectarines we always prune as soon as the fruit is gathered; the shoots are then neatly nailed in close to the wall to ripen, and nothing more is needed until the time arrives for unnauling and drawing the branches away from the walls to prevent the buds from getting too forward. To prevent the shoots from being injured by wind a few stout Ash rods are placed in the border 1 ft. from the base of the wall and bowed in to the coping.

Every part of the tree is then washed with strong soap water or a solution of Gishurst, 8 oz. to the gallon of water; the shoots are tied up in small bundles and made fast to the rods, and the walls are left quite clear and ready for cleansing with a wash made of quicklime, linseed oil, and Venetian red mixed with boiling water. One quart of oil and a pound of Venetian red to every gallon of wash will produce a warm old brick-red colour when dry, and to avoid having two shades of colour, a sufficient quantity for the season should be mixed up at once. If a fine, dry day is selected for applying the wash and working it into the old nail-holes, the enemies which usually attack and cripple the first spring growths will be destroyed, and the chances will be two to one in favour of useful early shoots getting thoroughly ripened before the following winter. In modern gardens where the walls are well built, a brine or Quassia wash may be preferred; but where they are centuries old and bricks of every conceivable shape and colour have been introduced, a wash made up of materials fatal to insect life produces a cheerful effect, while it increases the chances in favour of better crops of fruit.

KITCHEN GARDEN.

R. GILBERT, BURGHLEY.

TAKE up and store all roots forthwith, except Parsnips, which are better left in the ground. I find of all the varieties of Parsnips, Maltese to be the best; it is short, but thick, and does not take one half the time to lift that the others do. The quality is also quite on a par with that of Hollow Crown or The Student, the two varieties usually grown. Fill up blanks in the Cabbage quarter, and keep the hoe moving among all growing crops. Lettuces for spring cutting may now be planted, and the latest quarter of spring Cabbage. Endive should now be lifted as wanted; we put in from three to four dozen at a time in any out-of-the-way corner, but under cover, plunged in any light material, sprinkling powdered charcoal all over the plants; no decay then takes place, and they blanch beautifully; in fact, my opinion is that they look much better than they taste. Cut all unripe Tomatoes, and lay them singly on shelves placed above hot-water pipes in the late vineries, where they will ripen nicely. I find the smoother fruits to be preferable to the ridged ones; no moisture can lodge on the former; not so the latter. Our Mushroom beds, spawned on September 15, are now producing a fine crop. Put no fire heat at all in the house, but keep the latter closed until the beds are all well covered with Mushrooms; then a little air adds to their flavour. Outside beds should be kept quite dry; ours are semi-thatched with long rough grass. Wheat straw is not warm enough for these esculents, but dried grass teased out makes the best of all coverings. A mat thrown over all adds to the cost, but pays well in the long run. Keep a good supply of Mustard and Cress, and on favourable days tie up Lettuces. At this season a good salad is enjoyed immensely; in fact, no dinner table is complete without it. Finish earthing up Celery; we are now using the produce of our first or early sowing. If time permitted, I would tie up all now with matting, a plan which I consider excellent.

SPECIAL GARDENERS.

A GOOD deal has been said lately about "special societies;" here I want to say a word about "special gardeners," which in the rising generation are becoming more plentiful than is desirable. It is now not an uncommon thing to meet with young men between twenty and twenty-five years of age, and even much older, who are positively ignorant of some of the most common gardening operations out of doors, but perfect in all hothouse matters, though some know only one phase of the last. It may be exhibition plants, Orchids, or something else. A young man with a knowledge of hardy plants is actually a phenomenon; the generality are quite ignorant on such subjects, and this it-

self will undoubtedly in the future hinder out door ornamental gardening. I have found this out for some years back as an employer of men in England. One seldom finds men who can be trusted to write a few labels for hardy plants without guidance. At the present time there is a tendency among young men to pride themselves on a special knowledge of indoor plants and Orchids, &c., and to despise nearly everything else which should be discouraged. It is creditable, perhaps, to any young man to be able to excel in any particular department, and we know plenty who could manage a certain department in a garden creditably, but who, when out of it have cut a poor figure and suffered for it. In gardening, as in many other things, there is nothing like having several strings to one's bow; he is no gardener who has only one string and can harp on nothing else, and he will be the first to find it out in the long run. The degree of ignorance existing among some young men calling themselves gardeners at the present time is hardly creditable to them, and greatly increases the responsibility and anxieties of a head gardener.

H. H.

ORCHIDS.

THE SUDBURY HOUSE ORCHIDS.

ONE would scarcely expect to find within a stone's throw of that busy thoroughfare, the Hammer-smith Road—the main artery leading to London from the West—and within the three-mile radius of Charing Cross, such a vast assemblage of plants as that which Mr. Peacock has gathered together in his garden at the rear of his residence at Sudbury House. The garden is a large one compared with ordinary town gardens, and might appropriately be called a garden under glass, for with the exception of a charming sweep of velvety lawn in front of the drawing-room windows and a goodly portion set apart for vegetable growing, the whole of the space is covered with glass houses, which is about the best thing one can do in a garden so near London. The fact that the garden is surrounded by a populous neighbourhood, where gardening is carried on under atmospheric difficulties, renders Mr. Peacock's success all the more remarkable. Here, besides crowds of houses to accommodate plant collections, is a delightful fernery, which at all seasons is maintained at a comfortable temperature, and the Ferns and other plants are all planted out so as to render the place as natural looking as possible. For many years past this garden has enjoyed a world-wide reputation for its unsurpassed collections of succulent and Bromeliaceous plants; and now that Mr. Peacock has apparently exhausted all available resources in adding to these, he has turned his attention to Orchidaceous plants, and, judging by what has been done already in this direction, the collection bids fair to become one of the richest and fullest extant, and it is to these that the present remarks more particularly allude. October is by no means the best month in which to see a collection of Orchids if flowers are the object in view; but in such an assemblage as this there is at all seasons something to interest Orchid lovers who derive nearly as much pleasure from seeing a plant doing well as seeing it in bloom. Here a good deal of attention has been paid to proper construction of the Orchid houses, which number upwards of a dozen, some of them capacious and all for the most part new. There is also particular attention paid to little details in the culture—the outcome of long observation and experience in plant culture, and it is these little matters that are worth making a note of by beginners in Orchid culture.

The houses have been built, not perhaps in every case as Mr. Peacock would have liked with regard to the position and aspect, but in conformity with the exigencies of the case, for two of the ranges, some 160 ft. in length, are lean-tos against the boundary walls which run north and south. The other houses are all span-roofed, and admit abundance of light, which is needed

in winter when the atmosphere in London is not of the clearest. The importance attached to light as an indispensable condition in successful Orchid culture may be seen in all the houses, as the stages are high, so that the plants may be placed as near the roof as possible, and abundance of ventilation is afforded by means of efficient ventilators in the roof and at the base of the house, those in the latter position being so arranged that the influx of air is warmed by passing over hot-water pipes. In constructing Orchid houses this little detail should be borne in mind by amateurs. Another important point we noticed was that the paths were free from puddles of water, which often render an Orchid house unpleasant, especially to ladies. Here the paths are either laid with grooved, hard burnt tiles, such as one often sees in stables, or else they are cemented and made slightly convex, so as to throw off the water which is collected in gutters about 3 in. wide and deep on either side of the paths, and these are in connection with drains, so that at any time they may be run free from water. By this means the atmosphere may be kept to saturation point without the paths being flooded so as to render them uncomfortable. In order also to expose as much evaporating surface as possible the stages have in most cases a coating of Cocoa-nut fibre refuse, but the pots are not placed directly upon it, but upon pots or saucers.

Two great aids in Orchid growing here are the pans and trellises which were recommended to Mr. Peacock by Mr. Dominy some years ago, and ever since they have been used for small plants. The pans are suspended along the rafters, and the trellises hang against the back wall. It is astonishing to see the luxuriance of the plants on these teak trellises, for the roots even out-grow the trellises and fasten themselves to the walls, which are kept constantly moist by syringing. The trellises vary in length from 6 in. to 24 in., and the strips of wood are about an inch in diameter. The Orchids that we noticed here as doing uncommonly well on these trellises were *Odontoglossum Londesboroughianum*, *O. Rossi majus*, of which there are some hundreds of plants against the walls of one house; all the *Sophranitis*, *Epidendrum vitellinum majus*, and various *Dendrobies*, *Oncids*, several *Cattleyas* and *Lælias*, and all the *Barkerias*. Another form of basket is also much used; it is boat-shaped, or rather a half cylinder, with the ends stopped by pieces of wood. These are hung horizontally, and large numbers of plants seem to prefer this to any other plan. For instance, all the *Chimæroid* section of *Masdevallia* are grown thus, and their robust health indicates that it is just the treatment they require. Upright cylinders, too, are used for many kinds, such as *Aerides* and *Vandas*, and the grand specimens of *V. cœrulea* are in these, and do better so treated than in pots. The cylinders are filled with loose material, such as broken pots and charcoal, with a few tufts of fibry peat, and surfaced with soil and *Sphagnum Moss*. In the cultivation of such a large collection as this it is of course necessary to divide it into

Geographical sections, for instance, Mexican, East Indian, &c., and in the case of large genera, such as *Phalænopsis*, *Cattleya*, *Oncidium*, *Odontoglossum*, *Masdevallia*, *Cypripedium*, a whole house is set apart for each, for the species in each of these are numerous enough to fill a good-sized house or compartment. An excellent plan is carried out here in the mixed collections of arranging the various genera in groups, and in front of each a large, conspicuous label is affixed, indicating the name of the genus, the tribe to which it belongs, and its geographical distribution—for example, *Odontoglossum*, tribe *Vandee*, sub-tribe *Oncideæ*, Mexico, Peru, New Granada, and Venezuela. Such an instructive arrangement as this we have not seen carried out elsewhere, not even in a botanic garden where one looks for such things. Besides, there is another advantage in so grouping the genera together, and that is, it gives greater facility for comparing allied species; and, still another, a mass of one particular kind when

in bloom is far more imposing and effective than if the plants were distributed about the various houses. The effect of the grouping system is particularly telling in this collection, as Mr. Peacock believes in having each species represented if possible by scores, and in some cases by hundreds, such for instance, as *Odontoglossum crispum*, several *Phalænopsis*, the *Cattleyas*, *Oncids*, and others. The imposing floral sight of such assemblages as these when in bloom may be better imagined than described. Mr. Peacock's plan is to buy largely, grow the plants well together, and select the finest varieties for growing into specimens; consequently his collection is particularly rich in unique varieties. Taking the houses *seriatim*, we will just note those which arrested our attention most. In one of

The Mexican houses there is a collection of species of *Lycaste*, several of the less attractive ones being in bloom, but in a week or two there will be a glorious display of *L. Skinneri* and its innumerable varieties, including the chastely beautiful and as yet extremely rare white variety (*alba*), of which there are three or four exceptionally fine plants which promise a good yield of bloom. In the same house is the collection, numbering some dozens of fine specimens, of *Odontoglossum vexillarium*, and, judging by their rude health, the temperature, ranging between the cool and warm houses, suits them admirably. Seeing that the growth and foliage were so free from markings of any kind, we enquired how it was they were kept so free from thrips, which seem so fond of attacking them. We were told that the plants (the foliage only) undergo a periodical submersion in a solution made from Appleby's Tobacco paper, which is considered free from any injurious ingredient. By this means the plants are kept in a clean state, and the same treatment is also given to the near allies, *O. Phalænopsis* and *O. Roezli*, which are both subject to thrips. In this house, too, were some scores of *Cattleya citrina*, some growing in pans, others on blocks and trellises. Those in pans are by far the finest plants, and the plump bulbs they are swelling and their healthy roots indicate unusual vigour, while those on blocks seem to be dwindling away. Thus it is conclusively shown that pan culture for this *Cattleya* is the best, notwithstanding that it is most generally grown on suspended blocks. The peculiar tendency of the plants to grow downwards is also exemplified in the pan plants, and the roots run over the bulbs and cling to the sides of the pans as if they were revelling in the treatment thus given them.

The Dendrobe house is next, and is filled with a rich collection of species and varieties, few of which, however, were in bloom except the lovely Australian *D. bigibbum superbum*, of which there was a specimen carrying upwards of a dozen long pendulous spikes—an exhibition in itself. Such a beautiful Orchid as this should be represented more or less numerously in every Orchid collection, especially as it may now be procured at a moderately cheap price. The colour is a soft magenta with a conspicuous white blotch in the centre. It remains a long time in perfection. The next house, was occupied entirely by *Odontoglossum crispum* and *Pescatorei* of which there are hundreds of plants, which though not in flower at present, will in a few weeks be a fine sight as there are no fewer than 300 spikes developed. The vigour of the plants is remarkable, especially as they have all been grown on from the imported state. Another house of a similar size (60 ft. by 10 ft.) contains specimen plants of choice forms of *O. crispum* and other select species, and here, too, there is quite a thicket of spikes, and among those with expanded blooms we noticed some wonderful forms of *O. crispum* and the finest variety of *O. Andersonianum* we have yet seen, the flowers being pure white copiously spotted with rich chocolate-red. Such choice things as *O. Coradinei*, *prionopetalum*, the true *nævium majus* and *mulus* are to be seen here in fine health, as also the handsome *O. coronarium* which puzzles so many to grow well. Here it is grown on trellises with little compost, and the plants seem to be doing well.

Oncidium, one of the largest genera in cultivation, has a whole house to itself, and is represented by a very full collection of species. Just now it is enlivened by such species as *Oncidium Forbesi*, of which we noted a splendid variety, the best we have seen having unusually large blossoms, with wide petals and sepals, and of a rich chocolate brown. Shortly there will be a fine display of that lovely species, *O. varicosum*, and *O. Rogersi*, and nothing can well excel in beauty the crowds of golden yellow, broad-lipped blossoms it bears in wide-branching spikes. Of the singularly beautiful *O. Papilio*, the Butterfly Orchid, and its near but handsomer relative *O. Krameri*, there are some dozens of plants growing in pans and suspended in rows from the rafters. There is a perpetual show of flowers from these throughout the year, for the flower-spikes are perennial, and as soon as one flower withers another soon succeeds it. Among them there are some magnificent varieties with very broad labellums and with highly-coloured flowers. In the *Odontoglossum* house there are in flower the finest of all the species, *O. grande*, the almond-scented *O. madrense*, and that much underrated species, *O. Uro-Skinneri*, which, represented by such a fine variety as here, is really a splendid Orchid. The heart-shaped labellum is over an inch across, of a beautiful rose-pink, clouded with a deeper tint.

The Phalænopsis house is a span-roofed structure, and admirably arranged as regards heating and ventilating, the stages being high, so that the plants may be as near the light as possible. The plants are for the most part grown in square wood baskets which, however, are not suspended, but placed on a broad trellised stage resting on a solid one beneath covered with Cocoa fibre in order to give off a continual evaporation. This is a capital arrangement, as the heat and moisture can play about the plants, and, judging by the healthy roots that fill the baskets and the spotless foliage, such treatment is just what they require, and no difficulty is experienced here in dealing with any of the species, not even with those that are failures in some places. The collection of species and varieties of *Phalænopsis* is a rich one, and some are not only represented by individuals, but numerously, as an instance of which we need only mention that the new and rare *P. Stuartiana* is represented by no fewer than a dozen plants.

Cattleyas and Lælias, of which there is almost every species in cultivation represented, take up a capacious span-roofed house, but, with the exception of the little *Lælia Dayana* and its varieties, there were but few in bloom. This *Lælia* is one of the most satisfactory Orchids to grow, as it is not so fastidious as others, and throughout September and October it never fails to yield a fine crop of bloom. A variety here called *L. præstans* is the finest we have seen, the flowers measure 4 in. across; it has wide sepals of a uniform deep lilac-white; the large labellum is a deep rich crimson. Both it and allied varieties are grown in suspended pans, and, like all the plants in the collection, are in finest health under the skilful treatment of the gardener, Mr. Vickery. The *Cypripedium* house does not contain much flower at the present season, but there is one point worth noting, and that is the treatment of the old *C. insignis*. During summer the plants, about a hundred, are placed in an unheated frame in the open, and in this they remain till the end of September. This plan is found to suit admirably, as the plants ripen their growth well, and consequently yield a profuse crop of bloom, which is just appearing.

The Masdevallia house is beginning to assume its wonted gay winter aspect, for the grand plants of such showy species as *M. Harryana*, *Lindeni*, *Veitchi*, *igneæ*, *tovarensis* are throwing up sheaves of spikes, and among the rarer species *M. Normani* or *Reichenbachiana*, as some call it, is in bloom; though not a showy flower, there is a refined look about it that is pleasing. *M. maculata*, *Wagneri* are among the others in flower. The *Chimæroid* section is grown in a higher temperature than the majority of the *Masdevallias*.

Among them we noted the true erect flower, *M. Chimera*, in bloom, also two uncommonly fine specimens of *M. Backhousiana*, each, we should say, having about half a hundred leaves. The flowers of this rare species are so beautiful and so singular, that it is not surprising that it is so fascinating as to command such high prices.

Stanhopeas and allied genera, which seemingly have lapsed into undeserved neglect in some places, are, we notice here, richly represented, particularly *Stanhopeas*, of which there is about the fullest collection of species we know. Several are in flower; among them the beautiful *S. florida*, to which we alluded a short time since, and among the *Acinetas* the singularly handsome *A. Barkeri*, with long dense racemes of orange-yellow blossoms dropping from the bottom of the suspended basket, is a very fine object in the Mexican house. Everywhere about the place one meets with quantities of imported Orchids, which reminds one more of a nursery than a private garden. They may be seen in all stages, some just received, some recovering, others fully established. Great care and attention is bestowed on these imported plants, and as soon as received they are cleaned—that is, all useless plants cut away, and each plant is placed in a pot with only a few broken crocks to keep them steady. This is found sufficient until the plants show signs of “breaking.” After they are rooted they are potted in the ordinary way.

W. G.

NOTES OF THE WEEK.

CHRYSANTHEMUMS AT FINSBURY PARK.—We hear from Mr. Cochrane, the superintendent of the above park, that the annual display of *Chrysanthemums* will be open free to the public on and after Saturday, 21st inst. The display promises to be exceptionally fine this year.

NEW SELECTED TOMATO.—We have before us some fruits of a Tomato from Mr. R. Gilbert, Burghley, who states that he selected the variety some three years ago from Hathaway's Excelsior. The fruits sent are from outdoor plants; they are of medium size and smooth and globular in shape. Mr. Gilbert says it is a “grand cropper,” and he has proved it to be a valuable addition to our already lengthy list of Tomatoes. The flavour is excellent, particularly having regard to the fruits being grown in the open. It is named Gilbert's Selected Hathaway's Excelsior.

SCOTCH GROWN LEEKS AND ONIONS.—We have received from Messrs. Dicksons & Co., Waterloo Place, Edinburgh, some remarkably fine examples of Leeks and Onions grown by Mr. McCormick, the gardener at Hay Lodge, Peebles. The Leeks are exceptionally fine, and represent two types, both selected from the Musselburgh; one on account of its being the heaviest, the other for being the best blanched. The heaviest are monster specimens, blanched for nearly 1 ft. in length and of great girth; the others have the stems blanched for a length of from 14 in. to 18 in. The Onions are of the Trebons variety, and are very fine, some 6 in. diameter. It is an excellent sort, and one that ought to be more generally grown than it is. In the production of these fine examples cow manure, bones, leaf-mould, and guano have been used.

NEW SEEDLING ANTHURIUM.—At the last show of the Paris Horticultural Society, which closed on Sept. 25, M. Bergman, gardener to Baron A. de Rothschild at Ferrières, showed a new seedling Anthurium under the name of *Anthurium ferrieriense*. It is a cross between *A. Andreanum* and *A. ornatum*, and seems to possess the good qualities of both parents. Its foliage, which is very fine, resembles that of *A. Andreanum* and it is vigorous and free-flowering, even small plants showing buds in the same way as *A. Andreanum*. The spadix is erect, as in *ornatum*, the spathe about the same shape as that of *A. Andreanum*, but not curled, and of a very pleasing deep rose colour. The parents, by way of comparison, were shown along with it, *A. Andreanum*

bearing several large flowers, and the same exhibitor showed also a good collection of *Nepenthes*.

MATLOCK BATH PAVILION GARDENS.—The directors of this company recently offered a prize of £25 for the best design for laying out the piece of ground they have acquired for the purpose of forming a public garden. The site is a little over nine acres in extent, and rises almost precipitously to a height of nearly 300 ft. The eastern portion is of a rocky and romantic character, while from every part of the ground extensive and beautiful views are obtained. On Saturday last the directors awarded the prize, Messrs. Barron & Son, of Elvaston Nurseries, Borrowash, near Derby, being again successful. Their plan shows a broad terrace in front of the pavilion, on the same level. A flight of steps leads to a second terrace 20 ft. lower down, laid out in three compartments as a flower garden, with a fountain in the centre of the end compartments. At the back of the pavilion are archery grounds, tennis lawn, and bowling-greens. Numerous walks at an easy gradient connect these, and wind among the rocks on the eastern side, and band-stands, rustic arbours, and shelters are provided in the most convenient places.

KEW GARDENS.—The other day a deputation waited upon Mr. Shaw-Lefevre with reference to the restricted facilities for entrance to Kew Gardens. The deputation complained that not only were the public excluded from the gardens every day until after one o'clock, but the temperate house gate, close to the very handsome picture gallery recently presented by Miss North, was being bricked up, and another entrance made 350 yards further down the road towards Richmond. It was pointed out that a large number of houses, ranging in value from £100 to £300 per annum, had been erected near the temperate house gate, and a new road made leading from the railway station to it, in the hope that it would be opened to the public, but the new gate would be at a spot where there was no population, and would give access to the least interesting part of the gardens. Mr. Shaw-Lefevre informed the deputation that the work was being carried out on the recommendation of Sir Joseph Hooker, who had represented to the department that it was for the public advantage. It was not desirous to multiply entrances to the gardens. It was intended not only to brick up the temperate house gate, which had never been open to the public, but also to close the entrance now available for the public near Richmond, opening instead a new gate, which would be very ornamental, between the two. He would consider whether railings could be substituted for bricking up the temperate house gate, so as not to shut out the view from the road.

FLORAL PHOTOGRAPHY.—At the exhibition of the Photographic Society of Great Britain, in Pall Mall, Mr. Henry Stevens, of King Street, Covent Garden, exhibits an extensive series of flower portraits, which for high artistic finish are pronounced to be the best yet exhibited, and he has been deservedly awarded the Society's medal. Mr. Stevens has made photography a special study for a long time, but it is comparatively recently that he has devoted attention to photographing flowers. The principal subjects of his exhibits are Orchids, mostly life-size. Of these, the portraits are so clear, that even the texture of the petals can be distinctly seen. Among the finest examples are some beautiful varieties of *Cattleya Mendeli* shown in different positions, so that a correct estimate of the variety can be obtained. Another exceptionally fine picture is that of a long wreath-like spike of *Odontoglossum Alexandrae*, representing one of the finest-spotted varieties. This is a wonderfully faithful portrait, every minute spot being brought out clearly on the white ground, and even the delicate margin of the labellum can be distinctly seen. A group of plants of *O. nebulosum*, *Alexandrae*, and *cirrhosum*, intermingled with Maiden-hair Ferns, is the subject of another picture, and the way in which the flowers are arranged and clearly brought out is remarkable. Another study consists of Pansies

and *Odontoglossum citrosimum*—a strange mixture, one would imagine, but they associate well together. An uncommonly fine form of *Odontoglossum nebulosum pardinum* is beautifully depicted, and among others we singled out as particularly noteworthy were *Dendrobium Calceolus*, *Lilium auratum*, *Prunus sinensis*, *Spiraea ariæfolia*, *Azalea sinensis*, a colony of Primroses, a bouquet of Dahlias, and *Anemone Honorine Jobert*, which latter we consider the finest in the whole series, so marvellously clear and life-like it is. Floral photography is not much practised; yet we know of no more interesting occupation for those who possess collections of plants, and particularly Orchids. It shows the flowers as they really are; no “artistic liberty” can be taken with regard to their size or markings or number. A considerable experience, however, is needed before a proficiency in the art can be acquired. Besides being a medallist in the Pall Mall exhibition, Mr. Stevens was also awarded the first silver medal in the amateurs class at the exhibition of the Royal Cornwall Polytechnic Institution recently held at Falmouth.

INDOOR GARDEN.

PLANTS FROM SEED.

THE strains of many useful decorative plants, such as the herbaceous *Calceolarias*, the *Cineraria*, the *Cyclamen*, and even the tuberous-rooted *Begonia*, have now become so much improved that the practice of increasing them by cuttings or by division has been in a great measure discontinued, except in the case of rare or distinct forms which occasionally present themselves among seminal plants. These should be increased at as early a period as possible in order to lessen the risk of losing the variety—a risk which in the case of single plants is necessarily considerable. When seed is saved from the best varieties, it generally follows that the produce is equal in point of merit to the parent plants. Nor is this all, for the cultivator may, by the exercise of judicious manipulation, improve the strain of most plants; for example, the flowers of any particular plant may possess in an eminent degree the desired colour, form, or markings, but may at the same time be deficient in point of size. This desideratum may, however, also be secured, if not directly, yet in the course of a few generations by intercrossing. The principal object in view in the cultivation of ornamental plants is doubtless the pleasure of watching the gradual development of beauty in their flowers and foliage—a pleasure intensified rather than otherwise by the uncertainty as to what each succeeding development may disclose in the shape of new or unique forms, or improved and desirable varieties. An interest is, therefore, inseparable from the practice of raising plants from seed which is absent from that of raising them from division or cuttings which will necessarily in all respects prove identical with the plants from which they were derived. In the case of

Herbaceous Calceolarias, nurserymen have in a great measure discontinued the practice of offering named varieties, but continue to supply seed or seedling plants raised from strains in which they have full confidence, and such plants seldom fail to give satisfaction. Most growers of these plants will, however, prefer to raise their own from seed, and this is very easily accomplished by the following method. The plant, it is true, may be increased by cuttings, which root freely; but seedlings are generally more robust, and form possibly better specimens than plants thus propagated do. About the middle or end of July, or even during the first week of August, will be found to be sufficiently early to sow the seed, which is remarkably small, and the young plants are very impatient of heat, as is indeed the case with *Calceolarias* in all stages. The seed may be sown in a 6-in. pot, which will be found quite large enough to furnish some hundreds of plants. The pot should be drained to one-third or to even one-half of its depth, and over the drainage should be put a thin layer of

Moss. The pot should then be filled to within $\frac{1}{2}$ in. of its rim, with a mixture of light loam and leaf-mould finely sifted. The surface of the soil should be made quite level, and should be well watered with a fine rose; the seed should be sown upon the wet surface and gently pressed into the soil with a smooth circular piece of wood or the bottom of a small pot. No covering of soil will be necessary, but the surface of the pot should be covered with a piece of glass, and the pot should be placed on the north side of a wall, on moist sand or cinder ashes. Should the surface of the soil become dry, it must be sprinkled with a fine rose, and as soon as the seeds have fairly vegetated, the piece of glass should be removed and a hand-glass placed over the pot to protect its contents from injury from heavy rainfall. As soon as the young plants can be handled they should be pricked into seed-pans, which should be placed in a cold pit or frame, and when the plants have become somewhat large they should be potted singly into 3-inch pots, and from these in due time they should be transferred into pots some 6 in. in diameter, a convenient size in which to bloom them, although a portion of them may have another shift into pots some 8 in. or 9 in. in diameter, which will be sufficient for the largest specimens that can be desired. Calceolarias are not very particular as to compost; a suitable one may consist of say about two-thirds rich, light turfy loam and one-third leaf-mould, or, what is better, a like portion of well-rotted hot-bed manure, with possibly a small quantity of sand. All should be in their flowering pots early in October; if a little earlier, so much the better. Being nearly hardy, Calceolarias are remarkably impatient of heat; therefore a cold pit is possibly the best structure in which to winter them. Do not keep them far from the glass, and trust during very severe weather rather to ample external covering than to fire heat. They are also very subject to the attacks of aphides, and on that account occasional fumigations are necessary. They may with advantage be allowed to occupy a cold pit or frame until they begin to throw up their flower-stems, when they should be removed to the greenhouse or to where they are intended to bloom, and should be carefully shaded from bright sunshine, when the flowers will keep a long time in good condition. A structure of any kind entirely filled with choice herbaceous Calceolarias is certainly a remarkably pretty sight.

Cinerarias.—Most of what has just been said respecting herbaceous Calceolarias also applies to Cinerarias, now generally treated as annuals, although named varieties are still offered in nurserymen's catalogues. Varieties of extraordinary merit when they appear should certainly be perpetuated by means of cuttings, which may generally be found near the base of the flower-stems early in August, and will be found to strike root freely. The plan now, however, generally pursued is to select fine robust plants possessing desirable qualities, such as substance and form of flower and brilliancy of colour, combined with a close, compact habit, and to place them in some light, well-ventilated structure, isolated from all other plants of this family, and from these to save seed, which, if large specimens are desired, may be sown about the middle of October, although early in the following February is possibly the best time to sow where the plants are required to bloom in 6-in. pots in the greenhouse during March and April. A cold pit or frame is the best structure for the Cineraria during summer; but as few plants are more easily injured by frost, it is necessary to remove them as soon as this is to be apprehended into some cool, airy structure from which frost can be effectually excluded, and where the plants can be kept pretty close to the glass. As they are exceedingly liable to the attacks of aphides and thrips, occasional fumigation will generally be found necessary. When in bloom a slight shade during bright sunshine will be found beneficial, and will naturally extend their season of flowering.

Persian Cyclamens in their now numerous varieties are amongst the most delightful of

winter-flowering plants for the greenhouse, and, indeed, for all decorative purposes. They remain long in flower, are delightfully scented, and keep well in water. They are nearly hardy, and some of the best varieties should annually be placed by themselves for the purpose of furnishing seed, which may be sown as soon as it is ripe, or in slight heat early in October, and with proper care the produce may be had in bloom in little more than twelve months from the time of sowing. After blooming, the plants should not be rapidly dried off, a course of treatment at one time practised; they should be turned out of their pots, and planted in suitable soil on the north side of a wall or some similar situation where they will be shaded from the midday sun, and will gradually go to rest. Early in October, when growth will have again commenced, they should be potted into pots corresponding to the size of the tubers, and may thus be grown for any number of years, although some prefer to discard them after the second or third season.

Tuberous-rooted Begonias.—These are now very plentiful, and many of them are exceedingly beautiful. They have double as well as single flowers of large size, fine form, and possessing brilliant shades of colour. Cuttings of all the varieties strike root freely, although many of them fail to develop tubers, while in some cases tubers are formed, which, nevertheless, refuse to grow. To obviate this as far as is possible when this method of increasing the plants is resorted to, the points of vigorous, strong growing shoots should be selected for cuttings, and each cutting should have a wood bud in the axil of its lower leaf. Nurserymen's catalogues contain long lists of named varieties. But many, nevertheless, prefer growing them from seed, and to keep up the necessary stock raise a few plants by this means each season. If seed is saved from a collection of first-class varieties the seedlings can hardly fail to be good. There is, too, possibly no family of plants in which artificial fertilisation can be more readily performed, and if a few female blossoms be selected upon a healthy plant of a first-rate variety, and crossed with pollen from male blooms of another first class, but distinct sort, and means used to prevent the interference of insects, the progeny will be almost sure to inherit in a more or less degree the desired properties of each parent. The seed is remarkably small, and it is possible that a single pod may furnish hundreds of fertile seeds, which should be sown early in February in a temperature of some 60°; on account of its minute character it should not be covered with soil, or if so, very slightly, but the surface of the pot may with advantage have a piece of glass placed over it, as has been recommended in the case of the Calceolaria. The young plants, when large enough, should be pricked into seed-pans, afterwards potted off singly in small pots, and finally shifted into 5-in. pots, and as the season advances they should be placed on ashes in a cold pit or frame to be proved; as most, if not all of them, will bloom during the season, and will most likely present considerable variety, a selection may be made, discarding inferior sorts. The tubers of the selected plants should be allowed to remain during the winter in the pots in which they bloomed, and the soil should be allowed to become quite dry, and they may be stored in any situation where they can be kept in that condition, and where the temperature will not fall much under 50°. They may also be allowed to start into growth in the old soil, and this they will possibly do somewhat irregularly, so that those inclined to be backward in this respect should be encouraged by an increase of temperature, and when fairly started they should be shifted into fresh soil, which may consist of a mixture of two parts turfy loam and one part of leaf-mould and well-rotted manure. To obtain large specimens repeated shifts or repottings may be found necessary, but very pretty and effective plants can be produced in pots not exceeding 8 in. in diameter. This plant is also admirably adapted for outdoor culture; where it is found to succeed well it forms a very effective bedding plant, and is very distinct from all other

plants used for that purpose. A writer in THE GARDEN some few weeks since informed us that in the neighbourhood of London such plants looked "wretchedly dull," and some of the varieties may do so, especially where refuse or plants of inferior quality have been planted out; but, on the other hand, there are no doubt many varieties which are bright enough and exceedingly rich-looking when used along with other plants to form groups or beds in the flower garden and elsewhere; and in order to secure desirable plants for this purpose, instead of using those which are not considered good enough to retain in pots, let a plant or plants which may in all respects possess the desired properties required for bedding purposes, such as height, habit of growth, profusion of bloom, and shade of colour, &c., be effectually isolated from each other, as well as from all other plants of the Begonia family, and from these save seed, and the plants raised from that will generally be found to come tolerably true, i.e., like the parent plant. These plants should during the first season be grown in a cold pit, and will be found suitable for bedding out during the second and succeeding seasons. P. GRIEVE.

OBITUARY.

DR. THWAITES, long Government botanist in Ceylon, died at Kandy on September 11 at the age of 72. He succeeded Dr. Gardner as director of the Botanic Garden, Peradeniya, a post for which he was well qualified. He took great interest respecting the introduction and cultivation of Cinchona, and contributed largely in other respects to the prosperity and welfare of the island. A year or two ago he retired from the directorship of the garden and was succeeded by Dr. Trimen.

We have also to record the death, at Saffron Walden, of Mr. GEORGE YOUNG, aged 85 years. Mr. Young was gardener for forty-eight years at Audley End, and was highly esteemed by his employers, who liberally pensioned him off about eight years ago. He was a good practical gardener and highly respected.

Fungus (*E. J. F. Mitcham*). If your description is correct, as it probably is, the fungus in question is *Agaricus bombycinus*, a rare species.

Heating.—I have a little greenhouse heated with a flue, and when the wind is in a certain direction there is no draught. Would a paraffin lamp keep out frost, and would the fumes from the lamp do the plants any harm?—*J. A., Coalburn, Douglas.*

Names of plants.—*H. Andrews.*—The Artillery plant so-called is *Pilea muscosa*, native of West Indies. The other plant you refer to is probably a Bromeliad.—*R. H.*—*Pyrethrum uliginosum*, *Chrysanthemum Leucanthemum maximum*, *Aster versicolor*.—*T. D. G.*—1, *Rivina levis*; 2, specimen not sufficient; 3, *Fittonia argyoneura*; 4, specimen not sufficient; 5, *Adiantum hispidulum*; 6, *Pteris serrulata*.—*B.*—*Cattleya amethystina*.—*J. D. N.* (*Whiteaway*).—*Impatiens Noli-me-tangere* (British).—*P. P. (Dublin)*.—1, *Aralia spinosa*; 2, *Centradenia grandifolia*; 3, *C. rosea*.—*W. Nelson*.—1, *Helianthus giganteus*; 2, *Aster levis*; 3, *Agatheea caelestis*.—*E. Molyneux*.—1, *Clerodendron foetidum*; 2, species of *Solidago*; 3, *Aster Novæ-Angliæ pulchellus*; 4, apparently *A. versicolor*; 5, *A. levis*; 6, *A. horizontalis*; 7, *A. Novæ-Angliæ roseus*.—*A. K.*—*Phaseolus Caracalla*; not common.—*T. N. Reid*.—1, *Fluggea japonica*; 2, *Duranta Plumieri*.—*J. W.*—*Aster Novæ-Angliæ roseus*.—*T. B. A.*—*Pyrethrum uliginosum*.—**Names of fruits.**—*J. Williams*.—Manks Codlin.—*G. Bance*.—Your Pears cannot be named from single specimens only.—*W. J., C. C., and Evelyn* next week.

COMMUNICATIONS RECEIVED.

J. H.—*J. L. S.*—*T. S. W.*—*G. K.*—*C. R. S.*—*J. C. C.*—*T. S.*—*W. G. S.*—*A. B.*—*W. J.*—*W. C.*—*W. B. H.*—*J. O'B.*—*A. D. W.*—*E. S. C.*—*J. M.*—*J. W.*—*W. P. R.*—*W. E. G.*—*J. C. B.*—*J. G.*—*J. J.*—*D. W. G. S.*—*J. S. W.*—*D. T. F.*—*K. & Co.*—*W. P. & Co.*—*J. S.*—*J. J. & Co.*—*A. B.*—*W. P. R.*—*J. D. R. G.*—*T. J. K.*—*M. M.*—*T. B. A.*—*H. Co.*—*W. P. A.*—*D. E. B.*—*T. D. G.*—*T. M.*—*W. W.*—*E. G.*—*R. S.*—*H. M.*—*N. G. Co.*—*A. C.*—*B. D. K.*—*S. S.*—*S. W.*—*T. W.*—*R. J. L.*—*W. L.*—*J. C. C.*—*J. S.* & Sons.—*J. D. N.*—*W. J.*—*J. S.*

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

AQUATICS AT BINGHAM.

OF Water Lilies there is here a fine collection. I hope soon to add the large white *Nymphaea*, growing in Lake Voden, in Macedonia. Consul Blunt, of Salonica, has very kindly responded to my request, and promises to send a collector from Salonica, about seventy miles from Voden. I also hope to add the Cashmere variety of *Nymphaea alba*. Perhaps some of my readers have friends in Cashmere who would send home the roots in the winter season. I also want *Nymphaea nitida*, from Siberia; it is probably in some English collections.

NYMPHÆA SCUTIFOLIA.—I had a large plant of this thoroughly established in a tub, and used to put it in my pond during the summer. I had only succeeded in blooming it under glass. Last winter it remained out in the pond in about 2 ft. of water; there was never more than 1 in. of ice, but for all that the plant was killed; so I conclude it cannot be accounted a hardy plant, as has been suggested.

NYMPHÆA ALBA is here in several varieties. *Nymphaea alba candidissima* is the largest form, and is said to come from Bohemia. Mine came from Chatsworth. *Nymphaea alba minor* apparently differs from the normal form in its extreme whiteness and the incurved form of the flower, reminding one of *Chrysanthemum* Mrs. George Rundle.

NYMPHÆA ALBA ROSEA (syn., *sphærocarpa* of Caspary) has given us six flowers this summer, and fully justifies the praise it has received. It is shaded from pale pink to a deep rose colour. The plate in *THE GARDEN* made it rather too crimson; whereas its shade of red inclines more to magenta than crimson. It is a magnificent hardy plant, and has been in its place in my pond for the last four years, proving perfectly hardy in spite of zero frosts. I am afraid we shall not get many true from seed, as those sent out by Messrs. Daniels, of Norwich (at least such as have bloomed with me), have not red blooms, but white, showing that the parent is no doubt a sport from *Nymphaea alba*. Messrs. Daniels' seed was supplied by Professor Caspary, of Königsberg, who is the great authority on *Nymphæas*, and first introduced the rare Water Lily to our English gardens. Messrs. Froebel, of Zurich, are now sending out proved red seedlings of this splendid Water Lily at about £1 each.

NYMPHÆA ODORATA has all the good qualities of the old white Water Lily, plus a delicious scent. Some years ago I bought at Stevens' a form of *N. odorata* called *N. odorata delicata*. This is a minor form, and is slightly tinted with rose colour, and is quite distinct from the new *odorata rubra*, which I also bloomed this year. The colour of this fine Water Lily inclines more to carmine than the *alba rosea* above described, and I believe this will prove a magnificent plant. It is, however, difficult to tell much about a Water Lily till it has thoroughly established itself, and that takes three or four years. *N. odorata minor* is a valuable little kind, but not, I think, as hardy as the type.

NYMPHÆA BIRADIATA is also here, but has not yet bloomed. I have given a plant to Kew. It comes from Styria, and is said to have a brown or red centre.

NYMPHÆA POECILE (from Haage et Schmidt, of Erfurt, who will not answer any queries) is said to be hardy. I find it difficult to start, and do not know where it comes from.

NYMPHÆA PYGMÆA is very uncommon. It has a dark leaf, very small, and a blossom in proportion. There is also here a variety usually sold instead of *pygmæa*, and is, I think,

NYMPHÆA NITIDA MINOR.—It has leaves 3 in. or 4 in. across when full grown in the open air, with very small starry flowers.

NYMPHÆA FLAVA I keep losing; and here let me warn all Water Lily growers never to sow their seeds or put their plants in any such soil as one would use for potting, but only in mud from the bottoms of dykes and ponds—the heavier the better. It is curious how they absolutely refuse to grow unless their roots are in very strong soil.

NYMPHÆA TUBEROSA, also here, is a very valuable Lily, throwing its large white blossoms high out of water. I have not yet got it thoroughly established.

NUPHARS (the yellow Water Lily).—I have the common *N. lutea*, and the American brown centred form, *N. advena*, which sends its leaves out of the water, answering to the *Nuphars* as *tuberosa* does to the *Nymphæas*. There is a *Nuphar* often depicted on Japanese screens and fans called by them Kawa-bone, which is, I think, *N. Thunbergi*. I should be much obliged for a plant of this. It comes near *advena*, but has no brown centre. I have also *Nuphar polysepala* from Florida, not yet bloomed, and *Nuphar Kalmiana*, a small variety from N. America.

OF *NELUMBUMS* I have a tubful of *N. luteum* from America. This has been in the pond all through last winter. The leaves began to push through about 1 ft. of water in July. I do not think our summers are warm enough for it to bloom in a pond, but possibly it would do well if the tub stood in a warm corner where it got plenty of sun. The difference of temperature between water in a pond and in a shallow tank exposed to the sun is something surprising. I have also *Nelumbium album*, the large white Indian form of *speciosum*. This is in a tub, and has been the subject of much trouble and thought, but we always fail to bloom it through giving it too much heat in spring. Next summer I shall only start it in heat. I had some idea that the dwarf Japanese varieties of *Nelumbium*, of which one may constantly see portraits on fans, might prove hardier, and so I have got three pots full of roots. They were sent dry from Japan this spring, and are their finest named varieties. I mean to give a pot to Kew, as they may prove very valuable plants, and ought to be scientifically propagated and distributed. I have lost *Nelumbium pekinense*, *jamaicense*, and *caspicum*.

The tubs above-mentioned are simply barrels halved with iron handles fixed on. The labels are of sheet lead with punched letters. They must be fastened with copper nails, as iron quickly decays. The pond above described is about 20 yards long and 2 ft. deep, with no stream in it and quantities of fish. *Aponogeton distachyon* is now very fine in it, and the large-leaved double

Arrowhead (*Sagittaria latifolia plena*) has proved to be one of the finest aquatics I have ever seen. Of all the Grasses, *Cyperus longus* is the most beautiful.

N.B.—Never transplant Water Lilies in autumn or winter.

FRANK MILES.

Bingham, Notts.

A DAY IN THE COUNTRY.

BY AN AMATEUR GARDENER.

Hæc est

Vita solutorum misera ambitione gravique!—HORACE.

GIVING away plants to those who will take care of them and care for them is one of the greatest pleasures of gardening, and many readers of *THE GARDEN* who are now friends of mine, and have been to Edge, and have sent empty hampers to be filled with the plants I promised them, are wondering when they will come; but I hope that these friends will have patience with me, and will read this true account of an amateur gardener's day. An amateur is defined in the rules of flower shows as "a man who keeps no regular gardener." Now, my head man was engaged chiefly as bailiff to look after 150 acres of grass land, and to attend to buying and selling stock, which duties he now performs, and looks after the garden as well; but he is not a professed gardener, and when named plants have to be sent away I have to get them up and name them.

Well, I have been out a good deal lately, but am now at home by myself, so I made up my mind that on Friday I would have a regular day at getting up plants for my friends, hoping if lucky to get through three or four hampers in my spare time. Thursday night was stormy and wet, but I was in the garden by seven on Friday, with a basket and trowel and handfork. First, I find several tall *Pyrethrums* and *Asters* broken loose and sprawling on the ground; so I go for tying material, and get nearly wet through tying them up again. Then I come upon a late-flowering patch of *Campanula muralis* evidently just eaten off by a rabbit; the garden is supposed to be rabbit-proof, but on looking round carefully I find further evidence that one is inside. By this time the letters have come, a large pile, many of the kind which fall to the lot of every paterfamilias, and which must be answered, but many about gardening, and enclosing flowers to be named. I always like these, but they take time to read and answer. One was from a gardener in Wiltshire, enclosing named flowers of a dozen *Asters*. "I had been writing (he said) about *Asters* lately, and saying it was hard to get them rightly named, so he sent me these, which he knew were all right, as they all came from B.'s nursery." I was truly grateful to him, though to the best of my belief three-quarters of the names were quite wrong.

After breakfast my bailiff-gardener and my gamekeeper came, as usual, for instructions. I order the latter not to do anything else till he has killed the rabbit, and tell the former I shall want him presently in the potting shed to pack some plants; but he tells me that two of the Highland bullocks lately imported are missing. Considering their size, I suggest that they may be hiding in a rabbit-hole, but he says that they were seen at Broxton, three miles off, "going Chester way." He must take a man and go after them. Before I have got through the headings of news in the *Times* (yesterday's, which comes by post next morning), a bang announces that the rabbit has paid the penalty, and I take the keeper, whom I employ more as a wild

gardener than as a preserver of game, to dig up some *Astilbe rivularis* and *St. John's-wort*, which are in my way in the garden, and plant them by the side of the wood walk. On my return I find a sergeant of police, who tells me that he has got a tramp and a "drunk" locked up at Malpas. When can "my worship" come and try them. How I wish I could separate "my worship" from my hands so as to use both at once in different places, and imitate the double presence of the Homeric Hercules. But I appoint eleven, and have to set off to walk two miles, and do not get back from the "trial" till twelve, when here is a note from a neighbour waiting to be answered, and an overseer on rate-collecting business, which takes some time. Now I can get to work; but my trowel has disappeared. After twenty minutes' search I find it where I tied up the last Aster in the morning. Whilst looking for it I observed two or three plants of which I had saved no seed, and the pods and stalks were mildewing with wet. They were *Verbascum phlomoides*, *Malva alcea*, and the lemon-coloured annual Sunflower. I must get them at once, which I do, and, stripping the pods, put them in trays before the study fire. Not worth going out again before lunch; answer letters. Just then a cataract of soot came down the chimney and buried all the wet seed-pods several inches deep. Meaning to be very angry with some one, either the fire or the housemaid, I pulled the bell violently, and the rope came down on my head; then I became philosophical, and thought of Isaac Newton and his dog.

After lunch I started for work in earnest. What are the first plants on list No. 1? Double *Narcissus poeticus* and *Dodecatheon integrifolium*. The first wants a spade, so I go with one to a place where I knew the double *Narcissus* lived. After two or three digs, by each of which I cut two or three bulbs in two, but got up no whole ones, I found the ground so like the bottom of a brick pit, that I gave it up, to look for the next plant, which would be in a drier place, so I parted the big autumn leaves of the scarlet *Geraniums*, and tried to read several illegible labels, and began to search on the chance. The first thing I dug up was evidently *Anthericum Liliastrium*; the next was like *Adonis vernalis*, but certainly was not what I was looking for, when, looking, up I was confronted by a well-dressed stranger, who proved to be the "traveller" of a firm of German wine merchants, who had seen me on his way up to the house, and was delighted to have found me at last after so many calls. Inwardly wished that the "Vagrant Act" included wine merchants' "travellers." In vain I told him I wanted nothing, and tried to go on working; it was not less than twenty minutes before I got clear of him, and then thought it better to go out of sight of the road to the house. Then I met my head man, who had found the bullocks, and was coming to tell me that Mrs. —, of —, near Manchester (a lady of whom I had never before heard even the name), had sent her gardener to see the garden, and he had brought this note. The notes said "that she had read of my flowers and heard that I was very good natured about giving away plants, and hoped

would give her gardener some which he would select; also their harvest festival had to be deferred in consequence of the curate having caught cold, and was next Sunday. If I had any flowers left, would I send her all I could find!" This was really too bad, but I tried to keep my temper, and told my man, who was all behind

with his daily duties, to send one of the labourers round with the visitor. Just then the footman came up—it was now about three—and told me that Mrs. H— (one of our pleasantest neighbours) was in the drawing room with two young ladies and asked to see me. She apologised for bringing me in, but had driven over her two nieces, who were very fond of gardening, and would so like to see my garden.

Hoc juvat, et melius est! non mentiar.

But what can they expect to see after St. Luke's Day and such weather? However, the young ladies as well as their aunt were very agreeable, and appeared pleased with everything, and showed by their remarks that they knew more about hardy plants and their cultivation than many gardeners do, and the pleasure of their visit made up for all the *contretemps* of the day. Of course I insisted, in spite of their remonstrances, that they should put down the name of everything they saw which they would like to have, spelling phonetically the names I gave them, which I should recognise. They stayed till five, and before going gave me a long list (not too long) of plants to be sent to their home when I have time; but when? Tomorrow, when it comes, will probably be spent in much the same sort of *domesticum otium* in which I have already spent "yesterday's to-morrow," which was to have seen a large amount of work got through. Besides, whilst I was taking the ladies round, my groom went to the station for parcels, and brought a box of alpine just arrived by international parcel post from Froebel's. I tried to unpack them, but it was past sunset, and not having yet set up an electric light in my garden, was obliged to leave off.

Perditur interea misero lux!

thought I to myself, but the third word is misapplied, for a paterfamilias who is a real "amateur gardener" has little leisure to be miserable; and I think that if Lady Clara Vere de Vere had been trained to be fond of gardening, she would not have found "time hang heavy on her hands" in the country.

Edge Hall.

C. WOLLEY DOD.

NOTES AND READINGS.

NEW AND OLD HOTHOUSES. — A writer in *THE GARDEN* (p. 345) hits a vulnerable point in our hothouse building at the present time. The responsibility of indifferent hothouse building, however, lies nowhere in particular, but is equally shared by the builder and proprietor. There are cheap and cheap houses, and there is a right and a wrong way in setting to work in erecting houses, but we cannot make durable structures out of inferior materials, and this is where the fault lies. There are gardeners and agents, we know, who, in their desire to possess extensive glasshouses before everything else, have persuaded their employers to build them of common "white deal," and who have lived without becoming old to see the same fall into decay. We know gardens in which better things might be expected where this has been done, all to save the trifling difference between two qualities of timber. No wooden structure will endure without paint of course, but between white deal and red deal and the different kinds of the latter there is a difference, and a great one. We know of houses put up close upon one hundred years ago in which the rafters, 7 in. by 4 in., are yet almost quite sound and even some of the guts. These rafters are of that kind of deal known to carpenters as "Memel," which takes its name from the port from which it is shipped. But the ordinary red deal usually estimated for, or in other words the "Baltic Scotch Fir," is

good enough for all purposes of hothouse construction, and will endure almost as long as Oak, provided it is good "heart wood" and not "sap wood," much of which is disposed of as red deal fit for building purposes, but which is not thought perhaps to legally come under that head. To give one "the best seasoned red deal," as the specification usually sets forth, is the most the builder can do, and the customer should see that he gets it and that it is taken care of by frequent coats of paint.

*

SINGLE DAHLIAS IN AUTUMN. — For a real late flowering plant the hardiest of Michaelmas Daisies hardly come up to these single Dahlias. In the north all bedding and mostly all herbaceous plants are over save these Dahlias, which continue to produce quantities of flowers as bright and fresh as they were in July and August, and nearly as numerous. This is a remarkable feature in a plant otherwise so sensitive, that the merest touch of frost kills it. The single Dahlia is invaluable on this account alone. We have had opportunities of seeing the single and double forms together this year in a mass, and for profusion of flowers, long continued—coming on early and lasting till late in the season—and general effect there can be no doubt about the superiority of the single kinds. There is, however, a predominance of dark-coloured varieties as yet, many of them of rich shades, but we want more whites, pinks, and bright yellows. The white kind will form a strong rival to *Anemone japonica alba*. The Dahlia has duration of bloom, but the *Anemone* beats it in the purity of its whiteness. Nearly one half of the beauty of the single Dahlia consists in its golden centre, which the prize Dahlia man has been endeavouring these last forty years to abolish, an "open centre" being sufficient to destroy the chance of any exhibitor at any time.

*

PRIMROSES IN AUTUMN. — This is usually reckoned a spring flower, but the increasing practice of raising plants from seed of both varieties of the family, *Primroses* and *Polyanthuses*, is familiarising gardeners with the fact that it is an autumn flower as well. We have seen borders where baskets of fine flowers could have been gathered within the past three weeks. There is nothing abnormal about autumn *Primroses*. The plant, like some other early flowering hardy plants grown from seed, flowers late the same year, and flowers the following spring as well. The *Delphinium* affords an excellent example of this. Seedlings flower certainly and well in the autumn of the year they are sown, and strongly the summer following. It may become worth while to consider how far this disposition in some species may be turned to good account in the autumn flower garden. *Auriculas* may be treated successfully in the same way.

*

SHOULD VINES BE SHADED? — Gardeners are rather ashamed than otherwise of the practice of shading their Vines, but they need not be. The theory used to be that a Vine in good health should not need shade, but we hear of a rather frequent resort to the "canvas" under our almost air-tight laps and strong glass—at least, with some varieties and under certain circumstances. The late Mr. Ayres advocated obscured plate glass for Vines, and we can testify that the healthiest foliage and finest coloured *Hamburg Grapes* we have seen these last three years have been produced under a roof of this kind; and a friend informs us that with some sensitive-leaved varieties, like the *Gros Colmar*, some good growers now shade regularly with advantage. Shading autumn-grown crops may be an open question, but no reasonable objection can be raised against shading early Vines that ripen their crops at the beginning of summer after the crop is ripe, in order to preserve the foliage and prevent its perishing in that unnatural scorched up manner which one almost always sees in early houses, and which is so different from the way in which late Vines that cast their foliage naturally behave. No good reason can exist for roasting Vines under glass

for four or five months in the hottest part of the season when they ought to be kept cool and at rest, and shading is one good way of preventing that evil. As a rule, early Vines keep their foliage till the crop is about ripe; after that period the stronger summer's sun tries the comparatively thin and weaker foliage produced during the winter and spring months, and the consequence is premature withering.

*

GARDENING ARTICLES.—It is greatly to be wished that writers of these would observe a few simple rules in recording their experiences. Stating an actual occurrence and all the facts connected with it and the probable cause of the same are quite different things; and we often find that though the first may be correctly given, the second is often wrong. In brief, we succeed and fail in many things and do not know why, although we are always ready to assign a reason. The best way for all concerned is for the writer to give a true and accurate account of the case in all its bearings unmixed by speculations of his own, and give his surmises as to the cause afterwards if he chooses. The reader will always find the first useful and instructive, and he can please himself about accepting the rest. There are writers who, if they were as wise as to the cause of many things which have happened in their experience, as they profess to be, should never fail in correcting their errors and mistakes, or in repeating their successes with uniformity, but somehow or other they do not accomplish this. It must be exceedingly mortifying to anyone to write an article or a book on something they have succeeded in doing to their complete satisfaction—tell the public how it was all done, and then have it demonstrated by some clearer-headed person than themselves that they have quite mistaken the cause of their success, and been misleading their neighbours as well. "Tell me what happened exactly," said the lawyer, "and I will tell you the rest."

*

NATURALISATION OF PLANTS IN THE WILD GARDEN.—In establishing any herbaceous subject in the wild garden of which any doubt is entertained about holding its own, there can be no two opinions about the fact that we must plant each species in good masses at the outset, and close together, to enable them to overcome the natural growth which surrounds them, and which is ever aggressive. If the "dotting system" of planting be objectionable on account of its appearance on the border, it is far more so in the wild garden for a different and a better reason. Even the hardy Primrose has a task to keep its ground among the rank herbage in isolated patches, but planted thickly on the ground it will hold its own, as we can testify, and cover the ground with its foliage to the exclusion of the Grass and other intruders. It is the same with many other things so far as their establishment on the ground where they are to grow is concerned. Beginners should not, therefore, waste their resources in planting isolated bits here and there, but rather curtail the extent of their plantations and fill up as they go on.

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RECENT IMPORTATIONS OF DENDROBIUM FORMOSUM GIGANTEUM.—It is perfect nonsense to talk as some do of the minor and major varieties of this fine Burmese Orchid being simply the result of culture. Why should there not be varieties of this as well as of other Dendrobiums and Orchids? There appears to be all degrees and sizes of the plant, from plants which constantly produce sturdy little bulbs 6 in. high up to about 2 ft., and which vary quite as much in the number, colouring, and size of the blooms—later importations producing in some cases as many as six flowers from the axil of the same leaf, more than one spike of flowers to the shoot, and flowering from the old and young bulbs within the space of six months.

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TEMPERATURE OF ORCHID HOUSES.—In the Calendar for last week we were told to keep the minimum temperature of the East India house as

near to 65° as possible. Falling below this point is "if possible to be avoided." I quite agree with this advice, which is pretty near that given by all noted cultivators of warm Orchids, among which other things are now flowering like *Calanthes*, for example, which like heat at that stage; but I extract the above to contrast it with some advice given in another paper on the same subject, which is enough to tire anxious learners and make them give up trusting altogether to what writers say. A collection of Vandas "noted for their unusual vigour," described by a writer signing himself "T. B.," it appears are subjected in winter to a normal minimum temperature of about 50°, but "often being allowed to get considerably below 50°." "Considerably" probably means 5° or 10°. Below this comes a collection of equally vigorous *Cattleyas* and *Laelias*, &c., "in an intermediate temperature" fluctuating presumably between 35° and 45°—taking the range from the Vanda temperature. Lower still "are the houses devoted to the cooler section," such as *Odontoglossums*, &c., but no figures are furnished, the writer probably finding it difficult, as your readers will, to find a "mean" anywhere above the permanent freezing point for these. The vigorous condition of the collection described is not disputed; but what can any enquirer on such subjects make of such writing? If the East India house will endure a temperature between 40° and 50°, what in the name of reason does anyone want with so many divisions on account of temperature—a warm, an intermediate, and a cool house? and if splendid plants can be grown in such temperatures, why give them 15° or 20° degrees more, with no other result than a dead waste of fuel? Somebody is dreadfully far wrong or greatly responsible.

PEREGRINE.

ROSE GARDEN.

AUTUMN ROSES.

ONE great advantage which the Rose has over other flowers ordinarily termed florists' flowers is that its charms are not to be enjoyed only for a brief season of especial splendour. The grower of a collection of Carnations, for instance, can only calculate upon one brief month of enjoyment; indeed, I once heard a grower say that it was eleven months and a week's care for three weeks' bloom, while the devoutest wish of an *Auricula* grower is that when once his bloom is over he may see no more of it until the next spring. Not so, however, with the rosarian; his grand enjoyment is doubtless when the whole of his collection, of whatever class, rush into bloom in the latter part of June, and on, according to the situation, until the middle or end of July. But that by no means exhausts his pleasures; he can look forward to gathering from day to day in the succeeding months, and up to November blooms which often times satisfy the critical eye of a connoisseur, and more especially is this the case if he be a grower (as every one in the midland and southern counties ought to be) of the Tea Rose. They afford a supply—and if the season be a favourable one, a liberal supply—of beautiful flowers, delightful in their form, colour, and perfume. Having lately gone through a good many Rose gardens cultivated by amateurs who have made their names famous in the Rose world, and having noticed the flowers that were most in bloom, it may be serviceable to those who are frequently asking what are the most constant bloomers if I give the names of those I have thus seen; at the same time it must be observed that in certain localities and in some soils there are kinds which seem to do well and to fail in others; while, again, certain seasons have apparently an influence on the bloom, causing some to flower which in other seasons remain flowerless. I think perhaps the most satisfactory and

Most useful autumn Rose is *Souvenir de la Malmaison*; although a Bourbon and deficient in perfume, it rarely in the true Rose season gives blooms of much value; indeed

it is apt not to open at all then, especially if the season be at all wet, but in autumn it is lovely—too flat when fully open, but in the bud and in a half expanded state truly charming. We hear sometimes of the decay of Rose trees, and also of the impropriety of applying the knife to Bourbons; well, I have in my garden two bushes not more than 4 ft. high of this variety which are at least thirty-five years old, and I have had as fine blooms on them this season as I have ever seen. They must, as it will at once be seen, have been cut very hard, or they would not have remained so dwarf. Next I think to this, and first amongst Hybrid Perpetuals we must place *Baroness Rothschild*, or, as she is generally called, "The Baroness." All Rose lovers know the exquisite beauty of this lovely flower, and all know how charming it has been this autumn. I have seen blooms of it fully 6 in. across, and the exquisite shade of pink in the centre and the white outside petals mark it as a gem, although unhappily deficient in what every Rose ought to have—perfume. Captain Christy, *Duchesse de Vallombrosa*, and *Egeria*, and other light-coloured Roses have been especially good this autumn, and I think may be generally relied upon, as may also that very lovely and constant flower, *Marquise de Castellane*. I wish that the same could be said of *Madame Gabriel Luizet*; beautiful as it is, it can hardly lay claim to being with any degree of certainty an autumn bloomer. It has this year in a few instances shown enough bloom to prevent its being doomed as simply a summer-blooming Rose, while the flowers have been so few that it cannot be depended upon for a second crop. *Catherine Soupert*, one of the newer Roses, may, however, be regarded as pretty sure to give autumn flowers; it has at any rate done so this season. Among the white or nearly white, *Mrs. Bellenden Ker*, *Boule de Neige*, and *Baronne de Maynard* are all good at this season, while *La France* with its large admixture of Tea blood in it is a most constant autumn flowerer. Of the lighter pink Roses one may always rely on *Duchesse de Morny*; while I have seen this year some grand flowers of *François Michelin*, although it is generally looked upon as a summer Rose. *Auguste Rigotard* is a Rose which seldom fails to reward us with a second bloom. *Dévienné Lamy* is a certain flowerer at this season, and indeed I have seen finer blooms on it now than in the earlier part of the year. Of *Edouard Morren* the same may be said; in summer it is apt to become coarse, with a green eye, whereas in autumn it loses a good deal of that and is often really fine. Of dark pink or light crimson Roses, *Hippolyte Jamain* is without doubt the most certain autumnal bloomer; its bright carmine shaded rose tinted flowers are then very attractive. It is a good thing that A. K. Williams, the grandest of our new acquisitions, is a thoroughly autumnal bloomer, rarely ever failing to reward us with some of its beautifully finished blooms. Charles Darwin has been also thoroughly good this season, and may always be relied on for autumn flowering. *Duke of Connaught* is also good. *Annie Wood* and *Mdme. Victor Verdier* are both excellent Roses, which are likewise sure bloomers at this season. There are others which in some seasons and some places are autumnal bloomers, but the above may always be relied upon; nor must I forget *Charles Lefebvre*, one of the grandest of our dark flowers and a certain autumn flowerer. *Jean Cherpin* is also sure to blossom a second time if the season be at all favourable. There are

Two climbing Roses which have quite, I think, established themselves as essential—*Longworth Rambler*, a bright crimson, and *Setina*, pale pink, very free in growth and floriferous. When we come to *Teas* and *Noisettes*, we have classes which are bound to give us blooms; and, notwithstanding the quantity of wet which we have had, and which is generally so destructive to these refined flowers, this year has been no exception to the rule. Glorious blooms of *Gloire de Dijon*, *Madame Berard*, *Marie Van Houtte*, *Madame Lambard*, certainly one of the most variable and lovely of Roses; *Rubens*, *Homère*, *Souvenir d'un Ami*, &c., have been gathered daily, and all who wish

to have the Rose in autumn must enter into the growth of this beautiful class. But it must be recollected that to have

Good Roses in autumn, good cultivation is also needed, and there are one or two duties which autumn brings with it. There can be no doubt that one great cause of success is the obtaining well-ripened wood in autumn, as it is thus enabled to bear better the attacks of frost. It is therefore a good plan to cut out now any of the wood which it is usual to cut out in the spring, all short or spindly wood, so as to leave the bushes open at the centre. Where shoots are very long they ought either to be securely staked or else shortened a little towards the end of the month, so as to prevent the plants being shaken in the soil by the winter gales, for then water is apt to get in about the stem and cause serious injury. Everything should be got ready for mulching, for notwithstanding all that has been said about not manuring Roses, there are very few soils on which it is not desirable; moreover, the mulching forms a security against frost, for what is called in this part of England a "callow frost," that is a frost without snow, is very fatal to Roses, and if by the mulching the roots and lower part of the stem are protected, they will shoot up from the bottom. How fatal the effects of frost are I have had sad experience. Three of my beds which had survived the winters of 1880 and 1881 were, I thought, all right. I cut them pretty hard, *i.e.*, to 3 in. or 4 in. from the ground; they began to grow this spring, grew about 8 in. or 9 in., flowered tolerably well, but made no growth afterwards, and on examining them I find that there is gangrene at the base, and that the plants are utterly worthless. I imagine that something of this kind is the cause of the failures of which we hear so much and of the poor appearance of some Rose gardens that I have visited. I should say that in pruning I cut down below any wood in which the pith seemed to be affected, but apparently this was not enough; in fact, the effects of frost have evidently not been sufficiently considered, and the appearance of the plants will often deceive even experienced growers. Those who are desirous of growing

Roses on their own roots should lose no time now in making cuttings. The small wood which I have spoken of as being cut out from the centre of the plants will do excellently for this purpose; it is generally hard and not so full of sap as the longer shoots, which must be left for next year's blooming. It is best, in the opinion of many Rose growers, to cut them off with a heel. They should be about 6 in. or 8 in. in length. A sheltered but not shady spot should be selected for them, and they can then be dibbled in about 1 ft. apart, taking care that the earth is well consolidated about the bottom of the shoot, and that about one-half of it is buried, leaving three or four eyes above the surface. Should very severe weather set in, it may be desirable to shake some covering lightly in amongst them, such as Fern cuttings or Oat straw. It is essential that the cuttings are not left out of the ground any time, but that as soon as they are taken off they be immediately planted. Many failures arise from this care not being taken. I once had a numbers of cuttings sent me by rail; out of them all, although planted the next day after being cut, only one of them succeeded, while I have known as many as 90 per cent. of cuttings taken in the proper manner to succeed. Those who wish to learn which are the best Roses to plant cannot do better than consult the catalogue published by the National Rose Society. DELTA.

TEA-SCENTED ROSE, SOUVENIR D'UN AMI.

WE have this first-class Rose planted out at one end of a Peach house, where it is thriving well, and supplying us just now with capital buds for button-hole work; for this purpose it is excellent at this season of the year, the half-opened buds not being too large for such uses. This plant has yielded an almost constant supply of blooms since last March. Early in that month

we commenced to cut, and it bids fair to continue for several weeks yet. If we could now keep the house a little close instead of being thrown open, many more flowers would be produced. *Maréchal Niel*, planted at the opposite end, gave one flash of bloom that was quickly over, and this variety is not to be compared with the aforementioned sort for general use. The colour is certainly grand when the *Maréchal* is well developed, but the short period during which the blooms last tells against it when compared with such a constant flowering kind as *Souvenir d'un Ami*. True, the colours are quite distinct, but *Roses* of whatever shade are always valuable, and such as yield an almost perpetual supply ought to have more prominence than they oftentimes receive. We have now rooted out the *Maréchal*, and planted *Reine Marie Henriette* in its stead. This Rose has succeeded well here out of doors, though it has not yet had time to thoroughly establish itself. If it should succeed anything like as well as the *Souvenir*, we shall be satisfied. A bud of the *Reine* half developed is scarcely equalled, we think, by that of any other Rose of its class.

J. H. G.

AUTUMN TRANSPLANTING.

THAT "A Rose Grower" would say that experience gained in planting a Gooseberry bush did not necessarily apply to the Rose is no more than I expected. But when he states that it was utterly irrelevant to the subject, let me ask him to read again the first paragraph of his remarks (p. 296), wherein he compares the damage done to roots in transplanting with the amputation of a limb or the starving of a human being, one being considered as likely to quicken vitality as the other. Reference is then made to the check to the growth of bedding plants when potted, and he concludes by saying that "Roses are no exception to the rule," thereby showing that it was the rule and not alone the exceptional Rose he was considering. It was, therefore, pertinent to the question to show that it was possible to move a shrub at a time when the injury done to its roots would be so speedily repaired as to enable the plant to grow in the following spring with as much vigour as it would have done if it had not been removed. Fault is found that my bush was removed at an unrecorded date. It was not my habit to plant by the almanack, but according to the state of the weather and the bush to be moved. Then I am taken to task for never having examined the roots. What possible need was there for this? As soon as the leaves on my bush no longer wilted at midday, it told me as plainly as if it could talk, all is well with my roots; and every unprejudiced cultivator will, I think, agree with me when I say that no examination of the roots in winter could have afforded such satisfactory and conclusive proof of their efficiency as that afforded by the exceptionally fine fruit which the bush produced. "He planted his bush in summer (he tells us) when the leaves were on it." Advantage, I find, has been taken of an inadvertence, wherein I stated "in the summer in which this bush was planted I was induced to join our horticultural society." In the summer preceding the autumn in which this bush was planted would have been more explicit, but a few lines further on I stated distinctly that the bush was moved in autumn, and while not all, but a considerable quantity of the foliage remained. There is, evidently, a wide difference between planting in summer, and at the time I have found best—early in autumn, soon after the leaves begin to fall, but while a considerable quantity of foliage yet remains in a mature and efficient state.

Warmth in the soil may, doubtless, encourage root growth; but it is on the action of the mature leaves remaining that I consider success mainly depends. If we take a cutting consisting, say, of about an inch of wood with a mature leaf and its bud, put it into moist soil, cover it with glass to maintain a damp atmosphere, then discreetly expose it to light, a mother will not more assiduously suckle and care for her offspring than will the leaf care for and provide for the bud

which nestles at its base, diligently gathering raw material day by day, converting it into food, not to add to its own growth, but to develop the bud and feed the young plantlet until it has reached such a stage of maturity as to be able to feed itself. The mature leaves remaining on the bush act in the same way; their first effort is to supply material to repair the damage done to the roots, and if not thwarted in their endeavours by adverse external influences, they speedily accomplish their object. The balance between roots and leaves having been restored, the former continue for a time to extend, so the plant becomes established and the roots prepared to act during winter.

Nor do I think the supposition at all improbable that, provided the soil to which a plant is transferred is rich in available plant food and the autumn should prove favourable for prolonged growth, that a plant may elaborate and store up in its tissue even a greater amount of organisable matter (which, I think, must have been the case with my Gooseberry bush) than if it had not been removed; just as one of our domestic animals would be likely to add to its weight if transferred in autumn to a field of rich succulent aftermath from a pasture in which it had been confined all summer and had already eaten bare. How very much vigorous growth in spring depends upon effective root action during winter is apparent when we consider that there can be probably little or no difference in the quantity of elaborated sap or organised matter stored up in the wood for the support of new growths in spring whether the plant was moved before or after the leaves had fallen, or if it had not been transplanted at all. As growth is about to commence in spring, the emission of rootlets will, indeed, shortly precede the evolution of the buds, but this dissolving or preparing of organised matter to make it available for free growth begins at a period long anterior to the commencement of growth in spring, even as I have had opportunities for, observing in the wood of trees whose organisable matter becomes converted into a saccharine fluid. This conversion may take place at a time when the night temperature may run down below zero, and while the ground is yet frozen solid 1 ft. or 2 ft. deep. Supposing, then, my Gooseberry bush had been transplanted after the leaves had fallen, what would have been the inevitable result? Owing to the limited supply of prepared sap the plant would contain, consequent on defective root action, the buds would be imperfectly nourished, and would not acquire that size and plumpness in spring so sure a sign of health and vigour. The first emitted leaves would be comparatively small; a less breadth of foliage would then be exposed to the light, and a less quantity of sap would, therefore, be elaborated in spring and early summer; hence the comparatively puny growth of young wood, and the crippled state of the bush for that year at least. It would, in fact, be in exactly the same predicament as transplanted Roses, according to the experience and observations of "A Rose Grower"—"checked in root and top growth to such an extent as to take a year to recover."

I. T.

Birkdale.

NOTES FROM LAGO MAGGIORE.

DURING a visit to Lago Maggiore in September I put up at the Grand Hotel, Pallanza, and found agreeable recreation and instruction in the garden of the hotel, in which all the plants and trees are labelled. The proprietor, too, takes great interest in his garden, and is at all times ready to point out everything of interest. I was naturally most interested in comparing plants known to me in England with the same plants here, the difference being that between existing and flourishing trees in perfection of flower, fruit, and branch were really such as to make me sometimes doubt whether they were of the same species as those to which we have been accustomed to see in this country. The following list of shrubs, trees, and flowers may perhaps interest some of your readers. Shrubs—*Myrtus carinata*, *Desmodium penduliflorum*, here a shrub; *Colletia biconensis*,

peculiar and fragrant; a species of *Melaleuca*; *Schinus Mollo*, with a smell like that of pepper; *Spiraea Reevesiana*, *Weigela rosea*, like a tree; *Datura arborea*, a mass of flowers; *Calycanthus præcox*, *Pittosporum sinense*, *Magnolia fuscata*, *Buddleia Lindleyana*, lilac; *Buxus balearica*, *Camellias*. Trees—*Magnolia Yulan*, *Acacia pulverulenta*, lovely; *Cupressus horizontalis*, *C. funebris*, *C. gracilis*, *C. macrocarpa*, *C. glauca*, *C. africana*, *C. toulousia*, *Olea fragrans*, with an odour like that of Violets; *Retinospora squarrosa*, *Abies Morinda*, *Thuja gigantea* and *T. compacta*, *Benthamia fragifera*, full of fruit; *Cephalotaxus Fortunei*, the Hemlock Spruce, bearing cones; *Chamaerops humilis*, both male and female; *Laurus Camphora*. Flowers—*Solanum jasminoides*, *Canna Ehemanni*, grand, and *C. iridiflora*. This is not a bad catalogue for a hotel garden. I also visited the Marquis della Valle Casanova's horticultural establishment and gardens, but fear I could not do justice to the great variety of plants, flowers, and shrubs cultivated there. JOHN PUGET.

ORCHIDS.

NOTES ON ORCHIDS IN FLOWER.

ONE would hardly suspect judging by the fine display of flowering Orchids in Mr. Bull's nursery at Chelsea that the present is about the dulllest time in the whole year as regards Orchid bloom. Throughout the year, there has been an uninterrupted display, more or less profuse, chiefly obtained from the cool house section, which here is represented by housefuls. Apart from their exquisite beauty and grace, one of the chief recommendations of cool house Orchids is their continuous flowering propensity, a remark especially applicable to *Odontoglossum crispum* and its innumerable varieties and relatives. The houses which are devoted to these are now enlivened by abundance of bloom, including some of the finest forms of the variable *O. crispum* or *Alexandrea* and later on when the undeveloped spikes are expanded the picture will be brighter. Besides the crispum type of *Odontoglossum* there are masses of *O. Roezli* and its white variety still in flower, having been in a flowering state without intermission since last October—a quality possessed by very few Orchids, and alone sufficient to recommend this one to the general cultivator. *O. Roezli* is not a very variable Orchid, but when large numbers of plants are in flower as here there are several that can be singled out as being superior to others in size of bloom and more pronounced blotches, circumstances which render the flowers more attractive. This Orchid is grown in a warmer house than that in which the rest of the *Odontoglossums* are. Of

O. vexillarium rubellum there is a glorious display. This variety is said to be essentially an autumn flowerer, and never by any chance to bloom before September and October, and there are some plants here that have not yet begun to unfold their spikes. Hence we have now a variety which extends the flowering season of this *Odontoglossum* to nearly the whole year round—a great gain. The flowers of the rubellum variety are of good size and of an uniform deeprosy pink colour, not shaded with lighter lines, as in the case of the ordinary form. That this variety is not the outcome of any cultural treatment is evident, as the plants of it are grown under precisely the same conditions as those of the type on which there is not a vestige of bloom.

Masdevallias of the showy type, such as *M. Harryana*, *Lindeni*, and *igneæ*, are making a beautiful display in themselves, numerous elegant slender flower-stems rising above the vigorous tufts of leafage. Among the Harryanas there are two forms uncommonly fine; these are named *Chelsoni* and *coerulescens*, both of which have larger and bolder flowers than usual, and the colours are indescribably brilliant: both are of a rich violet-purple tint. Besides *M. ignea*, which is without doubt among the best of cool Orchids for supplying winter bloom, there is a nearly allied species, *M. militaris*, which has larger

and more brilliantly-coloured flowers, though, perhaps, not so red as a soldier's coat. Like *M. ignea* and *coccinea*, it has that peculiar tendency of the uppermost of the three sepals to lean over the face of the others. It is a rare species, and rarely met with in bloom. Among *Masdevallias* of the grotesque type there is the rare *M. macrura* in bloom, also the Humming Bird Orchid, *M. trochilus*, and another queer species, *M. maculata superba*, a far finer bloom than the type, which is somewhat mean looking.

Trichosma suavis is an uncommon and moreover a desirable Orchid, not so much on account of its gay colour as the delicious Violet-like perfume which it emits. The plant is dwarf and tufted as regards growth, bears evergreen foliage, and produces numerous spikes of flowers about 1 in. across, white with the labellum deep crimson, and traversed by bright yellow streaks. It is grown among the cool Orchids, apparently grows freely, and never fails to produce at this dull season an abundant crop of bloom.

Odontoglossum grande may be seen finer here than in most places, and owing to the large number of plants in bloom, there is a wide range of variety as regards size and colouring of the flowers. There is indeed a great difference between a poor and a very fine form, the former having flowers about 3 in. across, while in the finest varieties they are fully 5 in. An assemblage of flowering plants of this truly grand Orchid such as exists here is indeed a fine sight. Among other noteworthy Orchids in flower here we noted some exceptionally fine forms of the gorgeous *Cattleya gigas*—not large specimens, but admirably grown and well flowered. For example, one plant in a 4-in. pot bears from two sheaths six magnificent blooms, representing one of the finest forms of the species, and remarkable for the distinct margin of pale lilac round the broad labellum. *Oncidium macranthum hastiferum*, the handsome variety to which allusion has before been made; *Acineta Barkeri*, with three long pendulous spikes of orange-coloured blooms; and the Dove plant (*Peristeria elata*) are also among the numbers of Orchids now in flower in this nursery. W. G.

ORCHIDS IN FLOWER AT ALBANY, N.Y.

A VERY fine variety of that grand Orchid, *Oncidium Lanceanum*, is now in flower in Mr. Corning's collection. It has six spikes, one of which is 22 in. long, and bears two flowers. These measure fully 3 in. across; the crimson blotches on the petals are more conspicuous than usual, and the violet of the lip is shaded to a dark crimson. This *Oncidium* is generally considered a shy grower; what it seems to require is a good warm house both winter and summer, with plenty of water at the roots, but it does not like its roots confined in a pot. It should be fastened to a large block of wood covered with Tree Moss, and the block should be fixed in a pot; then, I think, there would be no difficulty in growing it. The specimen in question has forty-three leaves, and the roots are extending in all directions. A dwarfier variety, with smaller flowers and a pure white lip, is in bloom also, and very pretty it is, but not so good as the type.

Other noteworthy Orchids in flower are *Cattleya labiata*, *Cattleya Dormaniana* and *C. D. alba*, *Cattleya fausta delicata*—four splendid species for autumn blooming, but unfortunately as yet very scarce. *Miltonia Moreliana atrovirens* is probably the best of the genus, and has been in flower about seven weeks. *Vanda Batemanni* has been in bloom the greater part of the summer, and now *V. Cathcarti* seems about to take its place, though not so showy. About two dozen of *Phalaenopsis rosea* in bloom exhibit a great variety of marking and colour, scarcely three being alike. *P. violacea*, *Lowi*, and *Esmeralda* are good species for early blooming, and, fortunately, are getting more plentiful. *P. Curtisi* is a poor botanical species.

An unnamed species of *Catasetum* is in bloom, the flowers of which measure 3 in. across, the sepals and petals being of a deep chocolate colour; the lip is about 1 in. long, serrated at the edge, and in colour chocolate near the base, shading to

a brownish black at the tip; the column is of the same colour as that of the petals; anther cap, white—altogether a striking Orchid. By the way, why is this genus not more cultivated? There are in Mr. Corning's collection about a score of unnamed species, collected for him in Brazil, some of which are exceedingly handsome, notably one which flowered a short time since, having a very large roundish flower of a uniform bright yellow, changing to orange with age. Some species are very poor, I admit, but these could be weeded out, and a selection of a dozen be made, which would be worth attention. Again, they are very easily managed; all they need is abundance of heat and moisture when growing, and a warm, dry place whilst at rest. We find charcoal or rotten wood with a surfacing of Moss the best material in which to pot them. F. GOLDRING.

Albany, New York.

Phalaenopsis Sanderiana.—This new Orchid, which is said to rival some of its finest congeners, will shortly be in bloom in Messrs. Low's nursery, Clapton. Its flowering is anticipated with interest by orchidists, as it is said to be so distinct. The *Phalaenopsis* house in this nursery promises to produce even a finer display than in previous years, for it is filled to overflowing with plants of all sizes and varieties, and there is a perfect thicket of flower-spikes in course of development.

Dwarf autumn flowering *Laelias* are among the most satisfactory of all Orchids to grow, and at the same time the most valuable, inasmuch as they flower just at the dulllest of all seasons as regards Orchid flowers. We were much struck with their beauty a few days ago in Mr. Bockett's collection at The Hall, Stamford Hill, where they are grown uncommonly well, and where their lovely flowers enliven the otherwise flowerless Orchid houses. The type of this section of *Laelia* we take to be *L. pumila*, of which the following are probably varieties—*L. præstans*, *marginata*, *Dayana*, and *Pinelli*. These are all included in Mr. Bockett's collection, but the most striking among them in bloom is *L. marginata*, of which some exceptionally fine forms are represented, the flowers being some 4 in. across, with wide sepals, of an uniform rich lilac-purple, while the labellum is of the deepest velvety amethyst, conspicuously margined with white. Then there is *L. præstans*, equally beautiful, and with rather larger flowers, of the same tint, minus the white edge to the lip. Compared with these *L. Dayana* is rather poor, the blooms being much smaller and the colouring not so rich. The compact dwarf growth of these plants adds a charm to them, for they are not so unlovely when out of flower as their gaunt-stemmed relatives. In this collection, Mr. Ebbage grows all this section in suspended baskets and shallow pans in an intermediate house, in which the majority of the plants are *Laelias* and *Cattleyas*.—W. G.

SHORT NOTES.—ORCHIDS.

British Orchids.—Wishing to complete a collection of British Orchids, I will feel much obliged for any information as to where the following species can be obtained, viz., *Corallorhiza innata*, *Malaxis paludosa*, *Epipogon aphyllum*, and *Spiranthes cernua*.—A. D. WEBSTER, Llandegai, Bangor.

Pleione lagenaria.—I send you flowers of this Orchid from a plant in a pot 5 in. in diameter. Five single bulbs potted into it last December have produced eleven splendid bulbs; some of them measure 2 in. across, and they carry in all forty blooms.—DAVID KEMP, Dunlop Gardens, Stewarton, Ayrshire. [Exceptionally fine flowers of this lovely Orchid.]

Bifrenaria aurantiaca.—Seeing the notes on this fine Orchid (pp. 204 and 282) leads me to remark that Mr. Corning's collector found it growing in large masses in company with *Cattleya superba* on the banks of the Rio Negro, and we find by giving it the same treatment as that *Cattleya* that it grows and flowers freely.—F. GOLDRING, Albany, New York.

BIBLE FLOWER MISSION.

I CHEERFULLY respond to the wish of "G. S. S." (p. 310), and herewith send a list of plants and flowers that are in their season suitable for sending to this mission. But first allow me to echo his statement that large quantities of costly and choice flowers are not necessary, and I may be allowed to say that even when flowers are scarce everywhere it is not a difficult matter to make up a basket which will be acceptable; with the aid of berry-bearing plants and a bit of greenery a few flowers may be made to go a long way. Commencing now, the Michaelmas Daisies, Phlox Drummondii, Scabious, Rosebuds, and early flowering Chrysanthemums are as suitable as any when mixed with such green and variegated-leaved plants as Euonymus, Myrtle, Sweet Bay, and the Lemon-scented Verbena. In November Pom-pone Chrysanthemums will be plentiful everywhere, and to these may be added the silvery-looking seed vessels of Honesty, an easily grown annual, and the bright coloured berries of Physalis Alkekengi; of these pretty nosegays may be made with the aid of the green and variegated-leaved plants just named. In December there will not be much change, but sprays of berried Holly and flowers of Laurustinus will be plentiful. The drooping catkins of Garrya elliptica we also use, and the plumes of the Pampas Grass if pulled to pieces all help to make variety, and if any of the Everlasting flowers are grown during the summer and preserved until now they become very serviceable. Helichrysms are the best for this purpose and very easy to grow. In January there is generally a scarcity of flowers, but by means of green-leaved plants, some sprays of Pampas Grass, ripe berries of common Ivy, a few flowers from exhausted plants of Chinese Primulas and Cinerarias, and any others that can be spared, there is not much difficulty in making up a small hamper at least twice during that month. In February and March there should be a few fresh spring flowers, such as Snowdrops, single Russian Violets, Hepaticas, Erica herbacea, and Jasminum nudiflorum. Common Primroses are also much valued, and the common purple Periwinkle is a very suitable flower. In April there will be the single white Violet from the hedges, and in some districts Lent Lilies grow abundantly in the woods. In all gardens there should be plenty of single, dark, and yellow Wall-flowers, Forget-me-nots, and Pansies—these are always much in request. Narcissi and sweet-scented Jonquils should be included, and variously-coloured Anemones. Alyssum saxatile compactum and Iberis gibraltarica are two useful plants. After April sets in there will be no difficulty in finding flowers in abundance, but to name a few in something like the order in which they flower may perhaps be useful; Lilies of the Valley are most acceptable for this purpose. I may also again name Pansies, and add to them Violas; garden Pinks are amongst the best, as they are easy to grow and nicely perfumed. Even the common white variety will be welcome. Sweet Williams, Antirrhinums, Spiræa japonica, Mignonette, Roses, Zinnias, Verbenas, Indian Pinks, Carnations, and Picotees are also all flowers that are wanted, and amongst hardy flowering shrubs the following, viz., double blossomed Cherry, Syringa, and flowering Currant. Many a garden could furnish a bed or two of the Monthly and China Roses, and still many more might grow beds of Mignonette, Sweet Peas, Lilies of the Valley, and Violets. Any further information as to what are the most suitable flowers to and may be obtained on application at the office of the mission, as a printed list is prepared for the information of the public. The sending for text card, I may remark, is optional.

J. C. C.

Packing flowers.—"A. D." having given us (p. 338) some valuable information respecting fruit packing for market, I should feel greatly obliged if he would describe what he considers the best modes of packing flowers for travelling long distances. Such information would be highly appreciated, I am sure, by all your readers as well as myself.—G.

FLOWER GARDEN.

VIOLAS AS BEDDING PLANTS.

IN THE GARDEN of September 16, Mr. D. T. Fish, in writing about Violas, recommends their use in flower gardens. It is impossible to write or say too much in praise of many of the finer and newer kinds for general decorative work, especially in the midlands and the north, and we are now getting a great variety of shades of colour and of closer habit than those of the cornuta section. So far as I have seen, True Blue is by far the best and most useful of all the blues. It is compact and sturdy in habit, blooms early, and is very floriferous. It entirely supersedes Blue King and other kinds. In THE GARDEN of October 14, Mr. Jenkins, in his paper on Violas, mentions me as the raiser of Mrs. Gray and Lady Polwarth. This is an unintentional error on his part, arising from the fact of my growing both kinds. I think we have a decided acquisition in Mrs. Gray, which I grow now in preference to several other whites. It is a pure white without markings, and if it is an early bloomer it will be most valuable. As it was only planted out last spring, I have not yet had an opportunity of seeing what it is early in the spring. Lady Polwarth is also a good clear white of the Mrs. Gray type. Mr. Jenkins has in his paper given a good list of useful kinds, so I need not further refer to them here, but I wish to suggest for spring garden work a more general use of the Viola, intermixed with Hyacinths, Tulips, and other bulbs, taking care to get the early blooming varieties. For summer decoration, a great deal can be done by using them mixed with other things in the flower garden. I was pleased to see during this summer at the Lower Aston Grounds, Birmingham, a charming effect produced by using the old Cliveden Purple Pansy with Pelargonium Bijou, and other pleasing combinations might be made by using the Viola Yellow Dwarf, a small compact variety with Blue Lobelia or the dwarf blue Ageratum. I also strongly recommend mixing Violas with yellow Calceolarias, Pelargoniums, and many other things, the shade of which would in warm districts help the Violas very much, whilst the Violas would make the flower garden gay in spring, and a goodly supply of blooms would also be produced through the summer and autumn. Mr. Fish speaks in warm terms of the general use of the Viola through the midlands and further north. Those who have only seen the scanty use of them southwards when the older kinds only are grown, are indeed surprised with the glowing displays made by them in the cooler districts of England. In the Lower Aston Grounds Mr. Freeman purposes using many thousands of Violas and Pansies next season in combination with Pelargoniums and other plants as well as in beds by themselves. He is a firm believer in the Viola, and is of opinion that it has not yet been tried to the extent it should be, and I venture to say that the results next year at Aston will agreeably surprise many.

With regard to the culture of Violas, the plan I adopt is this: For a spring and summer display I plant strong young plants now, planting rather deeply, so that plenty of young growth can be made; they very soon get established, and if very hard weather sets in, I give them a mulching of light material, such as road-sweepings, leaf soil, &c. As they grow in the spring I peg out the long shoots and give additional surfacing. For a good summer and autumn display with the other bedding plants, I should plant out spring struck plants, planting them below the collar, and firmly; through the summer I would cut out long, old exhausted shoots and give occasional surfacings to them. Young shoots soon root into the mulching, and vigorous growth is the result. If the weather is very hot, I use a rosed watering-pot freely, at times during the day, no matter how fierce the sun is, and I find that copious sprinklings frequently induce vigorous growth. The Viola likes a generous soil; therefore some good rotten manure can be used provided the soil is not already rich, but I recommend firm plantings and rather deep.

Mr. Jenkins in his paper on bedding Violas already referred to alludes to the fancy kinds. In these we are having some lovely things. Countess of Kintore is a variety which alone would satisfy any one as to the beauty of this section.

Walsall, Staffordshire.

WM. DEAN.

Virginian Creepers.—At this season the fiery hues of the Virginian Creeper are everywhere conspicuous; it is a special favourite with all classes, and in the case of suburban villas long sprays of it hanging from balconies are strikingly beautiful. I find, too, that the newer Ampelopsis Veitchii is becoming equally popular as the older variety; when once fairly started into growth it clings with great tenacity to walls, and even woodwork. But I find that the intensity of colour in the leaves is entirely ruled by the amount of direct sunshine the plants receive during the growing season; therefore an open, sunny position should be selected for them. A few years ago, when this variety of Ampelopsis first made its appearance, and before its hardness had been tested, I planted some of it under the shelter of a glass covered walk, thinking to get a maximum of colour in the leaves; but although the plants grew well, the autumn tints which they assumed were not nearly so good as in those that were fully exposed on open walls. I have lately seen brilliant examples of this creeper clinging to the walls of mansions and old castles on the south coast.—JAMES GROOM, *Sleafeld, Gosport.*

Tagetes signata pumila.—There is no plant with which I am acquainted that can compete with this for continuous flowering, especially in autumn. Even now, although somewhat overgrown, it is the only conspicuous bedding plant we have out of many thousands, the rains having washed into a black mass all the Pelargonium blooms. Taking the average of seasons into account, this Tagetes is the only good substitute we have for Calceolarias, but the past season has been rather too damp for it. In a dry season, and in rather a poor soil, it will bloom continuously until frost cuts it down, and during the whole time it is a mass of colour second to none in the whole list of bedders. I say this without wishing in any way to disparage the yellow Calceolaria. But some may say the Tagetes is an unruly plant; under certain circumstances I admit that it is, but it need not be so if in the first place care is taken in selecting the seed from the dwarfest growing plants, and to plant it in a soil rather poor than rich. A rich soil promotes a too vigorous growth, and as a rule it is planted much too thick; 6 in. apart is near enough. When thicker the plants crowd each other, and get higher than they would be if the side branches had had room to grow laterally instead of pushing the leading shoots upright. The seed should be sown about the middle of April, thinly in pans or boxes, and placed in a cool house, where it will come on fast enough to make good plants by bedding-out time. All that they want is hardening off with the other stock, and from the pans or boxes they may be transferred to wherever they are wanted in the flower beds or borders. The Tagetes may be used in various ways for decorating the flower garden. It is best adapted for massing in beds by itself; but it may be used advantageously in lines with other plants of a suitable height, and where masses of late autumn flowers are required that will withstand rain, the Tagetes is the proper plant to employ. To secure a good dwarf strain it is necessary to be careful in selecting the seed. Secure it from the most compactly grown plants. We do not collect our seed until the middle of October, and then we are sure of getting it thoroughly ripe—an important point if the bulk of it is expected to germinate when sown.—J. C. C.

Viola Mrs. Gray.—In THE GARDEN lately appeared an article on Violas, the writer of which says that Mr. W. Dean is the raiser of Mrs. Gray. I know something of this variety and am glad to hear that it has proved to be a good white kind; but surely Mr. Jenkins is in error as to Mr. Dean being the raiser of it.—S. W., *Ayrshire.*

THE FIRE PINK.
(*SILENE VIRGINICA*.)

It is rather singular that out of the multitude of *Silenes*, numbering some 200 species, there are only about a dozen that can really be termed garden plants such as could be recommended for general culture. One of the worthiest of these few for cultivation is the North American Fire Pink (*S. virginica*), which occurs in open woods from New York southwards. It grows from 1 ft. to 2 ft. high, and has slender stems; consequently, it is somewhat straggly in growth. From June

beneficial to it seeing that it naturally occurs in open woods. It is a plant well worthy of culture, and its splendid flowers amply repay any extra attention bestowed upon it. It is a perennial and quite hardy, but it is always advisable to propagate plants of this nature continually by seed or cuttings, so as to have a continuous succession of vigorous young specimens. There are three other species of North American *Silenes* belonging to the same section as *S. virginica*. These are *S. pennsylvanica*, or Wild Pink as it is popularly called, with pink flowers; *S. rotundifolia*, or Round-leaved Catchfly, with deep scarlet flowers;



Flowers of the Fire Pink (*Silene virginica*).

to August it produces its showy blossoms, which for brilliancy of colour (the most vivid vermilion) will compare with any in the vegetable kingdom. It is not a common plant in English gardens; indeed, it is seldom met with, even in botanical collections, probably from the fact that it requires a little attention, as it does not possess such a robust constitution as to allow of its taking its chance with the rest of the species, which, as a rule, grow like weeds. The finest specimen of the Fire Pink we have seen for the past few years was that growing on Mr. Stevens' rock garden at Grasmere, Byfleet, from a spray of which the accompanying woodcut was prepared. This plant is growing in a light, sandy soil in a well-drained part of the rockery, and in such a position it seems to thrive well, though we are inclined to think that partial shade would be

and the Royal Catchfly (*S. regia*), also with scarlet flowers. These are all perennial and worth growing, but, with the exception of *S. pennsylvanica*, there is much of a sameness between the Fire Pink and the other two. W. G.

Single Dahlias.—These form strong evidence of the arbitrary way in which the flower-purchasing public of the metropolis is ruled by the dealers who cater for its supply. At South Kensington were seen the other day groups of these flowers from the chief raisers and growers all of singular beauty and in great variety. The most attractive were the delicate soft hues—the mauves, cerises, pinks and similar colours, and the rich margined maroons, and yet a large grower of flowers for the

London market said that flowers possessing these colours were of no use to him; he could not sell them; the distinctive hues, such as white, yellow, and scarlet, were the only ones sought after. The prejudice against colour in Potatoes, Turnips, and many other things even exists, it would appear, against variously coloured flowers; and indeed it must be an unreasonable prejudice, because those who grow large masses of single Dahlias, as Mr. Ware, Mr. Cannell, and others, declare that whenever the public visit their places the delicate tints always excite the warmest admiration. However, whilst the metropolitan public are thus dealer-ridden, the outside world is at liberty to get its Dahlias of all colours and grow them. The rapidity with which new kinds are being produced is both remarkable and bewildering, and leads us to wonder what single Dahlias will be like a few years hence. Already the finest form seems to have been reached if perfect roundness and perfectly arranged petals indicate it. Size needs with many new ones to be rather less than more. The next effort should be devoted to improving the habit of the plants, none of which should exceed 2 ft. in height, and should produce a mass of bloom. Dwarf bushy sorts that would, if kept free from flowers during the summer, make handsome pot plants for conservatory decoration in the winter, would be a great step onward, and no doubt that step will be taken.—A. D.

PICOTEES, OLD AND NEW.

PICOTEES, like Carnations (p. 292), are divided into six classes or sections, viz., heavy and light red edged, heavy and light purple edged, and heavy and light rose or scarlet edged. If we take them in their usual order, the

Red edges come first. The heavy-edged section comprises all that have a broad margin of red; the rest of the flower should be without spot or bar. Brunette (Kirtland) is one of the best of this type, being large and full. J. B. Bryant (Ingram) is a fine variety of vigorous habit, but lacks purity; the backs of the petals are tinged with red, which flushes through. John Smith (Bower) is a flower of greater refinement, and stands very high in this class; the plant, however, has not a strong constitution. Princess of Wales (Fellowes), when well grown, should head the list; the flowers are large, well formed, pure, and of the first quality; it is rather feeble in constitution. These have been introduced at least six years, and I do not know any that have equalled them in that time. In light red edges Thomas Williams (Flowdy) and Violet Douglas (Simonite) had distanced all others in this section, although Clara and Mrs. Bower, both raised by Mr. Bower, deserve to be spoken of respectfully, and Emily (Addis) is a really good variety. A new one has been exhibited at all the national shows this year named Mrs. Gorton (Simonite); it received a first-class certificate at South Kensington, and gained the first prize in its class. In the opinion of some judges it was thought to be the best Picotee in the whole exhibition, and as shown it was by far the best light red edge. Elsie Grace (Dodwell) is a very distinct and superior variety; the form and texture of its petals are equal to those of Mary, a variety with a light purple edge, and not yet surpassed in form of petal. The next class comprises those with

Purple edges.—In the heavy purple section the recently introduced variety, Mrs. A. Chancellor, is by far the best ever raised. It has a broad margin of bright purple, the white being very pure. When well shown it is sure to gain the highest position in its class. It also took the premier prize in London as the best Picotee in 1881. Alliance is also a remarkably fine variety; and Simonite's Mrs. Summers is still very pure and good, and cannot yet be dispensed with. Zerlina (Lord) is a superb variety, and holds a prominent position; I would place it next to Mrs. A. Chancellor. The flowers are large and well formed, the margin not very broad, but well defined, and the white very pure. In Mr. Dodwell's Lizzie Tomes and Tinnie we have two superior heavy pur-

ples. Tinnie is, I think, the best of them, and I would venture to place it very near the top of the list. Baroness Burdett Coutts (Payne) is what may be termed a medium purple edge. It is a grand variety, the petals very broad, edge well defined, and there is neither spot nor bar to mar the purity of the white. Clara Penson (Willmer) is a great beauty; the flowers are full sized, and a fine wire edge sets off the large, well-formed, clear white petals to advantage. Her Majesty (Addis) is another very large flower, remarkable for its distinct character: it is fine in form, and has a very narrow purple edge. Jessie (Turner) is thought very highly of; it is a charming variety, the petals are extra large, and they have a distinct looking edge. Nymph and Ann Lord are two very fine flowers raised by Mr. Robert Lord, of Todmorden; they are of medium size and grand quality.

Rose or scarlet-edged varieties are next in order, and I think this is by far the most beautiful class. The finest Picotee ever raised, taking it in all points, is to be found in this class, viz., Mrs. Payne (Payne). It is a good grower, and has flowers of superb quality, the white being very fine, with a clear rose-coloured medium edge. Mr. Dodwell has been fortunate in making a very desirable addition to this class in Esther Minnie; it is a large, well-formed flower, petals being beautifully rounded and pure white with a broad margin of bright deep rose. It received the first prize in its class and the award of a first-class certificate from the National Society. Miss Sharpe (Sharpe) promises to be a good flower. As shown at South Kensington it rather lacked size, but it was very refined and the colours bright. Royal Visit (Abercrombie) is a superb flower in the style of Edith Dombrain, but larger and fuller than that variety, and also a better grower. Juliana (Turner) is quite a scarlet edge and a very beautiful variety, but with me it is such a weakly grower, that it is difficult even with the best nursing to keep it in health. To the light-edged rose class there has not been many additions in recent years. Mr. Dodwell's Julia is a pretty flower and quite distinct. Mrs. Alcroft (Turner) is one of the best still; the petals are very pure and well formed, and have a light wire edge. Ethel (Fellowes) is perhaps to be preferred, as it is a better grower, and when at its best has better flowers; the outer petals are usually large and well formed. Mrs. Nicholl (Simonite), though old, sometimes comes very fine. It may not be amiss just to make a few passing remarks about

The yellow ground Picotees.—To Mr. Turner, of Slough, we are indebted for working quite a revolution in this class, and a wonderful revolution, too, considering the material with which he had to work. Some of the old florists, notably one named Smith, have vastly improved the yellow grounds. Mr. Simonite told me that he had seen some of his flowers which were quite golden in colour, the bright yellow petals being free from spot or bar, and relieved by a fine scarlet edge. Nearly, if not the whole of Smith's work has been lost, and Mr. Turner had to work with inferior material, Prince of Orange (Perkins) being the parent of the distinct and beautiful varieties raised at Slough. A selection of the best are Alice, a large full flower with well formed petals and a pretty reddish scarlet edge; Eleanor, also a very full flower, not quite so bright as Alice, the edge being paler and the ground colour not so deep; Flavius, a very large flower, the edge and markings deep red, outer petals well formed, habit of plant good and robust; Mrs. Coleman, one of the best, the colour bright and the flowers well formed; Ne Plus Ultra, a charming variety, very distinct in habit of growth, colour a good yellow with a deep red wire edge. Princess Marguerite, Princess Beatrice, and Sir John Lambert I have also grown, and can recommend them. The good old parent of the flock, Prince of Orange, should also be grown even in the most select collections.

I would like to mention in conclusion two Picotees which I have not yet grown. I have seen

them at exhibitions, and Mr. Dodwell writes to me to say that Muriel, raised by Mr. Hewitt, of Chesterfield, "is no doubt the best broad-edged purple ever raised." Constance Heron (Fellowes) is the best broad-edged scarlet; it is distinct in colour, and does not compare with Royal Visit or Mrs. Payne, which are rose colours. Constance Heron is better than Obadiah, Juliana, or Rosy Queen. J. DOUGLAS.

Loxford Hall, Ilford.

SELECTION, OR NOT SELECTION.

SELECTION, by all means. Let every man follow his own taste in his own garden. A garden may be a place for intellectual recreation, a place for study, a place for rest, or a place for amusement, as suits the fancy of its owner, and no one has any right to find fault. Nor has anyone any right to recommend this or that as an improvement, except in so far as what is recommended will lead to a wider and higher enjoyment of the beauty of plants. Many plants must, however, be excluded from gardens for reasons totally apart from the question of their beauty; take the common Dandelion, for instance. There is scarcely a brighter yellow outside the list of florists' flowers, yet, even though it was a rare exotic instead of one of our commonest weeds, it would have to be excluded from our gardens on account of its free seeding propensities. A well-grown Teazle is a good study for an art metal worker—varied and beautiful in every line and form, but we do not grow Teazles in our gardens, because we can find them in every damp ditch if we want them. That most graceful of the Campanulas, *C. rotundifolia*, is grown in gardens in the south, but no one would think of growing it in Scotland, where it can be found in nearly every yard of roadside bank. Our native plants can only justify a place in garden borders where great beauty is combined with some amount of rarity, except in the case of spring flowers, which bloom at a season when it is more convenient to enjoy their beauty in one's own garden than in the woods and fields. I have seen the common Meadow Sweet grown as a garden plant, and a very stately and decorative one, too, in districts where it was rare, but who would think of growing it where the plants are as thick as they can stand in every ditch? With regard to

Exotics and plants long cultivated in gardens, there are certain forms and habits in plants which nearly everyone agrees are beautiful and decorative from ground to flower. Anemone japonica and the Delphiniums amongst tall plants and the Columbines amongst dwarfier plants are types of the habit to which I allude. Amongst tall-growing plants, the Lilies, the Yuccas, the Gladioli, and in a lesser degree the Iris, Alstroemeria, and the Day Lilies represent good decorative habits. Few people, I think, would see much beauty in Phlox decussata, the show Chrysanthemums, or Penistemons and Antirrhinums if it were not for their showy flowers. Plants which form a round bush covered with blossoms everybody seems to admire, and also plants which produce a broad, distinct bunch of flowers at the top of a stem leafy or naked, such as Polyanthus Narcissus and the Sweet William. The greatest difference of opinion will, however, most probably be found about plants of a feathery and light-foliaged habit, such as the annual Chrysanthemums, and Larkspurs, and Gypsophila paniculata, and plants which carry their flowers at the top of tall stems and not enough of them to form a mass, such as Geum coccineum fl.-pl. and German Scabious. Place a lot of these plants together and the effect is weedy; but mix them judiciously amongst plants of more decided forms, and they are as useful in contrasting and softening hard outlines as feathery Grasses are in a bouquet. Dwarf growing plants are of course too small to have a weedy effect, and their exclusion or otherwise must be decided on other grounds. Another matter which must govern our

Choice of garden plants is the length of time during which they bloom and the season

during which they produce their flowers. A plant may bloom for such a long period as to produce a monotonous effect, and that is one objection to bedding plants; but where plants bloom once or twice or even three times a year and vary considerably in their appearance, we naturally prefer those plants to others which bloom only for a few days. Then, even poor plants are welcome if they bloom in mild winters and in a lesser degree if they bloom early in spring or late in autumn. Plants which bloom only for a short period, however, ought to be admitted if they present some unique beauty of flower, such as the Lilies, the Gladioli, the Iris family, the Tulips, and the Tigrisias. The smaller the garden the more decided must be the exclusion of indistinct plants if any decorative effect is aimed at. We have such a quantity of Composites in cultivation, that a severe selection must be made in the smaller class of gardens, reserving only the most distinct and striking kinds. This is the more necessary because we have such a beautiful series of annual Composites, single and double, of varying heights, and many of the Anemones are Daisies in effect, although they belong to another family. Another severe selection must be made in the case of

Florists' flowers for all decorative purposes: in many families of those there are too many distinctions without differences. In Phloxes, for instance, there are many varieties which are so nearly alike, that for decorative purposes they are identical, a larger or smaller eye, a scarcely discernible difference of colour, or a slight difference in habit being all there is to distinguish the varieties. In condemning plants as unsuitable for garden decoration we must be careful what position we adopt. There is no such thing as finality in the appreciation of the beauty of plants. If a man has devoted a considerable portion of his time for a good many years to the definite and systematic study of beauty of form, he may be expected to know something about it; but if he has not done so, it is a hundred to one if he is not as blind to all beauty of form in plants as the proverbial bat. J. D.

Hollyhock fungus.—Apropos of Mr. Douglas's notes (p. 340) on this grand old-fashioned flower, allow me to mention by what means I succeeded in ridding my stock of the fungus. I only became acquainted with this disease in the autumn of 1877, but had often heard of it before that time. I had received no new plants for three years previously, so that I could not say it had been imported, but afterthoughts convinced me that it had come from some plants of Mallow growing by a roadside about a mile off. As I had some very choice Hollyhocks at the time, I did not care about destroying them altogether until I had tried an experiment in regard to them, and as I had plenty of young plants I had the more courage to carry it through. The young plants were put out in autumn in fresh ground, and the old ones were allowed to remain for experiment next season. A few died during the winter, but the others pushed away quite strong and healthy looking, when about the middle of July the disease appeared in much stronger force than the year before. I at once cut off and burned every vestige of diseased leaf I could find, until by autumn such was the havoc that scarcely a leaf remained on the stems, the latter resembling so many bare sticks on which flowers were stuck. This was a desperate remedy, but, strange to say, the flowers were in no ways inferior, but rather finer than those on the young plants, being only a little smaller. I nevertheless cut two stands for exhibition from those same old plants, and was very successful. I lifted the plants and put them in pits filled with prepared compost, and many of them are still there, but I have never seen a speck of fungus since. That season (1877) in which it appeared every plant of Groundsel about the garden was covered with fungus, but, as I now find, not the Hollyhock fungus. I may add that I never lift my plants and pot them for winter, as many do, considering a good mulching quite enough for

such a hardy plant as the Hollyhock. Cuttings are taken off at all seasons when they can be got and are all struck at the bottom of a wall: in fact, I find they take the best care of themselves in such quarters.—R. STEVENS, *Paston, Northumberland.*

THE PURPLE MULLEIN. (*VERBASCUM PHENICEUM*.)

LIKE *Celsia cretica*, figured the other day in *THE GARDEN*, this is an old garden favourite which for some reason or other is not often met with in gar-



Verbascum phoeniceum.

dens now-a-days. This cannot be from want of attractiveness, for it is at the same time a showy and an elegant plant. So long ago as 1597 it was cultivated by Gerard, who speaks highly of it; hence it has been in gardens for about three centuries. It is a native of South and East Europe, wherewith grows plentifully on the margins of woods and in stony Grass fields. It grows from 2 ft. to 4 ft. high, and from a tuft of root-leaves the slender flower-stems arise furnished for about half their length with flowers, each as big as a florin, arranged in a loose, spicate manner. The colour of the blossoms varies considerably; normally it is purple, but we have seen it white, deep purple, rose, pink, and every intermediate shade between these. We should always include this in a select list of border flowers, notwithstanding that, like most other Mulleins, it is not a true perennial, requiring to be raised yearly from seed in order to have a succession of flowering plants. But this is a simple matter, as seeds are

plentifully produced, and seedlings may be easily raised; indeed, in light soil, such, for example, as that of the herbaceous ground at Kew, seedlings spring up spontaneously in most seasons, and the plant virtually gives no trouble whatever in its culture. In order, however, to grow it well so as to obtain full development, it is necessary to pay some little attention to it. The seeds should be sown as soon as ripe in pots in a frame, and as soon as big enough to handle the seedlings should be planted out in good light soil in a place where they could be under the eye during their infantile stage. About September they should be transplanted to their permanent position, which should be a border of rich, light soil not too exposed and well drained, for if otherwise, the plant, being South European, may succumb to our cold winters. If so treated, the plants will amply reward the cultivator by a glorious show of bloom extending from the latter end of May till July. W. G.

NOTES ON AURICULAS.

THERE is no period of the year when the cultivator of Auriculas does not find much in his collection to interest him. At this season the plants that were repotted during summer are now making their growth, and as far as my own limited collection of plants is concerned they are in a very satisfactory condition. They are increasing in size and robustness daily, and they are as clean and healthy as can well be desired. I attribute this to three causes—first, to moderate potting, *i.e.*, placing the plants in pots only just large enough to hold the roots, and leave a little space for growing; secondly, to early potting, which admits of the plants being thoroughly established during summer; and thirdly, to the use of what I have had hitherto some difficulty in obtaining—a good fibry, unctuous yellow loam, with which I mixed some well decomposed manure, leaf soil, and a plentiful sprinkling of charcoal sand, the sand used for covering the piles of wood made into charcoal in the Kentish farm-yards, which becomes thoroughly charred, and largely mixed with small pieces of charcoal. The latter especially appears to suit the plants well, and they root into it with avidity. As a matter of course the pots are used quite clean, and they are thoroughly well drained. This is a matter of the greatest importance, especially where circumstances necessitate using a soil that is a little close in texture. I find the best drainage to be a piece of crock over the hole at the bottom of the pot, then a layer of small pieces of crock, and over this a thin layer of small pieces of charcoal. The charcoal sand greatly helps to keep the soil free and open, and prevents it from turning sour. It will sometimes happen that in spite of the greatest care a plant will look sickly and have an unhappy appearance. The best thing to do is to turn it out of the soil and examine the roots, and it will generally be found that the base of the carrot or tap root has rotted away. When this happens I at once cut away the affected part, even if it leaves only two or three small roots, and re-pot it in a small pot, but placing the plant at the side, and not in the middle of the pot. I use the soil in a fairly moist condition, and no water is needed for three or four days at least. When a plant of this character is placed at the side of the pot it gets to work much quicker than when placed in the middle, and with a little care it soon comes round again. I find this is a good plan to adopt with offsets that are only just rooted. If at any time I take these from a plant, I place them round the sides of a small pot, pressing the soil firmly about them, and they soon begin to emit roots. Some sorts are profuse breeders; Read's Cleopatra is one, Read's Ruby is another, and a well-established plant throws up many offsets. I never remove them if I can help it until they are making root, and then they go ahead without check. My plants occupy a raised stage in a north house, with a good current of air blowing over and under them. I am at some disadvantage in that I am obliged to keep my plants in the house all the

year round, and they bloom late in consequence. It is a great advantage to have a frame or house with a southern aspect to bring on the plants in early spring. When frost comes such a frame can be covered up at night, but in the case of a north house it is difficult to do this; as sharp frosts are apt to occur early in April, the forward bloom suffers, especially from the moisture, which, gathering on the inside of the glass when the frost thaws, falls on to the flowers. But the plants are doing well at present, as well as I could expect. I like to see Auriculas growing freely up to the end of September; then with a dry autumn and lessened water, the foliage declines till the plants are left with a thick filbert-like heart amid a circle of thick leathery leaves, and such hearts are certain to produce good trusses of flower in spring. Some of my plants are throwing up autumn trusses, but at present they are few. I pinch out the incipient buds as soon as they can be seen, leaving the stalks to decay gradually.

Seed sowing.—A little seed saved early in July was sown as soon as gathered. I have used for seed purposes a soil almost entirely composed of charcoal sand. When I was at Mr. Samuel Barlow's, at Stakehill, at the end of May, I saw there a process of raising seedlings which was the application of a wrinkle obtained from the Rev. F. D. Horner, of Kirkby Malzeard. The Auricula seeds were sown in early spring in pots, with plenty of drainage, and then filled up with the fine ashes, which gather at the back of a blacksmith's forge when the bellows is in operation. The seed is thinly scattered on the fine ashes, and the pots are placed in pans of water, and this keeps the ash-bed nicely moist. The seeds germinate with surprising quickness, but it is necessary they be pricked off into pots or pans of fine soil as soon as possible, as the plants are not long sustained by the ashes. The seeds, as is generally the case with Auricula seed, come successively, and they can be pricked off as required. Plants treated in this way have now grown into large size, and some will doubtless flower in the autumn, others in spring. The great advantage in this system is that the seeds lie for a much shorter time in the ashes than they do in soil, and a good part of a season is thereby saved.

Importance of cleanliness.—Cleanliness is of great importance at this season of the year. Aphides must be kept under, and a good fumigation with Tobacco smoke will soon settle them. As the outer leaves decay, they should be removed, and the surface soil stirred occasionally, especially if it is a little sour and apt to generate Moss. When this occurs in my own case I remove the surface soil, and replace it with a layer of charcoal sand. I find that the young roots travel freely in this as if they liked it, and there is an absence of any growth of Moss. The most cleanly collection of Auriculas will winter best, and I think I may add bloom best in spring.

Auricula fungus.—A great deal more has been made of this fungus than was warranted by circumstances. There is scarcely a collection of Auriculas that is free from it. How it comes seems to be a mystery, but I have seen the same fungus on the roots of Thistles and on other ordinary weeds of the field. I am sure, in my own experience and that of others, that it does not so injuriously affect the plants as is supposed. It is a very convenient excuse for the lowered condition of a neglected collection, but it is not correct to say that it injuriously affects the head of bloom to the degree that has been asserted. A grower in Yorkshire told me last spring that his plants had never done well until they were affected with the fungus. A few of my plants are affected with it, but they are generally of a vigorous character. I am trying the effect of water much impregnated with soot; whether it will destroy the fungus remains to be seen, but the plants appear to like it. I would rather be without the fungus, but I do not fear it. If a plant becomes badly affected with it I turn it out of the pot, shake all the soil from it, throw it away, carefully wash the roots, and re-pot in fresh

soil. Grow freely and keep clean, and any possible danger from the fungus is reduced to a minimum. R. DEAN.

OCTOBER PRIMROSES.

IN reply to the remark that "it would be interesting to know if any special treatment could furnish us with Primroses constantly in October," I may mention that when I resided in Scarborough a continuous bloom of Primroses and Polyanthus was maintained in my Fernhouse from the end of September to the end of May. The sun shone upon a part of the house from ten to twelve o'clock, and during fine weather the door was open all the day. These plants were used for seeding purposes; they were potted in August, the soil having previously been washed from their roots to remove the larvæ of the Otiorynchus, a precaution which materially retarded the free flowering of the plants. Having on a previous occasion offered suggestions how to raise fancy seedlings, I will briefly enumerate the varieties that I flowered in 1879, which varieties were unfortunately lost by the grower to whom I gave them. The Primroses were various—fancies, crimson, maroon-crimson, and others varying from black to violet; amongst Polyanthus were Vesuvius, crimson, rose, maroon, and purple. The Vesuvius varieties, both amongst Primroses and Polyanthus, were very charming, and the majority of the others were far in advance of the best-named kinds, with which they were grown side by side, until the latter were discarded. If "An Amateur" will select a good white pin-eyed Oxlip, and cross it with the pollen of *Primula auriculæflora*, also with a mauve, a crimson, and a white Primrose, and also cross a black Polyanthus with *auriculæflora*, he will produce better seedlings than have been exhibited during the past two years.—A. CLAPHAM.

—Without doubt, if seed of single Primroses be sown early in spring strong plants will be the result, and they ought to bloom freely in the autumn if the season be cold and the soil moist, but more depends upon the nature of the summer than upon any other contingency. In a cool, moist season, if thrips and red spider are kept in check, the plants will be in a state of perpetual growth; there will be gain rather than loss of leafage, and, under such circumstances, flowers will be produced freely enough in the autumn. Primroses need no rest; indeed, rest seems productive of death. The plants from which the flowers sent the other day were taken are very strong, because the seed from which they were raised was sown as soon as saved. Seedlings from seed sown during the past summer in a frame are now planted out, and are very strong for the short time they have been growing, but none will bloom till the spring; still, so far time has been saved. The secret of having an abundance of Primroses is raising seedlings every year. The plants are never more robust or full of flower than in the second year; then, should the following summer prove a hot one, the leaves disappear, and the crowns become blind; moreover, rot often sets in below, and between the two evils the plants die. At the end of the second summer it is well to lift, divide, and replant a little deeper, so as to induce the young growth to make roots from the base; then the plants become robust again, and do well for another couple of years. Nevertheless, I advise the sowing of seed every year when it can be obtained.—A. D.

FERNS AND FERNERIES.

THE culture of Ferns has within these last few years made great progress amongst all classes of society, and justly so, for without disparagement to other plants it is now generally admitted that these modest representatives of the vegetable kingdom, which have no bright flowers to enhance their beauty, are nevertheless of the greatest utility in all matters relating to decoration both in and out of doors. Besides their diversity of forms, varying from the lace-like foliage of *Cheilanthes elegans*, *Pteris scaberula*, *Asplenium viviparum*, and *Adiantum gracillimum* to the heavy, massive,

shield-like form of *Platycerium grande* or the elephant's-ear-shaped *Hymenodium crinitum*. We find amongst Ferns, especially in the earliest part of their growth, some colours almost equal in brightness to that of many of our flowering plants. Who has not before now admired the gorgeous hues of the developing fronds of *Adiantum Veitchii*, *A. macrophyllum*, the chameleon-like foliage of *Adiantum rubellum*, changing from the most delicate pink to a bright magenta and then to an exquisite glaucous green? No one could watch without interest the development of the many tinges contained in a young frond of *Davallia polyantha* changing from the deepest crimson to the purest bronze, or the new growth of a *Didymochlæna truncatula*, *Adiantum Hendersoni*, *Lomaria l'Herminieri*, *Polypodium appendiculatum*, with the beautiful crimson network covering the whole of its fronds. All these variations belong, it is true, to the early stage of growth, but as Ferns grow nearly all the year round, there is always a variety of colour amongst them; indeed I have now under my eyes all the above named varieties in full beauty, and if so, what must it be under a summer sun? When the fronds are fully expanded they assume all shades of green, from the pale, soft olive of *Adiantum venustum* to the dark glossy *Polystichum setosum* or the still darker *Lomaria zamiaefolia*; while some remain beautifully glaucous, such as *Platyloma cordata*, *P. flexuosa*, *Polypodium aureum*. What could give more pleasure than a collection of the best *Gymnogrammas*, provided a shelf or a dry corner could be made for them? They are not only attractive and singularly powdered—white as in *G. calomelanos*, lemon as in *G. pulchella*, beautifully golden as in *G. lauchiana*, or suffused on both surfaces as in *G. peruviana argyrophylla*—but some of their varieties are strong and compact growers, and form a group of distinct and ornamental plants. Many more could be enumerated, such as the small, neat-growing varieties of *Cheilanthes*, *Nothochlæna*, *Davallia parvula* and *alpina*, *Rhipidopteris*, *Actinopteris*, &c., quantities of which can be grown in a small space and furnish a rare treat not only to their owner, but also to whoever has a chance of studying them. Nor should the garden varieties which have sprung up of late be allowed to pass unnoticed. What can be more striking than some of the crested forms of *Pteris*, *Lomarias*, *Doodias*, *Adiantums*, *Gymnogrammas*, &c.? What a jewel, for instance, is the little *Adiantum Luddemannianum* with its little corymbs formed by the agglomeration of its emerald green pinnales. Few would take it for an offspring of *A. cuneatum*, and yet such is the case. Turning to the *Pteris* class, what an amount of improvement has taken place in that between, for example, the first *P. serrulata cristata* to the *P. serrulata maxima cristata*; moreover, we have also *P. s. Dixoni*, *Applebyana*, and many others. Then there are the Filmy Ferns, which, as the name implies, are all more or less transparent, and well suited for adorning a drawing-room, as they can not only be grown, but delight in a close atmosphere with cool treatment. What beautiful objects *Todea superba*, *T. pellucida*, *Trichomanes radicans*, *Hymenophyllum demissum* and others make in a room! They seem so cool and refreshing. Almost every garden at the present time is provided with its fernery, and, besides being attractive and interesting grown by themselves, Ferns are likewise useful either for mixing with flowers or for covering ugly walls or unsightly pots or tubs of large plants. What would a conservatory be now without its Fern baskets? and what could hang down as gracefully as *Asplenium longissimum*, *Goniophlebium subariculatum*, *Adiantum lunulatum*, *A. Edgeworthii*, *Nephrolepis exaltata*, or that little miniature *Asplenium flabelifolium*? Ferns, moreover, are within the reach of all, for our British kinds can be had for the gathering, and are they not truly beautiful? Indeed, what could be prettier and more exquisite than *Asplenium Trichomanes* and its varieties, *A. septentrionale*, the little *Ceterach officinarum*, the *Cystopteris*, &c.? or varieties of our Lady Fern, such as *Athyrium Filix-femina*, *Friselli*, *glomeratum*,

plumosum, *Victoriae*, *Vernonae*, and many others, all very graceful? and, again, what splendid objects some varieties of our *Lastrea Filix-mas* make under cultivation, such as *Lastrea F.-m. cristata*, *Barnesi*, *grandiceps*, *Mapplebeckii*, &c. The same could be said of the numerous varieties of *Polystichum* and *Polypodium*; while an exquisite selection can be made out of the varieties of *Scolopendrium*. It is not, therefore, to be wondered at that Ferns are popular, more especially when even in smoky London areas and windows may be seen covered with some of the last named varieties, which kindly condescend to grow luxuriantly where other plants would fail. But to derive real satisfaction from them one must understand their wants, and the best ways of using them, subjects on which I shall have more to say shortly. PELLEA.

GARDEN FLORA.

PLATE CCCLX.

VIOLA PEDATA BICOLOR.

The North American Flora, rich as it is, has yielded us no brighter gem than this little Violet. Throughout the whole of Gray's "Manual of the Northern United States" the word "handsome" is very sparingly used in describing a plant, but of this Violet Dr. Gray says, "A very handsome variety with the two upper petals deep violet, and as it were velvet, like a Pansy." It is quite different from the type, whose flowers are smaller and of an uniform lilac-purple or blue. In other respects, however, such as habit of growth and foliage, it is identical. The Bird's-foot Violet, the typical *Viola pedata*, has been in cultivation many years, and so long ago as 1790 it was figured in the *Botanical Magazine*, forming one of the first century of plants figured in that work. But even now it is only in botanical gardens, or in those that are out of the common stamp, that it can be seen, and the bicolor variety is still rarer, though at the same time it must be admitted that the plant has the reputation of being a difficult one to manage, though, probably, as in the case of other difficult plants, its requirements have been but little understood, and it has never been plentiful enough for one to experimentalise much with. Among those who have been particularly successful with it is Mr. Ingram, of Belvoir Castle, whose daughter made the drawing from which our plate was prepared. Respecting it Mr. Ingram says: "Viola pedata was distributed from the York Nursery about fifteen years since, an importation from North Carolina. I was not successful in its cultivation, and after lingering a few years it was lost. It would be interesting to know if any plants of this early importation survived, and if so, under what treatment they succeeded. There were several varieties—blue, mauve, lilac, and white. The plant received last autumn under the name of *V. pedata bicolor* appears more robust and the flowers larger than those of *V. pedata*. It was kept in a cold frame last winter and bloomed freely in April and May. Turned out in the open borders in May, the plants have grown freely, and have seldom been without bloom. If, as I presume, the stock from which the figure is taken is better adapted for cultural purposes than those previously introduced, all who delight in spring flowers may anticipate a charming addition to their collection. The elegance of the plant and the rich, yet soft, colouring of the flowers at once arrest attention."

One of the most charming sights we have ever seen among hardy flowers was a group of this bicolorous Violet, numbering a hundred or more plants in full bloom, last spring in the Hale Farm Nursery, Tottenham, and it is only by seeing such

Growers or introducers of new plants will oblige us much by early intimation of the flowering of new or rare species, with a view to their representation in our "Garden Flora," the aim of which is the illustration in colour, and in all cases where possible life size, of distinct plants of high value for our gardens.



VIOLA PEDATA BICOLOR

a colony as this that a true estimate of the plant's true beauty can be obtained. It will, we fear, never come into the category of common plants, for it is difficult to increase; and in its native country, according to Gray, it occurs but sparingly. No one, we believe, can speak very confidently with regard to its culture. The conditions under which we have seen it growing best are a half-shady situation and a peaty soil kept moist throughout the year, but wettest during summer when the plant is in full growth. Those who have but one plant to deal with we should advise to grow it in a pot, so as it to be continually under the eye.

Besides the variety *bicolor*, there are other named varieties of *V. pedata*; among them are *flabellata*, which we have not seen in a living state; *atropurpurea*, with intensely deep purple blossoms, but concolorous; and *alba*, a pure white-flowered variety, of which we saw the first flowers a short time ago in the Tottenham Nursery.

There are about a score of species of *Viola*, natives of North America, but there are only three others besides *V. pedata* that can be recommended for general culture. These are *V. cucullata*, a common Violet everywhere in the States, growing from 3 in. to 9 in. high, having large flowers of a deep or pale violet-blue or purple; sometimes they are nearly white or variegated with white. It is a vigorous grower and a profuse flowerer, but scentless. *V. palmata* and *V. cordata* are varieties of it. *V. sagittata*, the Arrow-leaved Violet, is also handsome, and so is *V. delphinifolia*, the Larkspur Violet, which is closely allied to *V. pedata* and similar to it. All the above grow freely in any good garden soil. W. G.

A HOLIDAY IN SWITZERLAND.

(Continued from p. 350.)

The local distribution of plants is governed by the varied circumstances of aspect, soil, the position of woods, and the amount and manner in which the water from the mountain springs and from the rainfall finds its way down the slopes of the hills; altitude, too, has a controlling influence, placing an inflexible limit to the further ascent of some plants, and keeping others invariably within the bounds of a zone of climate that belongs to the crests of the lofty alpine summits, and in the course of our expeditions to the mountains where all these peculiar circumstances were found, varying in occurrence and degree, a constant variety of plants was afforded us as we changed the direction of our excursions. A second journey up the same range (Rocher du Midi), but where their slopes trended to the north-east instead of south, led us first through the inevitable Fir wood, the least agreeable part of the day's walk, and then over a great extent of upland pasture, broken by straggling woodland and massive groups of trees, so disposed that the skill of an accomplished landscape gardener might well be credited with the planting rather than the great woodman Nature and her untutored agencies. The park-like character of the scenery was the more preserved by the smoothly cropped pastures and undulations, scarcely broken by any kind of hedge or division, and in all our rambles we never saw a notice board warning off trespassers. Early in the course of our climb on rather dry and stony ground we found *Genista sagittalis*; its clustering spikes of golden blossoms from plants spreading many yards over the ground had an effect that commended it to us at once as an effective plant for rockwork. In rather wet places *Arnica montana* was met with, and the pretty little *Aster montanus* was added to our stock, as was *Aronicum scorpioides*, which grew a little above it. We also gathered two handsome *Pedicularis* and four species of *Phyteuma*—*speculum*, *hemisphaericum*, *orbiculare*, and *Micheli*. One of the masses of woodland, composed principally of *Abies*, was thickly carpeted with *Vaccinium Myrtillus* and *V. Vitis-idea*, the former well fruited. Raspberries and a few wild Strawberries grew about this place, which was watered by a clear little streamlet. Still higher we found *Gentiana verna* in late

bloom and *Gentiana ciliata*, and, gaining the cliffs near, a few scattered Pines, rare trees in this part of Switzerland; we found *Saxifraga cesia*, the typical, and one of taller growth, if height can be mentioned in connection with such a creeping, Moss-like character of growth, and in the higher rocks *Edelweiss* was found to have its home.

The heights that bound the village to the east, though not differing materially in geological character or in altitude, furnish a marked variation in the plants they produce. Although not without woodland, the woods are less in extent, and follow the course of the water-bearing ravines. The pasture is rich, and extends to the summits of the mountain almost unbroken by rocky obstructions. The lower slopes in most cases present the same class of plants found on the opposite side, such as *Gentiana lutea*, *Aconitum Napellus*, but a marked, if not a complete, change takes place as we ascend. On a very steep and rather dry rocky bank, thickly covered with a mixed vegetation of Grass, wild Rose, *Rubus*, &c., we found *Paradisea Liliastrium*, guided to it chiefly by the half-faded flower-spike bearing seed. The bank must be charming when this beautiful plant is in bloom. The extraction of the clustered roots, having to hold on with one hand during the process, was a work of difficulty. The *Martagon Lily* shares this hillside, and is still more thickly distributed on other parts of the range. *Dracocephalum Ruyschiana* is another good plant afforded by this mountain, and a handsome *Polygala* which we cannot identify with any species hitherto described, rewarded us for a difficult scramble near the crest. We also found *Dianthus superbus* growing in quantity over one particular space of ground, at an altitude probably of 5000 ft. On one great mossy ridge that runs up to a great height we found the decayed flower-stalks of *Eubocodium vernum* and a profusion of various *Gentians*, *Primula farinosa* and *P. Auricula*. This bank alone would be worth the journey to see in the spring months. Descending, we found, on a knoll where decaying vegetation had accumulated a deposit of peaty soil, a quantity of *Calluna vulgaris*, the only instance on these mountains we encountered. The calcareous character of the stone formation accounts for its general absence, though mountains without Heather appear anomalous. In all countries fine weather contributes greatly to the enjoyment of travelling, but it is one of the essentials in tourist life in Switzerland, which is, or ought to be, an out-of-door life. Under the influence of clear skies the eye has a continual feast; we can follow the course of the sparkling river, catching and reflecting the bright sunlight far down the receding valley, and in the clear air the distant snow-capped mountains are brought nearer to the view, and we have belonging to us the pictures Alphonse Karr described to the art critic framed by the Great Master; but in bad weather all this is shut out. The day was sunny and delightful when we took our seat in the diligence which was to convey us to

Aigle, a journey of six hours. A long and tedious ascent commenced a few miles from Chateau d'Oex, but always amidst fine scenery. When about half the journey was accomplished we stopped to change horses and take lunch at Le Sepey. From this point the descent is pretty constant, and the picturesque character of the scenery viewed from the road increases; the valleys deepen, the mountains become more imposing in altitude, and every break in the cloudland of towering hills exposes the frowning snow-streaked peaks of the Diablerets range. The diligence winds along roads that are scarped midway along precipitous heights; a slender rail alone saves the wayfarer, if heedless of the way, from plunging into fearful depths. And now, however slow may be the pace of the horses against the hills, there is no hesitation about the descent, and they dash along at a rattling pace, happily oblivious of the consequences of a false step. Arborescent vegetation gradually alters, and in the wooded slopes deciduous trees are largely intermixed with the native Fir. Approaching Aigle, we enter into a

district of vineyards; the slopes on all sides are thickly covered with enclosures, in which the Vines are trimly set, pruned, and tied, and staked with an accuracy that bespeaks the value of the crop. The Vines are kept low; the stools hardly exceed 18 in. in height, and with the shoots of the present year do not rise much above 3 ft. The crop for the size of the Vines appeared sufficient, and might average from eight to ten bunches. The light white wine made about this place is called Yvorne, and has a local reputation for excellence, which, from the unripe condition of the crop at the end of August, the vintage of 1882 will hardly maintain. Passing rapidly through the little town of Aigle, we proceeded to the railway station, about a mile beyond the town. A retrospective view of the town, seated amidst its vineyards and sheltering hills, gives a picture that in its way has few examples.

Our resting-place for a few days was Bex, just above the Rhone valley, an ancient town of no great pretensions to aught, save salubrity. Above it in the hills are celebrated salt mines, and on an elevation commanding glorious views an important hotel, the Hotel des Salines, surrounded with gardens, in which are grottoes, fountains, and rustic seats and bowers. From the vantage ground occupied by a pretty chalet seated high up in the midst of a wood of Spanish Chestnuts we enjoyed the prospect, the prominent object of which was the massive snow-streaked Dent du Midi, rising grandly from one side of the Rhone valley, and on the opposite and north side the scarcely less important Dent de Mercles, both distinctive in character, and forming a landmark from far and near. Already blanched with snow, they received yet another fall while we were near, putting a bar to our botanical rambles in the high mountains around. An excursion up the Rhone valley as far as Vernayaz was replete with interest. The arrowy Rhone has fought its way between the mountains and effectively, and the history of the contest with the rocks is recorded in the expansive valley and accumulation of fluviatile deposits which now form an extensive stretch of flat land, which is gradually, but surely encroaching on the lake into which it debouches. The spectacle of a rapid glacial torrent which has cut its way through the rocks and joins the Rhone about a mile from Vernayaz is a very remarkable one. It is called the Gorge de Trient, and a slender trellised way hung to iron spikes allows an entrance and an exploration of this picturesque illustration of water drops wearing away stone. We failed in an hour's walk to find any plants of marked interest along the valley. *Gypsophila repens* is a common weed amongst the rocky débris. About Bex extensive woods of Spanish Chestnut prevail; their fruit is considered a crop of some little importance. Beech also replaces Fir along some of the lower slopes of the mountains. Leaving Bex, we travelled by train to the Castle of Chillon, built on an isolated rock on the shores of the lake of Geneva. Every surrounding circumstance combines to enhance the charms of the place—mountains above and around, the glistening waters of a lovely lake in front, and with the halo of antiquity and rich historical associations, it possesses in the quaint artistic beauty of its architecture claims to our admiration which few such relics of a past time so fully command. The interior, which is well preserved, exhibits in its stately chambers and the dungeons on which they rest a picture of the magnificence as well as the barbarity of the times of its early occupiers. Taking a steamer bound for Geneva at Vevlaux Chillon, we had an opportunity as the vessel proceeded along the northern shore of the lake of observing its charming features. We cannot wonder that poets have made Leman their theme, or that the more prosaic men of genius have evinced their delight in the lake by making its shores their home. Vines in well ordered vineyards are thickly planted along the slopes of the lake; lovely villas, clustering villages, and important towns successively occur; the land, first rising in easy undulations, is lifted farther back to lofty heights, and from their wooded banks noble residences continually present themselves. Montreaux, Vevay, and Lau-

sanne, with a host of other places, all commanding piers or landing-stages, are successively passed, and we reach stately

Geneva.—There are towns in Switzerland that owe their celebrity very much to the position they occupy in relation to the scenery that surrounds them, and although Geneva is not exempt from that reflected glory, she may yet claim that, however situated, the grandeur of her public buildings, the superior character of her street architecture, her places of public recreation, theatres, picture galleries, museums, entitle her to a proud position apart from any extraneous aid or assistance. As a city, and holding a representative position, she is worthy the respect of Englishmen in having in dangerous times, and in relation to more powerful States, exhibited a dignified and an independent attitude, and has shown a tolerant and a liberal spirit in sheltering men expelled for the freedom of their political or religious opinions from their own country. In recent years prosperity and fortunate legacies have given the city the opportunities of indulging in still higher forms of embellishment, but she has still one thing to do, and that is to give the birth-place and the scene of the great labours of the eminent botanist, De Candolle, a suitable botanic garden. The present garden is altogether unworthy of a city that claims by her institutions to promote scientific pursuits. As far as our observation went, the Swiss municipalities do not encourage or adequately support either botanical or horticultural gardens. Geneva might worthily sustain a representative botanic garden, and its advantages of position and climate give it opportunities that few places possess. The present garden is badly placed, much shaded, and circumscribed in extent, and is calculated to discourage the attempts of the most skilful cultivator; and so little value is placed upon it, that a portion has been recently taken from its already restricted area—chairs, tables, and gravel walks replacing the plants and trees the great De Candolle cherished. If the rock-works of our own botanic gardens are open to criticism, what might not be said of that which represents it in this country of mountains? Ridges of stone in parallel rows represent the rockwork of the Botanic Garden of the city of Geneva. A suburban garden in England could scarcely show a more tasteless attempt than is exhibited here. Surely a better site might be found, away from the smoke of the town and the fogs of the lake, where at least the alpine flora might gain a characteristic development. Our holiday term was approaching its termination, the bad weather, which has since culminated in persistent torrents, set in, and the fair landscape was hidden by heavy rain clouds. We left Geneva by train, and, travelling by Lausanne, reached Berne, and thence with but little delay journeyed homewards, catching glimpses of rocks and gleaming water brightened by moonlight as we dashed through the Jura range, and then with morning light saw the blouse-clad peasants of France in their fields, and then Amiens, Calais, across the water, and home.

Belvoir.

W. I.

BERMUDA GRASS.

A CORRESPONDENT asks (p. 264) regarding seeds of this Grass (*Cynodon Dactylon*). We had until last winter supposed here that this Grass does not mature seeds, and hundreds of questions have been answered by the rural press to that effect. It was also supposed that the Grass was not at all hardy north of Tennessee. Two years ago a sod was sent to me from that State, and though apparently dead was planted in a light soil and for a while watered. It soon showed signs of life, and ere the summer had passed formed a plot about 12 feet in diameter. The next spring it seemed quite dead, but as summer approached a shoot here and there appeared, which during the season spread over about half the space, as did the original sod during the first summer. Last January a packet of alleged Bermuda Grass seed was sent to me by Thorburn and Co., 15, John Street, of this city, with the request that I would test it. It was sown in a pot, germinated quickly, and was turned out in the open

ground in May. From this small beginning we have now a plot, 7 feet long by about 4 feet wide, of true Bermuda Grass. This Grass until of late years was considered a terrible pest in our Southern States. It forms a network of roots so dense that tillage was deemed impracticable. Now, however, as improved implements are more commonly used Bermuda Grass is by many considered a boon to the south, and is being cultivated in many parts. It is propagated by cutting the stems in pieces, sowing them, and ploughing or harrowing them under, as if they were manure spread upon the surface. As a lawn Grass it is invaluable to the Southern home, as when cut as our Northern lawns are cut, it keeps green during the entire summer. It is a most nutritious and palatable Grass to all farm animals, not forgetting poultry, and is eaten with a hearty relish.—E. S. CARMAN, *Ed. "Rural New Yorker," New York, U.S.A.*

BOTANICAL GARDENS.

THE question "For what purposes are botanical gardens instituted?" is one which now and then crops up and excites some little discussion, by means of which one hears much that is worthy of consideration in connection with this subject, and perhaps as much that is both absurd and unjust to the establishments concerned. "Traveller" in *THE GARDEN* (p. 294) appears to have formed rather an unfavourable opinion of the Edinburgh Botanic Garden and its management, as well as of botanic gardens generally, and although much of what he says is most likely not unfair in so far as the Edinburgh Garden is concerned, yet his views as to the kind of work to which botanic gardens should be devoted seem so wide of the mark, that I venture to offer a few observations on this not unimportant subject. As one who has been for some years connected with a botanical establishment, I may perhaps be allowed to have some little knowledge of what is done and what ought to be done in such places, and I venture to assert that the number of persons who would like to see botanical gardens turned into experimental gardens pure and simple are indeed few compared with those who find instruction and enjoyment in them as at present arranged. In the pages of *THE GARDEN* much has been written condemnatory of the system of classification which is generally observed in botanical gardens in the arrangement of herbaceous collections, &c., and many suggestions have been made with the view of improving the effect of such an arrangement. But the question is, are botanical gardens meant only for a picturesque display of flowers and leaves such as one sees in parks, &c., for the cultivation only of those plants which possess most beauty, and from which all plants not possessing any ornamental characters ought to be rigorously excluded, where beautiful landscapes, natural rockeries, and such like are to find a place? or are they meant to aid in diffusing a knowledge of vegetable life in all its forms and to assist inquiry into the botanical affinity of plants and the many other scientific and useful studies connected with vegetation? Most assuredly the latter. Our parks, pleasure grounds, country scenery, &c., are the proper places to look for the former; and although in botanical gardens there is always much that is interesting to the cultivator and lover of plants merely for their beauty and utility, yet the most important and primary use of botanical gardens must be to assist the science of botany, and to provide for the general public what cannot be found in an ordinary garden, namely, a museum of specimens of curious and interesting plant life. After this and not before, as "Traveller" appears to desire, the aim should be to keep the collection as healthy and well arranged as other requirements will permit.

Where space is limited, as I suppose it must be in the Edinburgh Garden, it seems absurd to complain of overcrowding and in the same breath to suggest experiments in arboriculture on such a scale as could not be possible without entailing enormous expense and labour if such overcrowding as is complained of is to be avoided. And I would ask

how are experiments of this kind to be properly made with a view to discovering trees and shrubs most suitable for the locality without the accompanying sickly appearance of some specimens so loudly condemned by "Traveller?" The cost and labour attached to work of this kind cannot have been considered by your correspondent when writing of an establishment which, from all accounts, is cramped for space and money, too. And, indeed, even were it possible to carry out the suggestions of "Traveller," I fail to see what claims the tree lover has to more consideration than medical and other students of botany. The work he recommends is certainly deserving of attention—that we all admit; but the few interested in testing trees and shrubs, with a view to assisting the gardener, are quite crowded out by the thousands who appreciate and enjoy our botanical gardens as at present arranged. Then come the glass structures, and here again "Traveller" is dissatisfied. Too much importance is attached to them, he thinks. Truly our friend has curious views of what a botanical collection means. To the general eye it is those foreign-looking, unfamiliar forms of vegetable life which possess the greatest interest, and though to the true lover of the beautiful in Nature there are few pictures more attractive than the glade of waving Bluebells, the glorious colonies of Foxgloves, or the carpets of yellow Primroses round our homes, yet the public love to gaze on the riches of Flora's tropical children, as they prefer the cages of foreign animals in our zoological collections to the more familiar forms of animal life at home. If the desire of the public is for an experimental garden such as "Traveller" recommends, they will soon find means for its attainment without sacrificing anything in our botanical gardens, which as at present arranged are, in spite of what your correspondent may say, a source of much pleasure and enjoyment to those who pay for them.—HORTUS.

—"Traveller" may possess refined taste, and may wish a botanical garden to do artistic as well as scientific work, and in this I certainly agree with him. People, however, always judge matters from their own standpoint without taking all the circumstances into consideration, and therefore their conclusions are often erroneous. "Traveller" does not seem to be aware how scanty the means are which the authorities have at hand for the maintenance of the Edinburgh Garden. If means are scanty for the proper maintenance of a garden, there is a difficulty in carrying out suitable and desirable alterations. "Traveller" believes that artistic work should come first and guide the planting and the arrangement. I myself and also many horticulturists are, however, of a different opinion, and think that the introduction, trial, and conservation of plants should rank foremost, and artistic grouping come only as a secondary matter. If this were not so, we should now-a-days have to regret the loss of still many more good old plants than we now do; formality cannot be avoided if a very large collection of plants must be kept intact and pure as regards species or variety. The pockets in which they grow may be formal and not very tasteful looking, but they are exceedingly practical, especially in the case of bulbs. Thus placed, their contents are convenient for study, and, if properly constructed, much of the formal appearance may be mitigated. To the Edinburgh Garden has been introduced for years and up to the latest date vast numbers of new and desirable plants, and it has conserved, and still conserves, a vast number of good old ones, and if means were only a little more plentiful, I am sure the authorities would be fully capable and willing to carry out here and there a little effective grouping. I admit that pockets on rockwork would not be admissible in a private garden where plants are grown simply for enjoyment. Messrs. Backhouse even can do without them on their rock garden at York. If plants are grown for enjoyment only it does not matter whether a *Crocus* comes up 6 ft. away from its original quarter or not, and the rock garden at

York contains but few plants compared with the rockwork at Edinburgh; therefore they can have more space, and it matters not if they run into each other, because each species is kept separate elsewhere. Certainly a public institution, even though kept up with restricted funds, should do national work, but "Traveller" should consider that even national work is made easier to do by international exchange and liberal distribution; and to carry on such exchanges a great variety of various plants, showy or not showy, useful or weedy, must be kept in store. In thus stating my views I simply wish to be just, and I feel sure that the great majority of English horticulturists will agree with what I have stated.—MAX LEICHTLIN, *Baden-Baden*.

TREES AND SHRUBS.

SELECT VARIETIES OF PYRUS.

The true Service (*Pyrus Sorbus*).—This tree, which is also sometimes called *Sorbus domestica*, is nearly related to the Mountain Ash



Fruiting branch of *Pyrus Sorbus*.

(*P. Aucuparia*) to which, in fact, when not in fruit it bears considerable resemblance; but when in fruit the difference is very apparent. The berries, which are much larger, are pear-shaped, and instead of being bright red, as in the Mountain Ash, they are brown and sometimes suffused with red. The Service tree is by no means common, a circumstance probably owing to the fact that it does not readily establish itself, and that its fruit is less brilliant than that of the Mountain Ash and others belonging to it. Notwithstanding this, however, it is an interesting tree, especially when in fruit, which it produces in profusion. Besides the Service and the Mountain Ash, with which everyone is familiar, there are several other kinds highly ornamental, both as regards flower, fruit, and foliage. Of the *Sorbus* section, mention may be made of the American Service (*P. americana*), a tree more vigorous in growth than the common Mountain Ash, and its berries are both larger in size and brighter in colour. This kind, owing to its handsome fruit, of which birds are particularly fond, deserves more attention than it has hitherto received. Besides the ordinary form of the common Mountain Ash, there are also several varieties of it, one of which has yellow fruit, another a strictly fastigate habit of growth, while a third is quite pendulous. There is also a variegated variety, but that is not very ornamental. *Pyrus pinnatifida* or *quercifolia*, as it is sometimes called, is regularly pyramidal in habit, especially when young, and its leaves are large and so deeply cut as to be almost pinnate; underneath they are

downy, but above glossy green, and the fruit is bright red.

The white Beam tree (*Pyrus Aria*) has very ornamental foliage, that of the ordinary type being comparatively large, ovate, and toothed at the edges; underneath it is silvery white, and effective when moved by the wind; and as this tree does well in exposed places the foliage is often in a state of agitation. Its fruits are not so showy as those of some of the others, being for the most part of a brownish red hue, but still their numbers make up for their want of colour. Not only, therefore, is this species pretty when in fruit, but also when in blossom. The varieties of the Beam tree are many, a few of the most distinct being vestita, a well-marked form, by some considered a distinct species. Its leaves are much larger than those of the common kind and their undersides more conspicuous, a circumstance probably arising from their increased size, and the whole plant is more vigorous in growth; it is, however, not so well able to withstand exposure as the ordinary form, being a native of Nepal.

Pyrus Aria angustifolia has very narrow leaves, and in undulata they are broad and wavy.

The White Beam tree is at times little more than a large shrub, but it always preserves an upright manner of growth; under ordinary conditions it forms a slow growing tree of 30 ft. or more in height. The Gripping Fruited Service (*P. torminalis*) is generally recognised as a distinct species, yet it certainly very nearly approaches the foregoing, the chief difference between the two consisting in the leaves being thinner, set on longer and weaker stalks, and in their being deeply cut, some nearly to the midrib. *Pyrus Chamæmespilus*, which has a shrubby habit of growth, is a pretty free-flowering kind, bearing rose-tinted blossoms, but nevertheless so much surpassed in beauty by an allied form (*P. Hosti*), that it need not be sought after except where a collection of such trees is desired. *Pyrus Hosti* would seem to have been known for a long time, but it is only quite recently that it has been brought into prominence; of this a coloured plate was given in THE GARDEN for October 8, 1881. Besides *P. Hosti* among the different kinds of *Pyrus* remarkable for the beauty of their flowers may be mentioned, the Apple and Pear, the Garland *Pyrus* (*P. coronaria*), and the most showy of the whole, the Chinese Crab (*P. spectabilis*), a tree unsurpassed in beauty by any of the class to which it belongs.

P. arbutifolia, a North American kind, is a slight-growing deciduous shrub, which produces terminal clusters of Hawthorn-like blossoms, succeeded by berries, dark red, or black in colour. It likes a cool, deep soil, and where it cannot get that it does not succeed. Of this there are many

varieties, but their general characters are much the same.

The above are only a few of the endless varieties of *Pyrus*, but amongst them are some of the most distinct and beautiful. ALPHA.

BRITISH TREES AND SHRUBS.

The Buckthorns (*Rhamnus catharticus* and *R. Frangula*) are shrubs that cannot boast of great beauty, yet have they some graces of their own which justify our catholic lover of the forest in admiring them. They are both rare in Ireland, but tolerably common in the woods and hedgerows of England and the south of Scotland, the former (*R. catharticus*) being most abundant on limestone soil. Neither of them often exceeds 10 feet, and they are frequently only half that height. They seldom have a distinct trunk; and as thick-growing shrubs, they have, perhaps, small claim to rank amongst forest trees. They are readily distinguishable by several characters. The Buckthorn proper—for the name undoubtedly belongs to *Rhamnus catharticus*—gives off its branches in opposite pairs, and has spines at the end of them. Its leaves are toothed, it has male and female flowers on separate trees, and its fruit ripens black. The Alder Buckthorn, or Black Alder, as *Rhamnus Frangula* is more often called, on the other hand, gives off its branches alternately on either side of the stem, has no spines, has no teeth on the margin of its leaves, has stamens and pistil in the same flower, and has berries, which become first green, then red, and finally a deep purple. Related exotic trees and shrubs contribute to the beauty of foreign landscape, and are, perhaps, of more use to man. The Ziziphus, or Jujube tree, with the sap-green foliage characteristic of the Order, relieves the sombreness of Cypress and Olive on the shores of the Mediterranean; and the attractions of its fruit ages ago rendered proverbial the *dolce far niente* of the lotos-eaters, who "fleeted the time carelessly, as they did in the golden world." The genus *Rhamnus* is, however, yet more useful, mainly on account of its bitter and astringent principles, which, being utilised medicinally, give the specific name to one of our British kinds. It is still more important as yielding dyes. Persian or yellow berries are the fruits of *Rhamnus infectorius*, much cultivated in the south of Europe; and Chinese and sap green are both obtained from the unripe fruits of members of the genus, our own Black Alder amongst the number. The bark of both our species yields a yellow colouring matter, and, moreover, the tough, spongy wood of *Rhamnus Frangula* produces a valuable light charcoal, used in our powder factories, along with that of the Spindle tree and the Cornel, under the common name of Dogwood. The uses are, it must be confessed, the chief interest of the two shrubs of which we are speaking. Neither has any great beauty of form; but the close-growing, spinous habit of the true Buckthorn has led to its cultivation in North America, where it is not a native, to form hedges. There is, however, in their foliage a yellow tinge to the green, an opaque resemblance to the colour of the Olive fruit in brine, a green, more grassy than the sap-green of the artist, but more brown than that of most trees, which gives a pleasing variety in the summer leafage of our hedgerows. The flowers are inconspicuous, and do not form large clusters, so that the resulting fruit cannot produce the effect of that of the Guelder Rose or the Cornel. Still, when mixed with the true Alder, the red and purple berries of *Rhamnus Frangula* are attractive, and have earned for the tree the name of the Berry-bearing Alder; whilst, at the same time, the superior gloss of the dark foliage of the Alnus makes up for its lack of beautiful fruit. In ornamental planting in a moist wood, or by the water-side, however, probably a better combination can be made with Alnus, the Guelder Rose, the Cornel, and such subjects with the omission of the Buckthorns. Let us now consider

The Cherries (*Prunus Padus*, *P. Avium*, and *P. Cerasus*).—These three trees differ from the

related Blackthorns and Plums in their leaves—which have the two halves of the blade simply folded together in the bud, along the midrib, instead of being rolled up like a scroll, as in the latter—and in the absence of bloom on the fruit. Among themselves they are popularly distinguished as the Dwarf Cherry (*P. Cerasus*), the Wild Cherry or Gean (*P. Avium*), and the Bird Cherry (*P. Padus*), the two former agreeing in having their flowers in umbels and in some other characters, the latter bearing racemes. To make clear this technical distinction, it may be explained that in an umbel a number of flower-stalks spring from one point, like the ribs of an

cabinet makers. The leaves are drooping and downy on their under-surfaces, and the fruit is heart-shaped, less juicy, bitter, and often black. From it is distilled the kirschwasser of Germany, and it is probably the origin of the Morello. The Bird Cherry is a small tree, with one distinct trunk, but only from 10 ft. to 20 ft. high. Its leaves are smooth and finely and regularly toothed, and its small, roundish fruit is black and harshly bitter, enclosing a round wrinkled stone. The astringent bark of this species has been proposed as a substitute for quinine. To come to our more æsthetic point of view, what dweller in the country is ignorant of the charms of the

our heads, as we gather Hyacinths and Primroses beneath the trees.

Who can paint
Like Nature? Can imagination boast,
Amid its gay creation, hues like her's?

If this is our thought in spring, still more will it be so, with reference to the Cherry, in a favourable autumn. Early gales following summer drought often strip the tree of its leaves before they lose their mature green colour; but if this is not so, there is indeed a treat in store for the sensuous lover of colour, as far surpassing that enjoyed by the birds and the village boys in the ripe fruit as his capacity for enjoyment is more keen than theirs. The laureate has spoken of the

Laburnum dropping wells of fire,

but the autumn leaves of the Cherry far more closely resemble Pentecostal tongues of flame than the clear yellow clusters of the favourite garden tree. The dark green shades into an infinite variety of pinks, crimson, oranges, browns, and yellows, each little hanging leaf suggesting a fragment of one of the magnificently tinted leaves of the Muscat Grape. Thus the Cherry has beauties nearly all the year round, and from its light, graceful branching, should be placed in a thinly-planted woodland belt edging the lawn or park. It looks better, perhaps, rising above coppice in a slight clearing carpeted with wild flowers than in the front line of such a belt, though single trees do no harm, and look beautiful in the hedgerows of our fields. There is a peculiar feeling of pleasant surprise in that putting forth of long waving sprays, already alluded to, that renders an inner place decidedly appropriate for this species.—G. S. BOULGER, in *Journal of Forestry*.

Gaultheria procumbens.—It is not unusual to see this pretty plant starved and miserable in many gardens, even where fresh air and good soil work wonders with other and rarer things; just now, however, there is in the Chelsea Botanic Garden a patch of it, 2 ft. over or more, fresh and healthy amid the town smoke and dust, and literally aglow with its vivid scarlet berries. Where it does well this plant, together with *Skimmias*, *Pernettyas*, *Cotoneasters*, *Aucubas*, and other berry-bearing shrubs, deserves a place in all good gardens.—F. W. B.

Planting Gorse or Furze.—"E. M. N." inquires (p. 348) about the best season for planting Gorse for covering banks. Now, and as long as the weather continues open, is the best time. It is necessary in order to get the plants to start into growth freely to take out about a cubic foot of soil for each plant, and replace it with a mixture of leaf mould and good loam. If good plants be placed in this they will soon establish themselves, and will cause no further trouble, no matter what kind the natural soil is. For covering exposed banks there are few better shrubs, as it is dense in growth and so showy when in flower, and it requires no cutting or keeping within bounds. The plants, however, must be well protected from rabbits.—C. G., *Ely Grange, Frant*.

Shrubs for the seaside.—It is stated that the best conifer for the seaside is *Cupressus macrocarpa*, and it certainly seems to be thriving in a remarkable manner about Hastings. Among other things that succeed here are all the *Euonymus* family, but especially the green-leaved variety, which I saw in the shape of large bushes everywhere; also the *Laurustinus*, *Arbutus*, and *Aucubas*. The Japanese Privet also does well, and the *Escallonia macrantha*. *Garrya elliptica*, as a bush, is just beginning to put forth its catkin-like blossoms. The *Azara microphylla* may be seen in the form of neat specimens; also *Leycesteria formosa*. For shelter belts the *Wych Elm* is recommended, and certainly it contrasts favourably with *Poplars* and other things usually planted for the purpose. In a sheltered nook not far from the sea I saw a house front covered with *Magnolia grandiflora*, in luxuriant health. Another near was completely enveloped with *Passiflora cœrulea*. The *Tamarisk*, of course, is a well-known seaside plant, growing



Avenue of English Elms.

umbrella, while in a raceme they are given off one by one along a primary flowering shoot. The geographical distribution of the three forms is nearly the same, namely, from the Himalayas, through Western Asia, Northern Africa, and Europe; but the Dwarf Cherry seems the more restricted form, not occurring in Scotland or in Africa, whilst the Bird Cherry occurs in the Arctic regions of Europe and Asia. The Dwarf Cherry is a bushy shrub, from 3 ft. to 8 ft. high, with reddish bark, short-stalked, erect, coarsely notched leaves, and a round juicy, red, acid berry which is believed to be the origin of our sweet garden Cherries. The Gean is a tree 20 ft. to 30 ft. high, and sometimes 9 in. in diameter. It grows in rocky, dry woods, and yields a reddish wood valued for tool-handles and by

wild Cherry? One of the early cheerfulnesses of spring is its sprays of light bronzy brown leaves waving in May over a hedgerow, yet black with the bare thorn boughs of winter. To the true lover of Nature, who will be perforce also a careful observer of her ways, the delicate texture of spring leaves is as charming as their colouring. The smaller amount of colouring matter in their unthickened and unsoiled cells renders the foliage at this season so far more transparent as it glances in the fitful gleams of a still, cold sunshine. Then among the brown-green leaves clusters of snowy blossoms make their appearance, giving a festival look to the whole woodside. Long sprays of flowers frequently wave aloft above the surrounding coppice, and after a week or so of beauty, send down showers of light snow upon

to a considerable height—10 ft. or 12 ft.—in sheltered places. There is a hedge of it on the top of the cliff bounding the old castle, and there are larger plants among the ruins, but on exposed sites they never grow to a great height. The young shoots are often cut by the winds, which keep the plants dwarf; nevertheless, they are healthy. All the Yuccas are good seaside plants, especially when dwarf. Chrysanthemums, Carnations, Pinks, and Michaelmas Daisies thrive well, and the Wallflowers must be a pretty sight in spring. The Sea Thrift grows here in dense patches, in picturesque profusion, on old walls and on the face of the cliff.—E. HOBDAV.

AVENUES.

So much has been written from time to time on this subject that it is a difficult matter to say anything new respecting it. As with almost everything else, avenues have had to submit to the caprices of fashion; at one time they have been advocated, at another denounced. During the last century it was as much the fashion to abolish or break up lines of trees as it was the custom a century earlier to plant them in that way. But if it had not been for the avenue planters of the sixteenth century many grand old English residences would have been shorn of what we consider now-a-days to be among their finest features. There is an imposing grandeur about most of these old avenues; the massive boles of the trees and their ponderous limbs overhanging and meeting have their counterpart only in the vaulted roof of our grandest Gothic cathedrals, and the gloomy shade that thus invariably accompanies such an avenue imparts to it quite an air of solemnity.

The worst things that have been said against avenues are that they are formal, and that as a rule they cut up places and destroy all breadth of effect; also that there is a monotony about them that makes all places look alike, however diverse their surroundings—all certainly strong objections, for nothing is worse than formality in garden design, though parallel lines of trees may in certain cases be in strict conformity with the immediate surroundings. Besides, as has just been stated, there is a certain degree of stateliness in formal lines of grand trees such as cannot be obtained by other means, and if the long gradation of perspective leads to a definite object in the distance, nothing can well be more appropriate. The second objection, that avenues cut up the place, is simply a question of proper position. We have seen some avenues, those, for example, at Hatfield and Cobham Park, where they do not interfere in the least with the surroundings, that is as regards shutting out a view or destroying breadth of effect; but where an uninterrupted avenue cuts up a beautiful park into two distinct portions, such as the Long Walk in Windsor Park, then it is objectionable. The position of an avenue cannot in all cases be determined by any arbitrary rule; on the contrary, the peculiarities of the situation and the exigencies of the case must be taken into consideration. The objection that avenues give to all places an appearance of sameness when laid out in a stereotyped way is also a valid one; nothing could well be more formal than avenues radiating in all directions from the house or some other principal object as a centre. There are, happily, but few examples of this way of dealing with avenues to be seen at the present day, at least in this country, though they were plentiful enough till the dawn of the English, or natural style of gardening.

In making an avenue there are various points to be considered; the soil, locality, and climate must be taken into account, and the class of trees best suited for the purpose should always be planted. Had these matters been considered, we should not now see so many bad examples of avenue planting as at present exist. If a quickly formed avenue be required, it is useless to plant such slow growers as Oaks; and if a narrow overhanging one be the object in view, the Lombardy Poplar is not the tree to select. One of the chief essentials of a perfect avenue is that it

should be composed of a single species or variety, for if otherwise the slightest difference in growth or tint of foliage will be plainly discernible when the trees are ranged side by side. Uniformity of size is another point to consider also, and at the time of planting all the trees should be nicely balanced both in root and top, and of straight growth. The choice of any particular kind of tree for an avenue is a matter of taste, but among the deciduous class, the following should be placed in the foremost rank, viz.: the Horse Chestnut first, then the Lime, Spanish Chestnut, Beech, Elm, and for street planting the Western Plane, and the Acacia, particularly the variety *Bessoniiana*, which differs from the rest in being very compact in growth, never forming the ugly wide-spreading boughs which characterise the typical form. The Lime is objectionable in a town, as it has a tendency to turn rusty before autumn has well set in. The majority of old avenues in this country are composed of Elm, Lime, Horse and Spanish Chestnut, Oak, and Beech, but to these may be added the Sycamore, False Acacia, Plane, and the various Poplars, including the Lombardy, which latter is unique in character, owing to its vertical growth and towering height.

Conifers for avenues.—Of late years it has been the fashion to plant avenues of Conifers, a purpose for which many of them are admirably adapted, but unfortunately there are many kinds that are very unsuitable, the result being many bad examples of Conifer avenues. One of these bad examples is that at Kew in the Pagoda vista, composed of the Deodar. Some of the trees are healthy, others have died, while the majority look as if they were dwindling away. The Deodar certainly cannot rank among the best for average planting, as it is but seldom that the plants are of uniform growth, and they have a way of dying off suddenly. The Wellingtonia is not so bad in this respect, but worse in another, viz., its stiff, formal, extinguisher-like aspect. The Araucaria is one of the best of all Conifers for planting in lines, as it is more uniform in growth, and if locality and soil be suitable it makes a grand avenue. An excellent chapter is given on the subject of Conifers for avenues in Messrs. Veitch's new "Manual of Coniferae," and we cannot do better than reproduce it here: "Avenues for approaches and carriage drives and for vistas may be formed with any of the larger coniferous trees, but it is evident from the form and outline assumed by them during the best period of their growth, and also when they have attained maturity, that there are some incomparably superior to others in producing stately and picturesque effect. Of such the following are among the best that can be selected:—

Wellingtonia gigantea	Pinus excelsa
Cedrus Deodara	Strobus
Araucaria imbricata	monticola
Abies nobilis	Abies brachyphylla
Nordmanniana	Douglasii
Pinsapo	orientalis
concolor lasiocarpa	Thuja Lobbi (gigantea)
Cedrus atlantica	Thujaopsis dolabrata
Libani	Cupressus Lawsoniana
Pinus austriaca	nutkatensis
pyrenaica	Libocedrus decurrens

The above named trees are symmetrical in habit, hardy in constitution, and clothed with foliage of a distinct and pleasing colour. To secure uniformity of growth throughout an avenue planted with any one of these kinds seedling plants of the same age should be selected, and the soil should be of the same constituents and of equal drainage. If naturally good and well-drained, it will be sufficient to break up the soil to a good depth before setting the young plants; but if it is chiefly composed of sand and gravel, a good supply of fibrous loam mixed with thoroughly decomposed vegetable refuse should be used in order that the young trees may get well established. An avenue of striking effect may be formed by alternating the Wellingtonia with the Araucaria, of which there is a good example in the Coombe Wood Nursery. The Araucaria may also be alternated with the Deodar with fine effect. The Cedar of Lebanon is open to objection on account of its sombre aspect and want of uniformity

in outline; it is also of comparatively slow growth, so that a considerable period of time is required for it to become effective. The Mount Atlas Cedar (*Cedrus atlantica*) may be advantageously substituted on chalk soils and in exposed situations. Very formal avenues may be planted with *Thuja Lobbi*, *Cupressus Lawsoniana*, *C. nutkatensis*, and *Libocedrus decurrens*, all of which require much less room than the trees of the Fir and Pine tribe, and may, therefore, be employed where the space is limited." In this list just given there is no mention of either the Red Cedar or the common Yew, both of which certainly deserve a place. The former is a handsome tree of rapid growth, pyramidal in habit, and has wide-spreading lower branches; and that the Yew is an excellent tree for avenues is shown by the fine examples of it which may be met with about the country, as at Hatfield, for instance.

W. GOLDRING.

SEASONABLE WORK.

FLORAL DECORATIONS.

J. HUDSON, GUNNERSBURY HOUSE.

HAVING been favoured with such mild weather for the time of year and an unusual absence of white frosts, we have been able up to the present time to get a good supply of bloom from single Dahlias, *Anemone japonica*, late Hybrid Perpetual Roses, East Lothian, scarlet, purple, and white Stocks, White Lady Heliotrope, and *Begonia ascotensis*, all of which are still in flower in open borders. Sprays of the Lemon-scented Verbena (*Aloysia citriodora*) have also been useful, being ever welcome for the sake of their perfume. We recently took the opportunity of a bright sunny day to secure all the perfect flowers and even the undeveloped ones of the *Helichrys*ums, catching them for once when they were just at their best. These will all come into use for various purposes, along with dried Grasses previously secured. *Jasminum nudiflorum* is thus early opening some of its flowers, and expanded trusses may be found on the *Laurustinus*, so that even yet for a few weeks out-door flowers can be had by those who do not rely on an indoor supply. Violets also are flowering freely in places, though with us they have scarcely yet opened a flower. Of indoor flowers we are now deriving an abundant supply from a pitful of *Bouvardias* grown in the open soil; these are flowering splendidly, and prove valuable for button-hole bouquets and specimen glasses. Our most useful sorts are B. Hogarthi, Vreelandi, and umbellata carnea. Sweet-scented kinds, as B. Humboldti corymbiflora, are not approved of here; therefore scarcely any of them are grown. For other specimen glasses we have had a good supply of *Dipladenias* and *Eucharis* up to the present time, and occasional trusses of *Ixora* have been useful for the same purposes. So likewise have the yellow and white Paris Daisies, the former in particular. Sprays of the winter flowering *Epacris* in various shades of colour are also very serviceable; from the beginning of this month on throughout the winter we shall have them in abundance, and very valuable they are for almost all kinds of arrangements. With us *Chrysanthemums* of all sections are backward, but, considering the season, this is fortunate. Later on we shall, no doubt, be glad of them. *Davallia bullata* still proves to be one of the best Ferns in a cut state, excepting only the Maiden-hair (*Adiantum cuneatum*). We now use the former rather freely, as the whole of the fronds will soon die off, and the plants go to rest for the winter. Leaves of several kinds of Grape Vine are excellent now for the dessert; the brilliant tints in many of the late kinds especially cause these to be valuable between now and Christmas. In dishing up some fruit lately we used sprays of the Virginian Creeper in the case of some tall dishes of nearly white china, entwined around the stems of which they were very effective. Coloured foliage, in fact, is now plentiful everywhere, and may be advantageously used in many ways.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Rose garden.—If Roses be planted at this early season, they will next year flower just as freely as old-established plants. In our light soil we find it advantageous to lift all the plants every alternate year. They are heeled in for a couple of days or so till the beds are deeply trenched and manured with well-rotted stable manure. The soil is then well firmed by treading, and the plants at once put in, the roots having previously been examined as to the removal of useless portions, suckers, &c. They are at once staked, tied, and well mulched with Cocoa fibre for the winter. In strong, loamy soils (the best description for Roses) the treading must of course be dispensed with, except just as much as is needed when planting to keep each one in position and to ensure the soil being in close contact with the roots. I have observed that Roses moved thus early are not nearly so liable to injury from severe weather as are those not moved, the reason doubtless being that the check assists perfect maturity of the wood, the frost having the worst effect on plants full of sap. There is one drawback to this early transplanting, and that is the sacrificing of numbers of flowers which by reason of the protracted summer are this season more than usually abundant; still, it is better that this should be than to risk even the slightest failure at the proper Rose season.

Shrubberies.—Till the leaves have all fallen not much can be done in the way of clearing out of shrubby clumps and plantations, but meanwhile any replanting or thinning out should have attention, and this will lighten the labour when a general clear up and mulching of those that have been lately transplanted has to be done, which should take place as soon as all danger of further litter from leaves, &c., has passed. As a rule shrubberies do not receive that amount of cultural attention which in all cases they well deserve, Couch, Nettles, Docks, Brambles, and the like too frequently holding sway amongst them; and it is only with a view to the extirpation and prevention of these weeds getting the upper hand that I would advise that the clumps be forked over annually. I am aware that this is an operation condemned by many on the ground of injury to the roots, but this I think is more fancied than real; at any rate of two evils one should always choose the lesser, and this I think would be forking over the beds, not to mention the increased neatness that is thereby assured. Push along with the preparation of ground that has to be planted this winter; plenty of drain-pipes and a free outlet in low-lying situations are the first essentials of success. In such positions it is also a good plan to raise the soil well above the general ground level, but if such raising be considered objectionable, it is not really necessary so long as the drainage at bottom is effectively done.

General work.—There is now, and will be for some time to come, plenty of sweeping and raking up of leaves and rolling to remove worm casts—heartless work, certainly, but in the interest of neatness and of satisfaction to all concerned it should be done regularly. Walks that need re-gravelling or fresh surfacing can also now be done, and all should be freed of weeds and well rolled down now that there has been abundance of rain to admit of the roller having full effect on them. Uneven parts of the lawn should now be levelled, and any that need returfing be done at the first convenience; in fact, alterations of every kind should, whilst the weather continues so open, be proceeded with as expeditiously as possible.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Conservatory.—There is considerable difference in what can be done in structures that come under this denomination on account of the difference in the temperature kept up. Where the principal occupants are such as only require, or will well bear, a temperature similar to that of an

ordinary greenhouse, anything that needs more heat cannot at this season be accommodated. The early flowering Chrysanthemums, of which there are several that bloom well through October; early blooming Salvias, of which *S. Bethellii* is one of the most distinct and freest flowerers; early varieties of *Epacris*, *Veronicas*, *Witsenia corymbosa*, *Primulas*, *Lasiandras*, *Heliotropes*, *Croweas*, and *Cyclamens* will be the principal things to be depended upon, along with a selection of light and dark coloured zonal *Pelargoniums*, which if well managed are much more useful at this season than in the spring and summer, when their presence in large numbers often gives insufficient room for enough variety. In the way of roof-climbers there is not much in bloom at this season; but where there is a good plant of *Habrothamnus elegans*, and the beautiful *Mandevilla suaveolens* with red and white *Lapagerias*, these four will give a cheerful appearance to the structure. Such roof-climbers as are not in flower, and have at all extended so as to shade the general occupants of the house, should be well cut in, using judgment in the work, for if the shoots of all are indiscriminately shortened, the result is that a good many never bloom satisfactorily. In place of this it is much better with all plants that flower from the ripened previous season's growth to thin out and cut away completely such a number of the shoots as will bring the plants within reasonable compass.

Roses.—With the greatly increased demand for cut flowers that in recent times has taken place, and which in most establishments, small as well as large, is ever on the increase, a continuous supply of Roses with many is considered essential. December, January, and February are the months in which there is the most difficulty in meeting a regular demand, and unless a sufficient quantity of plants well established in pots are at hand, there is not much chance of keeping up a supply. The old method of dealing with pot Roses by taking them from the open ground and potting them in autumn, and afterwards bringing them on to flower in heat, is wholly insufficient, as plants so treated have little, if any, root action going on to precede and sustain the top growth brought into existence by forcing, the result being that the plants, unless allowed to come on very slowly, produce a meagre bloom, alike uncertain in its quantity and in the time the flowers open, very different from the dependence that can be placed on plants that have been grown for, say, two or three years in pots. As I have before urged, the Tea varieties are the only section that can be relied upon to produce flowers during the later and earliest months of the year. To have the blooms possessing anything like the size and quality which the London market growers have them, the growth which produces them must be made under glass. Plants that after flowering in spring were turned out in the open air and allowed to remain up to the present or a recent time will, if well attended to, be furnished with numbers of flower-buds, which will soon open when the plants are taken in and submitted to a little warmth, but such flowers will be much inferior in every way to those that are produced by shoots that have, as I have already said, been made under glass. Nevertheless, where fully developed flowers cannot be had they will be useful, and every means should be taken to insure a healthy condition in the plants by seeing that they are quite clear from aphides and red spider, and by keeping them in a house or pit with their heads near the roof, so that they may get plenty of light. Those who have not had much to do with Rose growing in winter frequently come to the conclusion that syringing overhead in the winter season is unnecessary or injurious; but this is by no means correct, for to keep them clean they should be syringed once a day, in all cases getting the water well to the undersides of the leaves; the simple upper surface sprinkling of the foliage, often all that is given, is wholly insufficient to keep down red spider. At this season it is necessary to be careful not to get the soil in the pots too moist, as should this occur the young

roots are sure to suffer; and it is well for young hands at Rose forcing to realise the fact that without the free and continuous formation of roots the growth will be weak and puny, and the flowers it bears proportionately deficient in size and character; this particularly holds good with the Tea varieties, the nature of which, even when out-of-doors, is to be never wholly at rest except when completely frost-bound. With plants that have been thus taken in from the open air the object of the cultivator ought to be to encourage free, healthy growth to give a succession of flower after the buds already existent have opened, and which, if the plants are strong and vigorous and well managed, will be superior to that resulting from these outdoor formed buds. Where plants were put under glass about the beginning of September, a sufficient additional number should now be removed from cold pits, or wherever they have been placed for shelter, into the structure in which they are to bloom. The temperature should now be kept at from 50° to 55° in the night, standing the favourite white *Niphetos* at the warmest end, as it requires more heat than the other kinds. Mildew is not so likely to make its appearance in the winter season as during spring and summer; still, even now if cold draughts are allowed to come on the plants the young growth is sure to be affected with it. For this reason avoid all side air, but give a little at the roof ventilators every mild day, especially when it happens to be sunny, yet if the temperature rises with sun to 70° or above it will do no harm. It is a mistake to use too many kinds for indoor culture, either in pots or planted out, as there are a few which bloom so much freer when forced than the generality of others, that it is better for ordinary purposes to confine the cultivation to such. The following may be relied upon: *Niphetos*, white; *Safrano*, apricot; *Mme. Willermoz*, white; *Mme. Falcot*, apricot - yellow; *Catherine Mermet*, rose; *Isabella Sprunt*, pale yellow; *Goubault*, bright rose; *Gloire de Dijon*, straw colour. If there are not already at hand in pots a sufficient stock of the Hybrid Perpetual varieties to add to the above for spring blooming, these should be at once obtained and potted. General *Jacqueminot*, red, has hitherto been the best for early work, to which may be added *Baroness Rothschild*, blush; *Duke of Edinburgh*, crimson-scarlet; *Annie Wood*, red; *Edouard Morren*, cherry colour; *Marchioness of Exeter*, rose; *Madame Lacharme*, blush white; *La France*, peach; *Captain Christy*, flesh colour; *Anna Alexieff*, rose; *Alfred Colomb*, red; and *Dr. Andry*, dark red.

Lilies.—No further time should be lost in going over the latest flowered Lilies grown in pots, dividing them where too many bulbs are together, and removing the small stem-formed little bulbs, which such kinds as the *speciosum* section produce freely on the stems above the principal bulbs. These, if not annually removed, directly crowd and impoverish the soil so much that the whole becomes enfeebled; they may either be put a few together in pots proportionate to their size, or if the natural soil of the locality is suitable for the growth of Lilies, they can be planted out in the open ground. This, as a matter of course, applies to sorts that are plentiful. With scarce varieties it will be much better to keep them in pots, as under such conditions, if properly treated, they are more likely to go on satisfactorily and increase. Plants of *auratum* and others that bloomed early in the summer, and were some time since potted, should have attention from time to time to see that the soil does not get too dry, as the young roots they have will not progress without enough moisture is present. There is no Lily so useful for general conservatory and greenhouse decoration as *L. eximium*, where the true variety is at hand, for the reason that it forces freely; if not already potted, no time should be lost in getting the plants in. As soon as the potting is completed all the kinds should be placed out of the reach of frost, avoiding putting them under plant stages, or anywhere where they are likely to receive drip by the

water running from other plants above them, keeping the soil through the winter in a slightly moist condition, beyond which they require no further attention until the shoots are about to make their appearance through the soil.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Pines.—By this time the first batch of Queens will have completed their growth, and, the pots being well filled with roots, the next two months may be devoted to a state of comparative rest, to insure their throwing up fruit early in the new year. If the fruiting department is divided into sections, and a few of the most promising plants have been placed together, let the bottom-heat gradually subside to about 75°, and keep the pots well plunged to prevent the surface roots from becoming too cold. Let the temperature of the house range from 65° at night to 75° by day; ventilate at that point, and close before the heat falls below it. The second and main batch of plants, which will include Smooth Cayennes and Rothschilds, may be kept in a somewhat higher temperature, as they will make a growth before they start in the spring, and in order to prevent a decided check, an occasional watering will be necessary, but great care and judgment in this matter will be needed, as close structures, in which the fermenting material contains more or less moisture, rarely become too dry in winter. Plants which have recently thrown up fruit should have the benefit of a light part of the fruiting house, where they can have a good bottom-heat, with a moderate supply of atmospheric moisture of a stimulating nature, as overhead syringing must now be reduced to a minimum, if not entirely discontinued. Where the best of all winter Pines, the true Black Jamaica, is still grown, a high and dry temperature will be needful to bring out its full quality and flavour. It requires a very small pot, and takes up less room than a Queen, but, having a tendency to run to crown, the fruit should be kept well up to the glass. If wanted to keep for any length of time, the plants should be moved bodily to a dry warm pit as soon as the fruit begins to change for ripening, and when quite ripe the Pines may be cut and suspended in a cool Muscat house or Grape room.

Vines.—The late excessive fall of rain having permeated every part of the external borders, some kind of covering should now be placed over the main roots of Muscats, Lady Downes, and other late kinds intended for winter use or bottling. By this time the former will have attained perfection and the latter will be sufficiently advanced to admit of a general lowering of the temperature to about 55° at night and a few degrees higher by day, when gentle fire-heat is needed to keep the atmosphere of the houses dry and favourable to the ripening of the foliage. Houses in which the remains of the crop of late summer Grapes are still hanging may now be cleared with advantage, as the bunches will keep quite as well, if not better, in the Grape room. The Vines can then be divested of all lateral growths and subjected to a course of dry fire-heat to insure the perfect maturation of the wood.

Prune successional houses as soon as the leaves fall, and take advantage of wet days for cleansing the canes; also wash or paint the internal wood-work and ventilate freely if, as is too often the case, they are not wanted for plants. If the earliest house was pruned at the end of September and shutting up in November is contemplated, a course of gradual watering will now be needful to bring the internal borders into a satisfactory state before the Vines are excited by the application of artificial heat. Pot Vines which were shortened back about the same time may also be watered, top-dressed, and placed in position, and as these do not always break so kindly as old Vines which have been forced for a number of years, it will be well to tie down the points before the terminal buds begin to swell. Remove planting canes to the shelter of a wall, place pieces of tile under the pots to keep out worms, and cover up with spent tan or Fern to protect the roots from frost.

Peaches.—A continuance of unusually mild weather will hold out strong inducements to keep the roof lights off the houses for some time longer, and the heavy rains we have recently had will have set at rest all doubts as to the thorough moistening of every part of the internal borders. The time, however, is near at hand for getting the annual washing, dressing, and tying done in the early house, and as nothing succeeds like success, a good start with everything scrupulously clean and free from insects is a matter of very great importance. Assuming that the trees were pruned immediately after the fruit was gathered, a light run over by an experienced hand to make good all defective cuts, and to shorten back where extension is likely to derange the balance, is an operation which must precede the washing and dressing; and as the latter often does more harm than good, I now prefer washing all the growths of the current year twice over, and dressing the older shoots and branches only with a strong solution of Gishurst Compound, clay, and soot to give it body and colour. It is a very common mistake to lay in the young wood a great deal too thick, and so defeat the object every Peach grower has in view—the production of a full crop of fine luscious fruits and a relay of hard brown wood for the succeeding year. It, no doubt, requires a strong effort to cut away fine growths thickly studded with bright silvery buds; but if first quality fruit is the object, every fruit bearing shoot must have a space of 6 inches or more; and as one good Peach to every square foot of trellis covered with foliage forms a heavy crop, two shoots to every foot will be found quite sufficient. There are, of course, Peaches and Peaches; but if they are to be grown so fine that judges and censors do not know varieties older than themselves, the cultivator must extend his trees rapidly and thin freely.

Grape room.—As the time is now at hand for turning this useful room to account, steps should at once be taken to get it thoroughly cleansed and ventilated. If I may judge others by my own standard, it is by no means improbable that the bottles remain as they were left last spring; if so, they must be taken out and emptied, well washed, refilled with pure soft water, and returned to the racks before the floor is cleaned. When this has been done a course of steady firing, with ventilation on fine days to drive or draw every particle of moisture out of the walls and floor, will form a very important item in the successful management of bottled Grapes. In a preceding paper I have stated that the remnants of crops of autumn Grapes may be taken to the Grape room; but unless the room is properly prepared, no amount of care will prevent thin-skinned kinds from going mouldy as fast as they are taken in, when the system, instead of the management, will be blamed. It often happens that a single Vine of Gros Colmar is the last in a house to be cleared, and the stems of the bunches being thick and fleshy, they are the first to go when placed in water; but if suspended in the driest and warmest part of the room, immediately over the hot-water pipes, this fine Grape may be kept till March, and the quality of the berries will improve daily. Opinions vary as to the best time for cutting the general crop of winter Grapes. I generally cut my Lady Downes the first week in January, and have kept them until the end of June. The great secret of success is perfect colour and ripeness of the fruit and complete rest, or the nearest approach to it, on the Vines at the time the Grapes are cut.

KITCHEN GARDEN.

R. GILBERT, BURGHEY.

WE are busy just now laying in Broccoli. The weather is so mild, and the Broccoli is growing so fast, that I am afraid of frost catching me napping. Beginning with Snow's, we take them clean up, lifting them with balls of earth. This lifting, although incurring a good deal of work, is well repaid. If the winter should be a sharp one, we lift one half of Snow's and cover the other half with Bracken, thus lengthening the season of

these useful vegetables. Speaking of Broccoli, this autumn has been an excellent one for their growth; we are cutting grand specimens of Walcheren, and just coming in we have Veitch's varieties in fine form. Winter Onions, now growing rapidly, should be planted out to check growth; all kinds of vegetables to stand the winter in such seasons as these should be checked. The young growth is so tender, that frost cripples them at once. The time is fast approaching for getting early Potatoes well and steadily started. Good strong green shoots have much to do with success; therefore put in the first lot for that purpose. The plants in our first house of Cucumbers are now about 1 ft. high; they are planted on mounds of earth and leaf-soil. Keep the house sweet and clean, and the thermometer at 65° in the evening, letting it run up with the sun from 10° to 15° before air is admitted. The first lot of French Beans is nearly ready for picking in 3-ft. boxes. Get in another sowing for successional gatherings.

PLANTS IN FLOWER.

AUTUMN AURICULAS.—Owing to the mild and moist weather, the border Auriculas have this autumn bloomed as profusely as they do in spring-time. They have been excited into growth so much, that I fear they will suffer if we should have a severe winter like that of 1880-1. Of Auriculas cultivated in pots about 8 per cent. have also bloomed this autumn.—J. T. Poë, *Riverston*.

FINELY FLOWERED LAPAGERIA.—A fine example of *Lapageria rosea* is sent to us by Mr. G. Kemp from Mrs. Sykes' garden at Edgeley House, Stockport. The branch carries 15 flowers on a length of 14 in., a beautiful floral wreath. Mr. Kemp says that the plant habitually bears a large number of flowers, but that this year they are somewhat smaller than usual, a result probably due to over-productiveness. Can it be that there are free flowering and shy flowering forms of *Lapageria*?

LIATRIS PYCNOSTACHYA.—Colonel Stuart Wortley sends us a flower-spike of this showy plant, and states that it has been for some time, and still is, a great ornament to his garden. Its singularly rich colour and its erect and very handsome habit of growth make it a conspicuous object; it is quite hardy. "Along with it," says Colonel Wortley, "I send what I consider one of the handsomest and freest flowering Asters, *A. grandiflorus*, a plant of which I owe to the kind courtesy of Herr Max Leichtlin."

STACHYS COCCINEA.—This is, we think, the only species of *Stachys* that can really be termed a garden plant, and it is doubly valuable, as it flowers so continuously and so late in the autumn when few of its family are in bloom. At Kew we have observed it in flower for these past six weeks. It is not showy, but the flowers are of a peculiar kind of red or rather scarlet, which renders the plant quite distinct from any other hardy Labiate. It is of tufted growth and bears numerous spikes rising above the foliage. It is a hardy perennial, and will grow in almost any soil.

CELSIA ARCTURUS.—I send you blooms of this plant, which was enquired about in the article on *C. cretica* (p. 314). I have grown it for some years, and found it very desirable for the greenhouse. It is easily raised from seed, and this year I have distributed it to several friends. It is in blossom almost the whole year round, and brightens up a house nicely in the winter months.—JOHN T. Poë, *Riverston, Nenagh*. [A pretty plant, with tall, slender flower-stems, carrying a profusion of loosely-arranged, very bright yellow blossoms, much resembling those of the Mullein (*Verbascum nigrum*).

CLEMATIS FLAMMULA AND VITALBA.—We have seldom seen a more pleasing bit of autumn beauty in gardens than these two Clematises, intermingled and forming a dense canopy over the porch of the gardener's cottage at Grasmere, Byfleet. *C. Flammula* has been for some weeks past a sheet of white, so floriferous is it, and the

Traveller's Joy is covered with feathery seed, which, with the blossom of the other, makes a charming picture. These two Clematises were planted intentionally by Mr. Stevens some years ago, and they have luxuriated together ever since, and yearly render the cottage attractive for half the year, for the Traveller's Joy flowers early in the summer. For covering entrance lodges, cottages, and the like there are few twiners that are more satisfactory than these; they are very hardy and rapid in growth.

AMICIA ZYGOMERIS.—Of this Mexican plant of the Pea family Mr. Kingsmill sends us a spray of flowers from his open-air garden at Eastcott, Pinner. The flowers are as large as those of the Sweet Pea, yellow, with a conspicuous blotch of reddish brown on the keel petals. The pinnate foliage, too, is handsome. In the southern counties, Sussex, for instance, it is quite hardy if planted at the foot of a sheltered wall. Mr. Kingsmill also sends flowers of *Tropæolum tuberosum*, which grows so finely with him.

VARIETIES OF CALLUNA VULGARIS.—In the collection of Ericaceæ at Kew, two varieties of Heaths are notable from the fact of their being in flower when all the others there represented are past. They are Serli, a medium-growing kind of free, but somewhat spreading habit, the flowers of which are pure white in colour; and Alporti, of an upright, bushy growth, and rosy purple flowers. Among the many varieties there are several quite as handsome when in flower, but the great recommendation of these two is that in them the season of flowering is prolonged as far as possible.—H. P.

FLOWERS FROM HULL.—I send you flowers of Saxifraga Fortunei from the rockery here. It is a gem, the elongation of the lower petal giving to the flower an appearance not unlike that of an Orchid. I also send a flower of Senecio pulcher, a beautiful Composite, which looks uncommonly well in the herbaceous border just now; *Celsia glandulosa*, which I fancy is somewhat rare, is bearing several spikes covered with seed vessels. I hope to succeed in saving seed.—**PHILIP MACMAHON, Botanic Garden, Hull.** [Very fine examples both of the Saxifrage and Groundsel, which latter has six flowers on one spike.]

GLOXINIA MACULATA.—Of this handsome old species Mr. Moore sends us flowers from Glasnevin Botanic Gardens to show what a fine plant it is for flowering in autumn and winter. It is quite distinct from the ordinary Gloxinia of the stove, as it is a tall grower, having a stout herbaceous stem from 1 ft. to even 3 ft. high. The leaves are broadly heart-shaped and clothe the erect stem, which is terminated by a raceme of large, delicate mauve blossoms almost as big as those of a common Gloxinia. Such a beautiful and easily grown plant as this deserves to be rescued from the neglect into which it has fallen.

LUPINUS SUBCARNOSUS.—In No. 4 greenhouse at Kew there is a potful of this plant, which has a very pleasing effect among its many-hued associates, the colour (a beautiful pale blue) being almost wanting among indoor flowering plants at this season, unless Lobelia be so employed. This Lupine forms a mass in a 5-in. pot about 1 ft. high, and bears several spikes of blossoms, and from the date on the label would appear to have been sown three or four months since, in which case, as the seeds were apparently sown in their flowering pots, it gives but little trouble, and in a short time repays it by the production of flowers.—H. P.

ABUTILON INSIGNE is one of the most noteworthy of the stove plants now in flower at Chiswick, where, in one of the houses—a warm greenhouse—there is a large, wide-spreading plant of it trained under the roof, and profusely furnished at the present time with its drooping, bell-like blossoms. The colour is not very bright, being a deep crimson with darker veins, but the elegance of the flowers on slender stalks makes it a very desirable plant for cutting. A few flowers dropped loosely in small vases, so that they can hang over the rims,

mixed with a few fronds of Maiden-hair Fern, have an extremely pretty effect. The Chiswick specimen is planted out in free soil, which apparently is just the treatment it requires, for the plant is in vigorous health and yields an almost perpetual crop of bloom. The same plant was figured in THE GARDEN some time ago under its other name, A. igneum.

TAGETES PARRYI.—We saw lately a large specimen of this new North American plant at Mr. Stevens' garden at Byfleet, and we thought it a very elegant plant on account of its light, airy look, which is cut up finely, and of a rich deep green. The plant is of spreading growth, and the foliage is dense; the whole surface of the bush is studded with bright golden heads of bloom, which has a pretty effect, especially in late autumn when flowers are scarce. The plant's one detractive point is its powerful odour, which is stronger even than that of French Marigolds, but it is only detected when the plant is touched. Though not of the "first water," we should be inclined to give it a place in a garden.

SALVIA BETHELI is now in great beauty at the Royal Horticultural Gardens, Chiswick—one of the features of the place. Mr. Barron grows it largely, well knowing its worth for autumn and winter flowering. Without exception it is the most beautiful Salvia in cultivation; no other possesses flowers with such a rich rosy purple colour, and borne so plentifully even on small plants. It is doubtless a variety of *S. involucrata*, from which it differs in having larger flower-spikes of deeper colour. It is as easy to grow as any of the Salvias, and from the end of September till well-nigh throughout the winter it continues to bloom. Other Salvias in bloom at Chiswick include *S. ianthina*, a deep purple-flowered species, and *Hoveyi*, a variety of it; *S. caccaliifolia*, a blue kind, not to be recommended for general culture; and the singular *S. Mons. Issanchou*, apparently a variety of splendens, with the flower bracts and calices variegated scarlet and white.

HARDY FLOWERS FROM GOSPORT.—After a terrific gale that has nearly divested trees of their leaves, and brought tender flowers out of doors to a close for the season, I send some Pansy blooms to show that, although they were amongst the first flowers to cheer us in spring, they are also the last to leave us in autumn; in fact, they have flowered continuously the whole season. I also send blooms of the old crimson Clove Carnation, truly one of our finest garden flowers, and even now sending up spikes of bloom-buds that ought to entitle this Carnation to a place amongst perpetual flowering plants. I find Clove Carnations to luxuriate in this light, thoroughly drained soil, many of our old clumps being a yard across, and they send up some scores of spikes at a time. If planted as freely as many bedding plants are, there would be something in flower borders worth attention. The white-fringed blooms of Carnations I send to show how bravely they, too, have withstood the gale without sticks or ties.—**JAMES GROOM, Seafield Nursery, Gosport.**

FUCHSIAS IN OCTOBER.—Fuchsias are just now one of the principal sights in the large conservatory at Marlfield. Looking at the glorious specimens here, 10 ft. high, the produce of two or at the most three years' growth, and clothed with variously coloured pendulous blooms from the top downwards, so as even to hide the pots, one feels inclined to wish that no greenhouse, conservatory, or even window should be without them. Here plants are formed by striking cuttings of any variety it is desired to increase in spring, repotting occasionally and fully exposing them outdoors during summer without any training, and in the case of most varieties, a fine pyramid 6 ft. high, a mass of bloom, can be had now and for some time to come. Of dark doubles, one of the oldest and best is *Avalanche* (Henderson), a kind with showy yellow-tinted foliage. This requires no training, and does best when fully exposed, with the pot buried in coal ashes during the summer, and I may digress to commend this system of treatment for general purposes. The bell is somewhat smaller than

that of Bland's Champion of the World, but of the three I prefer Lemoine's *Alphonse Daudet*. There is a charming brilliancy around the margin of the purple velvety corolla, and the blooms are of great substance. Of white double corollas the most floriferous with which I am acquainted is *Elizabeth Marshall* (Simmonds), but it is dwarfier in habit than that other fine introduction of the same raiser, *Lucy Finnis*. These do best if allowed to grow after their own wild will. One of the newest with peculiar mauve corolla is *Miss Lizzie Vidler*. Marlfield is, however, peculiarly rich in good, well trained single Fuchsias, particularly the light coloured class. There are some really fine plants of *Arabella*, *Covent Garden Gem*, and several of *Lye's free growers*, so nearly resembling each other as to be mentioned together. Bank's *Marginata* and *Green's Annie* may be included in the same category. To these I would add Bank's *Swanley Gem*, except that the corolla is softly tinted rose. As I only noted very few, I may conclude with dark singles. One of the oldest and still one of the best is Bank's *Try-me-O*, and this I would bracket with the same raiser's darker variety, *Model*. A strong grower in this way is Bland's *Resplendent* and *Williams' Symmetry*; both have the peculiarity of changing the tints of the corolla after opening and exposure to the air. There are some newer introductions, but it is doubtful if they will excel the old, and the Hon. Mrs. Bagwell does not part with a good old variety in a hurry.—**W. J. M., Clonmel.**

BEGONIA ASCOTENSIS.—At the Royal Horticultural Gardens this handsome Begonia is much used for planting in the open border in summer, and for this purpose it is one of the best of the Begonias. In autumn, the plants which have grown into bushy specimens are lifted and potted and placed in a greenhouse for winter flowering. In one of the houses at Chiswick there is a large number of plants thus treated, and they are set with a profusion of flower-buds, which will enliven the dull winter months and continue till spring. In the same house is a similar large number of *B. insignis*, one of the best for blooming in winter, being showy in bloom and elegant in growth. For some time past the old *B. Martiana*, which is grown uncommonly well here, has yielded a profusion of its large clear rose-pink blossoms; it is still in bloom, and promises to be so for some time yet to come. Why is it that such a beautiful plant as this is not grown in private gardens? It is easy as regards culture, growing freely and flowering abundantly in any ordinary greenhouse, and for attractiveness it will compare favourably even with the tuberous-rooted sorts. These three Begonias are not half enough known, or they would be oftener met with.

FLOWERS FROM NORTH WALES.—Mr. Roberts has sent us from Tan-y-Bwlch a few flowers, all from the open air. Amongst them is a bunch of what he considers the best Violet which we yet possess for general purposes, viz., *Marie Louise*. It is very sweet, and nearly always in bloom. Along with it also came Carnations, mostly seedlings, that have supplied abundance of cut blooms since June, and that have every appearance of affording several more pickings; the top of a spike of *Lilium auratum*, stated to have been nearly 8 ft. high, and to have been produced by a plant growing in a *Rhododendron* bed; likewise *Gladioli*, still in good bloom, from a similar situation, where they thrive undisturbed; also *Fuchsia Riccartoni*, *gracilis*, and *globosa*, and other varieties generally grown in pots, but which flower freely in the open ground in Wales, and withstand its ordinary winters. Associated with these are also a few *Hydrangea* blooms, some pink, others blue, and some with both colours on the same plants. Mr. Roberts is of opinion that change of colour in the *Hydrangea* is not due to soil, for he has two plants touching one another, in exactly the same kind of soil, bearing pink and blue blooms respectively. Cuttings taken from both, he says, invariably produce pink blooms the first year, but beyond that he cannot be positive, as they are afterwards mixed and planted about anywhere. Has any of our cor-

respondents, he enquires, obtained satisfactory results from planting the Thomas Hogg Hydrangea in the open ground? With him it has proved most disappointing, the white being anything but pure.

FUCHSIAS FROM PENDELL COURT.—From Sir George Macleay's garden Mr. Green sends us no fewer than thirteen distinct species of Fuchsia—another instance of the richness of the Pendell Court plant collection. The list includes *Fuchsia macrostemma*, *lycioides*, *splendens*, *cordifolia*, *fulgens*, *dependens*, *serratifolia*, *gracilis*, *coccinea*, *thymifolia*, *microphylla*, *arborea*, and *globosa*. In his note accompanying them Mr. Green says, *F. arborea*, planted in a good border in a temperate house, makes a fine plant. It is now flowering freely here in this way; the plant is 10 ft. in height, 6 ft. in diameter, and is a standard with a stem 5 ft. in height. Had it been in the open garden people might have mistaken it for a large Lilac bush. *F. cordifolia* and *F. splendens* by many are confounded, but when seen together they are very different. *F. cordifolia* has smooth leaves, while they are the reverse in *F. splendens*; the latter also has much shorter flowers; *F. microphylla* and *F. thymifolia* are also often thought to be identical. *F. microphylla* produces shining, globular black fruit in abundance, and this *F. thymifolia* seldom does, though the two are very similar. I have now about thirty species of Fuchsia and should be glad to exchange with anyone who may wish to do so. *F. spectabilis* and *F. nigricans* I should be glad to meet with.

KITCHEN GARDEN.

MUSHROOMS IN CELLARS.

SINCE the end of last November we have had a constant supply of this esculent from the disused cellars of an old mansion, once the residence of the Princess Amelia, and from another cellar in which Potatoes and other roots are stored in winter. We find them to do well in both these places during all seasons of the year, with one exception, viz., when severe frosts set in; then the temperature declines somewhat too low for us to obtain them in good condition, consequent on the longer time required for their growth. Last winter, being so mild, was greatly in our favour. We were, therefore, able to keep up the supply as just stated, and that always with Mushrooms of good quality. Our practice is to make up a bed as soon as the one previously made begins to show signs of bearing. Two months is about the time on an average for one bed to continue in good condition. Under this method of culture six beds have been just about sufficient to supply us for twelve months. In making these beds we follow the usual course of preparation, which it is needless for me to recapitulate. The surroundings being somewhat damp, and therefore rather chilly, cause the heat of the beds often to decline too rapidly; to obviate this we cover them when necessary with some fresh long litter, which tends to keep the warmth steadier.

Other uses of cellars.—In the same cellars we forced nearly all our Seakale last season, and contemplate starting the first of this year's lot in them in a week or so. By this means we save a good deal of labour and material compared with the old system followed in the open ground. Rather longer time has to be allowed, as no exciting temperature is maintained by artificial means, but the growth made is all that could be desired, stout and solid and of good table length and quality. We also find these cellars excellent places for keeping ripe fruit during hot summer weather. Choice cut flowers, such as *Eucharis* and *Gardenias* and Fern fronds also keep fresh in them for several days when it is found necessary to preserve any not immediately required for use. Vases of flowers, too, that have been arranged early in the morning with the dew upon them keep quite fresh till required late in the day. This in times of very hot weather we find to be a great aid; when

flowers cut during the heat of the day quickly lose their freshness, these come out bright and beautiful and with the moisture still upon them. Those who, like myself, have such cellars at hand will do well to turn them to account for any or all of the purposes just enumerated. If I were arranging a new place, I should most certainly include underground accommodation in proportion to the requirements of the household.

Gunnelsbury House.

J. HUDSON.

PEAS IN 1882.

THESE are now well-nigh over for this year. We have still a few *Ne Plus Ultra*, but the nights are now so long and cold that later pods and blooms are at a standstill. New kinds are sometimes introduced as being the earliest or latest in cultivation, but there is no variety that will fill well and bear a succession of useful pods in November, and therefore the Pea season may be said to be closed. A few remarks on it may be interesting. Altogether this has been a grand Pea year. The spring was favourable to the earliest crops, the summer was not too hot or dry for the mid-season ones, and the autumn has been conducive to late bearing and heavy crops. In moderately wet and damp seasons Peas are more profitable than in excessively dry, hot years. In the former they give a long succession of produce, but in the latter they are very quickly over. This, however, it may be stated, depends a good deal on culture. In shallow, poor soils a long succession of sweet, juicy Peas need not be expected from any variety in warm weather, and even in a cool, moist season Peas under such conditions are never very satisfactory. In light soils they should always be grown in well manured shallow trenches. In heavy soils this plan has also many advantages in a very dry season, but preparing for this when it does not happen is a mistake. At one time we thought to have some very good Peas on a heavy soil, and, fearing a hot season, we made trenches for the reception of the seed. There were quantities of manure and good fresh soil put in the bottom, and the seed was sown in good order; but a long period of wet followed, and the result was that almost every seed decayed before it germinated, and the few which managed to do so were never robust. This is one evil which may follow trench culture, but only on heavy land. In light soils with a gravelly subsoil we would have no hesitation in following the trench system throughout. Mulching Peas with sappy manure in hot weather is an excellent plan, but it often fails to do the good of which it is capable, through not being applied in time. After the crop has been half gathered, and when it is seen that the remainder is not going to fill well or ripen off too quickly, a mulching is put round them, but it is then too late; just when the first blooms are opening is a suitable time to mulch, and even before this should the weather prove that mulching is wanted. Sowing seed thickly is a practice never to be encouraged unless under very exceptional circumstances. Putting the seed in in such a way that the Peas touch one another is a great waste of seed; the heaviest crops and the finest pods are secured by thin sowing. These remarks do not apply to Peas in 1882 particularly, but putting them into practice has been productive of good in the past and is sure to be so in the future.

Varieties for another year.—Of very early Peas, William I. and Laxton's Earliest of All can be very highly spoken of. They are free growers, sure podders, prolific, and well flavoured. Advancer may be recommended to follow these, and then we come to Culverwell's large podded varieties; of these Telegraph and Telephone are now standard sorts grown by everybody. They are two grand Peas. The colour of the pods is the only difference between them outwardly, Telephone being pale green and wrinkled, and Telegraph dark green and smooth. It is well known that wrinkled Peas are more liable to decay in the soil than round smooth ones, and on this account the latter may always be sown with safety earlier in the season

than the former. We would sow Telegraph in January, February, and March, but Telephone should be kept in the bag until April and onwards. But of Culverwell's breed we have more to say. Giant Marrow is a later production than either of the two just named, and there is another not yet in commerce which will occupy a foremost place among summer Peas. If ever Telephone and Telegraph are supplanted, it is these two which will do it. They are larger in the pods, if anything more prolific, excellent as regards constitution—in fact, thorough mildew-resisters, and in flavour they are second to none. They are a grand brace.

The good old marrow Peas are sometimes spoken of, but they cannot be compared with the new sorts. This year we were induced to try one of the old sorts (Woodford Marrow), and it was most disappointing; the pods were very small, and the Peas dry and flavourless. Champion of England and Veitch's Perfection are two of the best of the old Peas. British Queen has not much to recommend it. *Ne Plus Ultra* and Laxton's Omega are unequalled for late crops. Day's Sunrise, quite a new one, blooms and pods very early and late, but it does not fill well enough to please us. Electric Light is a Pea of the highest promise; it is wonderfully prolific. The pods are narrow, fill well, and are excellent in flavour. In many things size and quality are not linked together, but both may be found hand-in-hand in most of the large-podded Peas. J. MUIR.

Seaweed & slugs.—There can be no doubt that seaweed is a valuable manure, and if horticulturists were but fully alive to its good qualities, little of it would be allowed to be wasted. Land on the south coast is almost invariably affected by a plague of slugs, grubs, and worms, and the more that farmyard manure is applied the more they multiply. And although lime and other applications act both as a manure and as a deterrent to slugs and worms, yet I question if any remedy is so effectual as a dressing of seaweed. I would, therefore, advise all dwellers by the seashore having gardens to get all they can of this material in winter and apply it in the first place to Asparagus and Seakale, and any left over after that might be dug into fallow ground, or put into a heap to rot for other purposes.—J. GROOM, *Seafield, Gosport*.

FRUIT GARDEN.

NEW AND OLD GRAPES.

MY reply to "J. C. C.'s" strictures on the Duke of Buccleuch Grape led me to refer to "J. S. W." as a would-be teacher of Grape growing; this has called forth from the latter a reply unique for its misrepresentation of facts. Of this I will give an example. In the first instance he writes, "I have seen Mr. Thomson's exhibits of that Grape (the Duke) more than once, but they were always in baskets, and once when I looked into the basket at Manchester the lot seemed to be made up of picked fragments of bunches only." Now, what will your readers say when I state that I never exhibited a basket of this Grape at Manchester, and that on the occasion of the great exhibition of September 3, 1873, I exhibited a single bunch of it, to which a first prize was awarded. This can be proved from the records of the exhibition. I have also exhibited the same Grape in single bunches in London, Glasgow, Carlisle, Edinburgh, and elsewhere, and have always got first honours for it. "J. S. W." may have seen a basket of the Duke at the Manchester show in 1873 as well as last year, for on both occasions we sent large quantities to fruiterers for exhibition on their tables of fruit. In 1873 Messrs. Copland & Doran ordered four baskets for this purpose, sending us the baskets, and expressing a wish that they should be filled up firm; and, where in placing the large bunches in the basket interstices were left, we cut limbs from other bunches and placed them in these to make the whole firm, but no more so in the case of the Duke than in that of the other sorts had for the

same occasion. Mr. Mason, then of Bolton, had a similar quantity for the same purpose. They were sent under the care of one of our men till he delivered them to their purchasers in Manchester, after which I had no more to do with them than the growers of the Bananas and French Pears on the same table had to do with them. In company with Mr. Dell, then of Stoke Rochford, I walked round the fruit exhibition with "J. S. W.," being specially anxious to see his bunches of Muscats, for he was then teaching that the proper way to set Muscats was to syringe them well with cold water when in bloom. He may remember that I remarked when I saw them that there could be no doubt about the syringing, for the bloom was gone, and there was a deposit of sediment from the water wherever the berries came in contact with it; as he once wrote of Mr. Temple "he was not in it" that time. The syringe was laid on the shelf, and out came the "cool treatment," which, judging by results, is not quite a success yet. This is my justification for designating him "a would-be teacher of Grape growing." In the course of our walk round the tables, Mr. Dell will remember, if "J. S. W." does not, that he looked at my single bunch of the Duke, which your readers will think was a very likely occurrence under the circumstances.

In reply to "J. C. C." I called attention to the fact that the Duke was a strong point in nearly all the best collections at the late show in Edinburgh. This "J. S. W.," in the face of the reports of the press, does not controvert, but falls back on the circumstance that in the class for single bunches there were only two exhibits, and, as a further illustration of his style of reasoning, he writes that a friend of his and mine had informed him that our Lady Downes and Gros Colmar Grapes were good, but said nothing of the Duke; therefore, it must be bad. What of our Muscats and Alicantes, of which he made no mention either? Yet at this time they are realising the highest prices in the market. The "just finished" dodge is too absurd to deserve notice, but I may remark that fourteen days after the stream of gardeners that passed through this place before and after the late Edinburgh show Mr. Barron, of Chiswick, called, and did not find the Duke "finished." I cut a small bunch that he might taste it, and he declared it to be the best Grape he ever ate. I may further remark that, although we began cutting this Grape in July, we have still samples of it.

"J. S. W." informs his readers that Mr. Wildsmith expressed his wonder that he should grow the Duke, as it was worthless. To increase this wonder, let me say that Mr. Stevens, of Trentham, called here three years ago in September, and did not find the Duke "just finished." He tasted it, and in his usual business-like way said, "I must grow that Grape; send me twelve plants of it." The plants were sent, and about a month ago I asked him how they had succeeded with him. He replied, "So well, and it is such a favourite with my employers, that I must plant another house of it." I don't think Mr. Wildsmith and "J. S. W.'s" "neighbours and acquaintances" will feel flattered by being held up as such horticultural incapables that they cannot grow a Grape that hundreds of others grow, I may say, like a Willow, and make it produce bunches 4 lb. and 5 lb. weight, as could be seen at the late Edinburgh show in Mr. Kirk's collection; but that is their affair, not mine.

"J. S. W." evidently doubts my statement that hundreds of visitors pass through our grounds in a season. What does he think of over 400 ladies and gentlemen passing through them in one day, arriving in over seventy carriages, and purchasing nearly 200 lb. of the fruit of the Duke to carry with them to all parts of England and Scotland? This is no doubt outside his experience, yet it took place here last year.

Before I close let me ask "J. S. W." what he thinks of his statement that I never exhibited the Grape in question except in baskets, and that I am not the man to do so if I had a presentable bunch of it to show singly? No writer that I know

of is so ready to discredit the statements of other men quite his equals for veracity as he is; and surely he must feel that in this case he has not added to the respect due to his own assertions.

W. THOMSON.

Third Vineyard, Clovenfords.

PRUNING TO THE BEST BUD.

THIS is an expression we have all perhaps made use of from time to time in reference to the Vine, but, taken in the sense in which it is usually apprehended, *i.e.*, to mean the largest and the plumpest bud, it is a very misleading one, and as a matter of fact few or none do prune to the best bud, because it is impracticable in spur pruning at least. Further, the "best bud," in the above sense, does not produce the best bunch as regards compactness, finish, and freedom from shanking when that disease does exist. In what is called the long or short rod system of pruning, not an advisable one as a rule, the largest bud is always situated furthest from the base of the shoot or near the point, and that bud will produce the largest bunch in nine cases in ten, as the big-bunch growers will testify, but if there be a loose or lanky branch on the Vine or a bad coloured one, that bunch is almost sure to be the one also. These are facts well known to experienced Grape growers who prefer the spur system and prune the lateral shoots back close to the base bud, usually the smallest bud on the shoot.

The character of the bunch is, in fact, denoted beforehand by the character of the shoot. Short-jointed wood always produces the most compact and best, if not the largest bunches, but all the joints on a lateral shoot are not alike, the spaces between the nodes growing longer, and the buds bigger and fatter the farther we get from the base or from the old wood. For instance, I have a good example of a Vine shoot before me now. It is about 2 ft. long, and is cut off just above the bottom-most bud which is left on the Vine. This left bud is not more than $\frac{1}{2}$ in. from the old wood, that is the length of the joint. The first joint above that is about $\frac{3}{4}$ in. long, the second rather over 1 in., the third 3 in., the fourth $\frac{1}{2}$ in., the next the same, and the sixth 7 in. long. The eyes grow larger and plumper the further we get from the base, and if we pruned to the largest and finest looking bud on the shoot, it would be the one at the fifth or sixth joint, but the practice is to prune to the bottom bud, which is the smallest and most insignificant bud on the shoot. It is, however, the best bud, and would probably develop the most perfect bunch of fruit and more bunches than any of the others. The bunches would be loose and lanky too, just in proportion to the length of the joints, just as the leaves have often the longest stalks that are borne on the longest joints. It will be seen, therefore, that the general definition of the "best bud" is not the correct one. In the sense, however, of being the hardest, oldest, and consequently the most perfectly matured, the smallest bud—the one at the base—is the best. In addition to the base bud there is often a cluster of smaller and almost invisible buds on the older portion of the spur, and when all others fail these may be allowed to come on, and they will often show fruit, but fruit from an adventitious shoot, that is a shoot from the old wood, forced perhaps to push by the cane being cut down below a certain point, we never saw, and cannot well believe in its existence, except on the "general theory" once put forward to account for something of the same kind.

I believe in restriction as regards the pruning of Vine laterals, and in promoting vigour by extension of the main rods and their multiplication. The Vine's mode of bearing removes it from the category of other fruits. As to long-rod pruning, which consists in leaving a good length of young wood annually, some growers succeed very well with it, but, all other things being equal, the spur system will beat it as a rule as regards the quality of the bunches and the fruit.

J. S. W.

GUMMING IN STONE FRUITS.

ALL acquainted with stone-fruit culture, and especially Peach culture, will admit that this is one of the worst diseases that can attack the trees. When it affects the tree seriously, there is indeed no cure for it, and the best thing one can do in such a case is to destroy the affected tree altogether. What the cause of gumming may be seems to be uncertain; but one thing is pretty sure: it seldom or never attacks trees in which the wood is well ripened year after year, unless produced by accidental bark wounds. In the Cherry and Plum gumming does little harm, but I never knew it affect a Peach tree without injuring it locally or generally. Whenever it is found on the Peach, it is always accompanied by decay of the wood at the diseased spot, and the branch generally dies off at that place. Strong-growing trees that are not well ripened, and often pruned, are most subject to gumming, which will often be found to have begun just below the last cut. How inveterately it sticks to a branch may be gathered from the following example, which also shows that the disease may be arrested in its progress to a certain extent, but not quite beaten when fairly established. Sixteen years ago I planted a Royal George Peach with four good long and strong shoots, but not very well matured. I cut them back at pruning time as far as I thought they were ripe, but one of them I had not cut back far enough, for the following year it decayed where cut, and did not heal over as a young shoot should do, though it produced a good young leader from the side above the cut. The second year gumming set in at the same place, and the wound continued open, while all the other branches had healed over. The branches beyond the gumming point continued to grow, however, but more weakly than the others, as their only connection with the main trunk was by means of the layer of bark on the top side of the branch where the gumming commenced. Either in the third or fourth year after planting, seeing the branch was likely to die off, I scooped the whole of the decayed portion of the wood out from the top by means of a small chisel, going several inches down the branch, till I thought I had got it all out, filled the hole up with putty and painted it over with white lead. This arrested decay, but the bark never grew over the place, and in 1878, or about twelve years after gumming began, the branch died. The tree is, however, still growing, and a fine specimen, and has never shown any signs of gumming elsewhere. In another instance which came under my observation the gumming was caused by new galvanised iron wires, to which young trees were trained. The disease was manifested at many points, wherever the wires had come in contact with the trees; but the wires were painted, and the trees washed and cleaned at the affected places, and they grew quite out of it in a year. Nothing is so likely to master gumming when it appears than a free and healthy growth, in which new bark or tissue is deposited fast, and outgrows the diseased parts. The great preventives are, however, a free and healthy soil, well drained, well ripened growth, and little pruning.

W.

Packing fruit for travelling.—Moss for packing is not always at hand, and that is the case with me; we therefore cut the Grass of the laundry drying-ground pretty early, and when the second crop has made from 6 in. to 8 in. of growth we cut it when the weather is favourable and make it into hay. We then put it together in a dry place, where it sweats a little, according to the size of the heap. It then comes out clean, sweet, and as soft as silk. This we find to answer well for all sorts of packing, first folding the fruit, except Grapes, in soft tissue paper. Grapes we pack in boxes 6 in. deep, 20 in. long, and 14 in. wide; such boxes hold 20 lbs. In preparing the box we put some soft hay in the bottom, barely $\frac{1}{2}$ in. in depth, and cover it with white demy paper; paper is also put round the sides, and then we commence to pack. One end of the box is raised

to an angle of about 35 degrees. We select the largest bunches first while we have the full width of the box, and close each row with a suitable sized bunch, to fit in so closely that a berry cannot move when the box is full, leaving just sufficient room for the lid without touching the fruit. We place nothing between the fruit and the lid, and with ordinary care we find Grapes packed in this way to travel any distance without scarcely moving a berry.—JAMES SMITH, *Waterdale*.

—“A. D.” has very accurately described the best means of packing Grapes and Peaches for market, but there is one golden rule which should be borne in mind in packing both, and that is, never have more than one layer. Again, with Grapes the paper should be strained over the box, not laid on the Grapes, and the Moss should be pushed in between the paper lining and the box, so as to wedge the shoulders down, not placed on the top.—J. WEBBER, *Covent Garden Market*.

Dr. Hogg Peach.—Will some of your readers who have tried this Peach report as to its merits for outdoor cultivation as regards quality and time of ripening? I am thinking of planting it to follow Hale's Early, which ripened with me this year in the end of July, but I can obtain no information respecting it in this neighbourhood, where it appears to be little known.—A. S., *Bristol*.

Grapes for a cool house.—Can any of your readers give me the name of the best black or white Grape to be grown in a cool house in which there are at present Black Alicante, Gros Colmar, and Royal Vineyard? The two former do very well, but the fruit of R. Vineyard has never been larger than a Pea, although the Vine is the strongest and healthiest of the lot and was planted at the same time as the others, viz., five years ago.—W. L.

Spring v. autumn planting.—A good deal has been written of late regarding the transplanting and root-pruning of shrubs and trees. About fourteen years ago I assisted at the root-pruning of two rows of cup-trained Apple trees, which lined the sides of a centre walk in a garden in Dorsetshire. One half of the trees were root-pruned in autumn, and the other half early in spring. The autumn root-pruned ones showed no signs of starting into growth until late in the following autumn, and some never did start; whereas, those operated upon in spring burst their buds, blossomed, and bore a good crop of fruit the same year. Since then I have kept a sharp eye on all such operations, and have been convinced that spring is the proper time for lifting, transplanting, and root-pruning all deciduous trees and shrubs, if not evergreens as well. Wounds inflicted on the roots of deciduous plants in autumn do not heal and form rootlets before spring, as some assert, but in most cases decay until mild weather causes the plants to develop their buds; then a struggle ensues for mere existence, as the decomposing roots do not readily form feeders, and then the vitality of the plants in many cases is gone before they are able to do so. Those similarly operated upon in spring have not time to decay before active growth calls into use the principal organs of nutrition; the fresh wounds soon heal, the plants the while only suffering such a check to their development as is essential to their fruitfulness.—F. F. W. W.

Vine planting may be safely done any time from March to October. A house of late Vines, planted here the last week in May, 1881, has been most satisfactory. The eyes were placed thickly in a pan, and just as they were callusing the most promising were selected and placed in 4-in. pots, and kept in an unheated structure until the house and border were ready to receive them. The roots had got rather matted; every ball was therefore soaked in warm water, with the view of releasing the soil and getting them disentangled. Then a few shakes and sharp movements in and out of the water effected it, and not a root was injured. The weather was very warm for a few days at the time. Some of the soil consisted of newly-cut turf, and the whole was wheeled in only a day or two previous to planting. It felt

warm to the hand in the operation of planting. The circumference of these Vines below where they were cut last year is from $3\frac{1}{2}$ in. to $4\frac{1}{2}$ in. Others planted in March, July, August, and September are not so satisfactory. The border they occupy is little over 5 ft. wide, and not quite 3 ft. thick; and the old Vines have also been allowed to remain in it, and have borne two heavy crops of Grapes. Therefore, it could not be expected that they would make the progress which the May planted ones did, seeing that they had both house and border to themselves. Only two of them measure $3\frac{1}{2}$ in. in circumference. For May planting I would as soon have small plants such as I have described as a one-year-old Vine if the borders are inside. Those acquainted with Vine root activity will select September for autumn planting older ones, and they will find my plan of soaking the ball preferable to lacerating the roots with a pointed stick, as is usually done. September is also a good month—in fact the best for lifting old ones.—W. P. R.

Duke of Buccleuch Grape.—“Cambrian's” statements (p. 352) show how much he knows about the history of this Grape, and how far his anxiety to champion its cause will lead him. He says “all the young Vines sent from Clovenfords were robust, healthy canes when I had mine.” Now, I never had one of these Vines from Clovenfords. The first stocks sent out of the Duke, as advertisements will show at the time, were newly struck, green plants about 6 in. high, sent out about May, and mine was one of these, and these were the plants I spoke of. It came here in a 6-in. pot, in a small hamper about the size of one's hat. The reserve portions of these plants were sold as “robust canes” the following year, and it was then “Cambrian's” knowledge of the Duke began. Next, “Cambrian” says he staged the fruit at Manchester that I spoke of. If he was there, I never heard of him nor saw him. I saw the basket carried into the tent to the fruit table by Mr. William Thomson, junior, who gave me a berry to taste, and told me what it was. He lifted one or two of the pieces out of the basket to show me the fine berries, and although they may have been bunches, I called them shoulders. I think it was at Glasgow I saw the next “basket,” exactly like the one at Manchester. These baskets were filled up so that it was difficult to tell whether they were bunches or bits of bunches; they looked well, I admit, but it was remarked that it was a singular way to show a new Grape, and people naturally speculated on the reason. “Cambrian” speaks of proving how the baskets were made up. Does he expect any Grape grower to believe that any raiser was going to hide his bunches of a new Grape and all their special good points by cramming them into a basket which defied anyone to tell what they were? No. Let “Cambrian” show us a bunch quite ripe and sound, and from which no bad berries have just been cut, and then we may see reason to alter our opinion. If he knows so much about the showing of the Duke, will he tell us why it was shown in baskets at all?—J. S. W.

Double-grafted Pear trees.—“W. C.” does not seem to have quite grasped the reason why I recently referred to my double-grafted Marie Louise Pear trees. I am quite aware that unless double worked this kind does not do well on the Quince, but in my case, either owing to the soil being unusually well suited to the Quince, or else to the strong growing portion of the stock being of an exceedingly robust character, the trees made growth as freely as if really worked on free stocks. But whilst wishing to point that feature out, I was also desirous of directing attention to the curious and interesting fact that the introduction into the stem of each of these Pear trees of about 6 inches in length of a foreign stem sufficed to bring about such a very marked change both in habit and growth. The influence of the stock upon the scion is never of a very marked character, but it is more evident in such curious cases as this than in most others. There are precisely the same roots to draw nutriment

from the soil, and precisely the same head of branches and leafage, yet this simple intermediate channel for the passage of the sap works such a remarkable diversity both in growth and habit. How comes that about? Has the portion of foreign stem larger sap vessels or channels or cells, whatever they may be termed? and is therefore a more free and rapid flow of sap the result? It is often said that the cause of the early death of Apricot trees is the inability of the scion to expand its stem to meet the requirements of the head. If this be so, would it not be possible to introduce some robust-growing kind on the stock first and thus apply to Apricots the practice found so successful in the case of weak Pears?—A. D.

NOTES OF THE WEEK.

NEW PUBLIC PARK.—The town commissioners of Weston-super-Mare have been offered, and have accepted, an area of fifteen acres of land, part of the Whitecross Forty Acres, for laying out and planting as a public park, in memory of the late Mr. Henry Davies.

AUTUMN TINTS OF DIOSPYROS KAKI.—The Rev. Canon Ellacombe sends from his garden at Bitton some decaying leaves of this Japanese shrub, exhibiting beautiful autumnal tints of various shades of orange, red, yellow, and green. “I do not suppose,” he says, “that *Diospyros Kaki* will ever be much good as a fruit tree in England, but I think the enclosed leaves will show that it is worth growing for the autumnal tints.”

IMPROVEMENTS AT HYDE PARK CORNER.—The tender of Messrs. Mowlem & Burt for carrying out the Hyde Park Corner improvement scheme has been accepted, and they will immediately commence the work of removing Wellington Lodge, preparatory to its re-erection lower down Constitution Hill. There were three tenders sent in for the execution of the work, which includes widening the thoroughfares—namely, Messrs. Mowlem & Burt, £31,000; Messrs. Hill & Higgs, £39,000; and Mr. Webster, £67,000.

NATIVE GUANO COMPANY'S SHOW, held last week at the Sewage Works, Aylesbury, was even a greater success than that held in previous years, the exhibits being more numerous and the quality higher. Vegetables were uncommonly fine, and having been manured with the native guano, the result speaks for itself. Besides the prizes offered for Grapes, which by the way brought out a good competition, there was a new prize of £5 offered for a collection of stove and greenhouse plants grown by the aid of this guano. The competition for this prize was not large, but it showed that the manure can be used advantageously for tender exotics as well as for cereals and green crops. The process by which this manure is eliminated from the Aylesbury sewage was described in these columns last year.

CHRYSANTHEMUMS AT CHISWICK.—The most complete collection of these we know of is that in the Royal Horticultural Gardens at Chiswick. It numbers no fewer than 216 varieties, including the early flowering kinds. Besides the named collection grown in pots, Mr. Barron has placed in the large vinery some 500 plants, representing nearly all the named sorts. These are large, bushy specimens that have been grown in the open borders and recently lifted. Instead of potting them they are taken up, with a good ball of soil around the roots, and placed in round wicker baskets, about 1 ft. across and some 15 in. in depth, a plan worth attention, inasmuch as it might turn out to be better for cultivators generally to basket instead of pot their plants lifted from the open border. We remember some very fine specimens of Christmas Rose which had been lifted and placed in similar baskets and exhibited at South Kensington by Mr. Barron two or three years ago. This Chrysanthemum collection is certainly most valuable in many respects, as it will enable cultivators to make a leisurely selection of the best sorts. The plants occupy the

entire space in the middle of the vinery, a capital place for them, as the temperature is just right for preserving the flowers when they expand. In the course of two or three weeks this house will be the main feature of interest in these gardens, and even already some of the earlier sorts are in bloom.

INNER TEMPLE GARDENS.—The annual show of Chrysanthemums in these gardens was opened to the public on Thursday last. Mr. Newton has this year an exceptionally large and fine collection on view in a commodious glass structure specially erected for the purpose. Besides all the leading older varieties there is a numerous accession of new sorts. The public is allowed access to the gardens by the private gate on the Thames Embankment.

LINCOLN'S INN FIELDS.—Last session an Act was passed with special reference to Lincoln's Inn Fields. It was hoped that the trustees of that large enclosure, which is about eight acres in extent, might be induced to offer it to the Metropolitan Board of Works. Parliament went so far as to provide that if at any meeting of trustees duly summoned upon notice two-thirds were for so handing over such an enclosure, and if this resolution were confirmed by a similar majority at a second meeting, the thing might be done, and the Metropolitan Board of Works might take charge on behalf of the public of the grounds. But the Metropolitan Open Spaces Act, 1881, has been passed in vain so far as this largest internal space is concerned. The trustees and proprietors of Lincoln's Inn Fields cannot agree and will not come together.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.—A meeting of the members of this Society was held in the Music Hall a few days ago under the presidency of Mr. David Syme. Mr. Neill Fraser, the treasurer, submitted an abstract of the income and expenditure connected with the International Fruit and Flower Show held last month. The accounts showed that there had been taken at the gates during the two days £1106 11s., representing admission money for 26,250 persons. It was estimated that, including members' tickets, the number of persons who passed the gates during the two days was 30,760. The total receipts in connection with the show amounted to £1500 7s., including a sum of £393 16s. received as subscriptions. The total expenses incurred, including rent of market, advertising, judges' expenses, &c., was £551 7s. 10d., and there had been paid as prize money up to date £800 1s. 6d., making the total payments £1351 9s. 4d. A comparative abstract was also read showing that the total receipts of the international show of 1875 amounted to £1029, and there was a loss to the society on that occasion of £89, whereas on this occasion there would probably be a surplus, after meeting all contingencies, of £70. The report was approved of, and a vote of thanks was given to the treasurer. Sums of money were then voted to those firms which had exhibition tables at the show. A sum of 30 guineas was also voted to Mr. William Young, the assistant secretary, as an honorarium for the energy he had displayed in making the show a success.

GARDEN BARROWS.

I AM pleased to see "Peregrine" (p. 329) directing attention to these. With the exception of galvanised iron barrows, I doubt if any change has been made in the fashion or material of which these implements are made since the beginning of the present half-century. Here in Middlesex we see that awkward non-enduring contrivance called a box-barrow still in use just as it was fifty years ago. The bottom, though flat, has but little area, the sides and ends are sloping, and the handles are simply the sides prolonged and reduced, but as about as impossible to grasp and as difficult to hold as handles well could be. I have always stuck to the frame barrow, the best of all, because enduring, light, not ungraceful, and comfortable to use. This is made with upright sides, rising towards the front of the barrow, which is sloping,

and has a movable tail board. The handles are of hard Elm, and rounded, so that they are comfortable to grip and use. Given a couple of coats of paint now and then, and fair usage, and such a barrow well made will outlast two or three of the old box type. Being fairly narrow also, it can be run into sheds, houses, or along narrow ways. The spreading tip barrow is useful for running soil and manure on ground, but it is not acceptable for all purposes. One great feature in an easy-running barrow is found in the position of the wheel, which should be as near the body as possible, provided it has plenty of room to revolve even if a little clogged. It should also be fairly broad, for although it may be well to have wheelbarrows as light and elegant as tricycles, yet wheels of similar make would hardly be desirable. A broad wheel that does not cut ruts in the gravel paths or in the soil is an invaluable adjunct to a good barrow. It is, again, not least important that the handles should not be too long. A man wants to be fairly close to his load, but still even in the matter of length of handle some deference must be paid to the height of the wheel, otherwise the body with its load will be tipped too much forward. If, however, there be a well arranged balance between wheel and handles, then such a barrow will not take half the labour out of a man that a badly constructed one does.

There is one kind of garden vehicle which is seldom seen, and yet it is of great value. I mean a combination hand and wheel-barrow. This must have a couple of wheels, and the hand-barrow should have not only legs of the usual height at the ends, but two others in the middle, which should drop into iron sockets fitted to the axle on which the wheels are fixed. Loaded, perhaps, in a shed or greenhouse, the barrow is carried out, dropped into the wheels, and with a man at either end away they go with their load to the other end of the garden or further without any strain, whilst to have otherwise carried the load in question would have needed two or three rests. Perhaps at the end of the journey the load has to be carried into another building; in that case, the men simply have to lift it from the wheels and carry it to where it is wanted. A barrow of this kind might be used with great advantage when lawn beds or borders are being manured, as it would save the necessity of running wheels on the Grass. If the barrow was fitted with movable sides it could also carry as heavy a load of manure as any wheelbarrow.

In most garden tools we have made many changes by which the worker has greatly benefited. The original noisy and dragging mowers have given place to kinds that run quite easily; balanced iron rollers have replaced the old lumbering stone rollers; steel forks have taken the place of heavy, cumbrous, heart-breaking tools; and we need not stand still with wheelbarrows, for lighter tools mean more work done. A. D.

THE BULB TRADE.

ALLOW me to tell "Peregrine" that I have had "a peep into a foreign bulb catalogue." I have also been a purchaser of bulbs at sales, but in neither case have the bulbs been equal to those one gets from respectable seedsmen. For these the growers secure the best bulbs, and what reaches this country otherwise are what have been rejected or the produce of inferior cultivators. I once bought a quantity of bulbs at a sale. The Hyacinths were about 2s. 6d. per dozen, and were so small that I put three of them in a 4½-in. pot. I purchased at the same time some from our seedsmen at 3s. 6d. per dozen, and I see the same firm offering some at 3s. 3d. per dozen this season. From these we had good spikes of flowers, but those produced from the bulbs procured at the sale room were very poor, and two out of every dozen failed entirely. Three years ago I had some from a foreign house, for which I paid 2s. 6d. per dozen. They strongly reminded me of those brought from the sale room some years previously. We now think it the best economy to have nothing under 3s. 6d. per dozen for outside, and from 4s. to 8s.

per dozen for pots, and I doubt if any of your readers ever procured anything satisfactory for less than these prices. I have only named Hyacinths to show that the difference in price between bulbs procured here and in Holland is more imaginary than real. The cheapest are not the best, and the integrity of our seedsmen may be relied on for supplying money's worth in such matters.—W. P. ROBERTS, *Cuerden Hall, Preston.*

—For some years I have been a constant purchaser of plants, principally hardy ones. I have tried the *Exchange and Mart*, the cheap 1s.-a-dozen advertisers, and the best nurseries in all parts of the kingdom. The result of my experience is that you get better value for your money if you pay the highest price. You may think you are going to do a good thing by getting 1s. plants at 1d. each, but you will, in nine cases out of ten, find that they are but poor little things that make no show the first year, and in the second year you will probably find they are not true to name or up to the standard. Better go to a first-class grower and pay the top price for one good plant which will cost you only the same as the twelve bad ones. You have something satisfactory to start with, and if you require a greater number you can propagate and in the second year have as many specimens as though you had bought twelve little slips of plants to start with. In this, as in many other things, the dearest are the cheapest in the end.—HEATHERDALE.

OBITUARY.

WE have to record with regret the death of Dr. G. W. Septimus Piesse, which occurred on the 23rd inst. He was the author of one of the best books which we have on perfumery, and our readers will remember that in 1877 he contributed to THE GARDEN a series of interesting papers on scent-yielding plants.

Stove climbers for a fernery (W. H. M.).—Try the following, viz., *Ipomoea Horsfallii*, *Allamanda Hendersoni*, *A. nobilis*, *A. Schottii*, *Clerodendron Thomsone*, *C. Balfouri*, *Bougainvillea glabra*, *Passiflora princeps*, *P. viti folia*, *Batatas paniculata*, *Stigmaphyllon ciliatum*.

Names of fruits.—*R. Merington*.—Apples.—1, not recognised; 2, *Formosa Nonpareil*; 3, not known; 4, *Wadhurst Pippin*; 5, *Fearn's Pippin*; 6, *Small's Admirable*; 7, (Pear), *Doyenné Gris*. Please remember our rule as regards the number of fruits to send at one time, and in every case send three fruits.—*Eveline*.—Early Nonpareil.—*G. Carpenter*.—4, *Beauty of Kent*; 5, *Cox's Orange Pippin*; 6, *Fearn's Pippin*; 7, *Red Hollandbury*.—*C. Cundy*.—None are recognisable; probably local varieties.—*S. K.*—1, *Cellini*; 2, *King of Pippins*; 3 and 4 not known.—*W. Johnson*.—1, not known; 2, *Trumpington or Delaware Pippin*; 3, *Rhode Island Greening*; 8 and 10, *Northern Greening*.

Names of plants.—*Anon.*—1, *Rudbeckia hirta*; 2, *Pyrethrum uliginosum*; 3, *Aster levis*; 4, cannot name from leaf only.—*Johnston (Barroget)*.—*Elodea canadensis*; no remedy for it but constantly clearing the bottom of the lake.—*M. L.*—Species of *Oncidium*. If better specimen is sent we will endeavour to name species.—*E. Moir*.—Apparently *Escallonia Philippiana*.—*J. M.*—We are unable to name what you sent; it is doubtless a kind of *conferna*.—*J. Waiting*.—3 is *Triteleia uniflora*. We cannot name the *Polyanthuses*, Nos. 1 and 2.—*J. E. M.*—Variety of *Pyrus Aria*, the *White Beam tree*.—*Capt. F.*—*Red Dogwood*, *Cornus sanguinea*.—*J. C. L.*—*Hedysarum coronarium* (French Honeysuckle).—*Capt. F.*—*Cornus sanguinea*.—*H. Martin*.—The peculiar growth you send of *Lastrea Filix-mas* is not unusual.—*A. B. N.*—*Impatiens glandulifera*.—*M. C.*—1, *Erica cerinthoides*; 2, *E. verticillata*; 3, *Maxillaria picta*; 4, not in a condition to name; send with spores on fronds.—*A. K.*—*Aster grandiflorus*.

COMMUNICATIONS RECEIVED.

C. T.—*T. G.*—*N. G. Company*.—*Delta*.—*G. G.*—*H. C.*—*R. I. L.*—*F. G.*—*W. J. M.*—*J. S. W.*—*J. G.*—*W. W.*—*R. F. McN.*—*S. K.*—*J. E. M.*—*W. D.*—*E. M.*—*W. T.*—*J. P.*—*J. K.*—*W. E.*—*W. J. M.*—*J. M.*—*J. R. H.*—*T. H.*—*J. T.*—*C. G.*—*W. H. M.*—*T. S.*—*J. C. W.*—*C. H.*—*E.*—*A. J. S.*—*D. T. F.*—*L. Society*.—*A. K.*—*B. W. G.*—*J. H.*—*A. D. W.*—*W. E.*—*E. B.*—*W. T.*—*G. S. S.*—*T. P.*—*J. S. & Sons.*

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

NEW SITES FOR ROSES.

THE roots of Briers and wild Roses ramble far and wide. The food they may not find in hedgerow, bank, or tangled thicket they may dig down deeply after, and at last obtain it in some muddy ditch, or they may run for yards in pursuit of it through rich beds of leaves or dead weeds. No sooner do we bring them into our gardens than these wider and more free-feeding grounds, with their greater variety of food, are exchanged for those of a more limited area, mostly filled with food of a more uniform quality. In reference to these, it may be affirmed that the more limited the root-run the more frequently the soil should be changed. For example, confine the roots of a Rose to a pot, and it will thrive or not very much in the ratio in which maiden soil can be given to it every year or oftener. The same rule or law applies to the root-runs of Roses in the open air. The smaller the area the roots have to grow in, the oftener should fresh soil or new sites be given them. Of course in practice this general principle will be applied in very diverse ways in regard to time. The quality of soils may vary even more than their depths. Some may be virtually exhausted in a year, and others may grow Roses for two, three, or even more years in succession. Even the growth made and produce yielded may also determine to a very great extent the time and extent of the exhaustion. Root-runs of from 30 inches to 3 feet in depth well supplied with manure may in some favoured sites and localities grow Roses for many years. These will also last the longer if assisted by artificial manures, such as guano, sewage, &c. I have found, however, among the best Rose growers that faith in these is becoming weaker, and faith in maiden soils, fresh sites, and farmyard manure stronger and stronger day by day. The order of their faith is very much also in the order here given.

Maiden loam and fresh sites in the most perfect form of the former may be said to be identical. But it is possible to apply heavy dressings of the former without a change of site, and in private gardens, in which, as a rule, the rosery is a fixture, this is the form in which the maiden soil has to be applied. Could the old soil be bodily removed all the better, but the labour and expense of removing the old soil, and the difficulty of obtaining and transporting the maiden loam, are mostly so heavy as to render such radical renovations of Rose root-runs impracticable. Hence a compromise is mostly adopted which leaves a half, three-quarters, or more of the old soil to be incorporated with the new. In general terms it may be said that the more new soil added and the less old left the better. To give the full benefit of the maiden soil the Roses should be lifted, and the fresh soil thoroughly mixed and incorporated with the old. In all such processes, of course, every fragment of Rose root seen will be carefully picked out; for, though there is no truth in excretions from roots, dead and decaying Rose roots may prove poisonous, and are certainly injurious to living ones. Those afraid of or averse to transplanting, may remove part of the surface soil, and fork the maiden loam as deeply in among the roots as practicable, with as little destruction of the roots as possible. Various substances and mixtures have been commended for top-dressings. Most of these are more or less useful, but of all others commend me to good, sound maiden loam. Rose roots will run to this more speedily and spread in it more swiftly and widely than in any other compost whatever; but the perfection of Rose culture will be found in a change of site as well as of soil, and its chief superiority consists

in the completeness of the change. The best of soil soon becomes Rose-sick, and this state is the sooner reached where high culture is aimed at. Under the term high culture here it is also meant to include superior varieties, for it seems that these more speedily get sick of soils and sites than more common-place sorts.

Fresh sites also seem indispensable to the production of perfect blooms. Every one who has attempted to grow show Roses in continuity has discovered this. This curious fact has likewise accounted for the sudden rise and almost equally sudden collapse of not a few successful exhibitors. Neither are such experiences confined to those growers. They are equally or more common among the cultivators of high class Grapes. Fresh sites and maiden soils lose their power and charm after a few years, and the same or even greater skill is powerless to produce such perfect fruits or flowers. Some of our largest growers of Roses for sale have been quick to recognise and base their wonderfully successful practice on these facts. They alternate their Rose crops with green and corn crops, and seldom have Roses in the same sites more than two or at the most three years. It is only needful to walk over a Rose farm and note the enormous vigour of growth and size, symmetry, form, colour, and fragrance of the flowers to be convinced of the merits of a frequent change of site for Roses. In comparison with the main crops, the practised eye on the outlook for lessons not seldom sees a few Roses in an out-of-the-way corner bearing a striking contrast to the general run. Whence the difference? The site and soil seem identical; but on closer inspection the plants are seen to be older, and found to have been a year or two longer on the same site.

The lesson is obvious, though the practice of frequently changing the sites of rosaries may prove difficult in private gardens; but where perfect blooms are desired, fresh Roses should be planted on new sites in maiden soils every year; only by such means can perfection be reached or maintained. D. T. FISH.

ADVANTAGES OF EARLY PLANTING.

SOME two years ago I met with a large Rose grower in the trade, and, of course, our conversation (as is always the case when one meets a brother rosarian) turned to the subject of Rose growing. It was, I remember, at an August show where with others I was staging twenty-four blooms for a silver cup. Having finished our staging and taken our departure to make way for the judges, we strolled outside the tents, and resting ourselves under a neighbouring Elm tree, the conversation opened as follows: "Have you done your budding?" "Our Manettis and standard Briers are done, leaving us some 20,000 seedling Briers to go through," was the answer. "What, then, is your next operation?" was my query, eager to learn always what I can about the cultivation of the queen of flowers. "After loosening our ties, which will be done in or about the middle of September, we always start planting in the row for next year's budding our seedling Brier and Manetti stocks," was the reply which my companion gave. "So early?" "Yes, so early; and we have always, or like to finish, by the end of October, in order to be ready for the standard stocks coming in." "But the tips will wither, the leaves fade, and lose much of that vitality which they would not do if left until November," was my retort. "So they do; but experience has taught me a new lesson, and that is, if the tips die and the leaves wither, the roots are busy, and get a good hold by the time you commence planting under the old system."

As all days have an ending, so had that; and when I had packed up my box and driven off to the railway station, the train came up soon afterwards, and, seating myself in a compartment alone, I not unprofitably recounted the day's doings on my way homewards. One resolve I made, and that was to try my friend's plan of early planting. That I did I have not had cause to regret. Some of my old men (that is, those of the old school)

thought I must be mad when I started planting so early as the last week in September; but try it I must. So I did; and, despite what "A Rose Grower" may say to the contrary, I, for one, have faith in the practice; and for the future I intend, if possible, to see all my dwarf stocks safely planted by the end of the "grey month" (October).

"But what about Roses?" I fancy I hear some one exclaim. "How unsatisfactory to sacrifice that beautiful green foliage and those late-blooming buds; why not wait until the wood is ripe?" But with a season like last winter it may be asked, when would the wood be ripe? I think I have already somewhere demonstrated the good results of early planting. It is not necessary to plant the Rose so early as stocks. My advice, however, is that after the third week of October, we may commence this operation in earnest.

Roses planted at this time will make new roots some 2 inches in length by December; they have, therefore, established themselves to a great extent against the winter; and it is a severe frost which will reach the roots, seeing that a Rose grower proper always takes care to cover over either old or newly planted trees with some kind of manure or litter. But is it feasible that any ordinary frost will touch the roots? My experience has taught me that it will not. If such a theory is to be accepted, how is it that any seedling plants in a bed, say of Hollies, Barberries, Wall-flowers, or others, whose roots lie close to the surface, if dug up, as I have done many times in the spring after a severe frost, seem as fresh and healthy as if they had known no frost. I have seen Potatoes no deeper than 2 inches from the surface of the ground come out after a hard frost as sound as it is possible for any Potato to be; but with the Potato, perhaps, this is the exception, and not the rule. I attribute this condition to the tubers not having been, during or immediately after the thaw, exposed to atmospheric air or light. Therefore, although the frost may have to all outward appearances penetrated far deeper than the Potato tuber or the Rose roots, yet so long as either is, so to say, air-tight, they will not be injured.

Unhappily, our seasons vary; and what would be a wise course to pursue one season might not be so another. I have planted Roses at all times—that is, at all reasonable times—between September and April. I have had Roses do remarkably well planted in February; but it is an indisputable fact that Roses planted in the new year cannot give the amount of early blooms which those planted in the autumn will do; but for late blooming they come in admirably, and will give a greater percentage of flowers in the autumn than early or old-established plants. If I could foresee a hard winter setting in early, say November, I should leave my planting until the storm was over; but as we cannot, I say for all purposes plant early. W. H. FRETtingham.

Beeston, Notts.

Climbing Roses.—Which are the best of these for covering an outdoor wire arch?—P. R. [For archways the really efficient Roses are the Evergreen kinds and Ayrshires—Félicité, Princesse Marie, Leopoldine d'Orleans, and Flora; but the flowers, though profusely produced, are individually small. The best larger flowered kinds are H. C. Madame Plantier, white; H. C. Vivid, red. For autumn flowering, Gloire de Dijon, yellow; Bouquet d'Or, yellow; Cheshunt Hybrid, red; and Reine Marie Henriette, red, are good Evergreen sorts.—G. P.]

SHORT NOTES.—ROSES.

Cherokee Rose (*Rosa levigata*).—Where can this be obtained? M. P. F.

Transplanting Rose cuttings.—Can I venture to move Rose cuttings put in last October? or would it be better to leave them where they are until the spring?—E. B.

Rosa kamschatcica.—Where can this be obtained? We lost it in 1858 through pulling down an old wall, and we are anxious to have it again. The Macartney Rose is very good on a south wall just now.—G. B.

Pruning indoor Roses.—In July 1881 I budded a Brier with four buds of Belle Lyonnaise, and in December following I planted it outside a cool greenhouse, taking the stem through the front lights. Since then it has made nineteen shoots, varying in length from 16 feet to 4 feet, the total length of growth being 178 feet. What is the best way to prune this Rose? Do the shoots require bending after pruning to induce them to break similar to those of Vines? I want the shoots to break again close to the stock, so as to totally cover the side of the house.—NOVICE. [I should advise your correspondent to utilise the nineteen shoots this present season by taking a crop of flower off them. To obtain this, the shoots should be just shortened to the last ripened wood eye; the longer shoots should be then spread over the side of the house or on the roof, as in the case of Vines.—GEORGE PAUL.]

ORCHIDS.

NOTES ON ORCHIDS IN FLOWER.

EVERYWHERE the tide of Orchid bloom seems to be just now at a very low ebb; consequently every showy kind that habitually flowers in dull November is precious, and worth making a note of. Orchids in flower, even in Mr. B. S. Williams' rich collection at the Victoria Nurseries, Upper Holloway, do not make a very long list; still, there is a goodly number for the season, and in a few weeks the houses will begin to assume their wonted gay appearance.

Lælia elegans prasiata.—In this we have an extremely handsome variety, distinct from the other forms of *L. elegans* as regards the colour of the flowers. The sepals and petals are broad and of a uniform vinous purple, while the broad lower half of the labellum is of an intensely deep carmine-crimson, which is in strong contrast with the pure white of the upper part. It is a pity that such a splendid variety is so rare, as it is quite as fine as the variety *alba*. Among other *Lælias* in flower there is a couple of specimens of *L. purpurata alba* bearing several fine clusters of bloom, a remarkable fact, as the habitual flowering season of this *Lælia* is in early summer, but no doubt the circumstance of its flowering now is due to being lately imported from Brazil. Of *L. Perrini*, still one of the most beautiful of all *Lælias*, there is a fine display, including an uncommonly fine variety, with much richer and deeper-toned flowers than those of the ordinary type—the horizontally-poised flowers have such a fly-away look about them which makes the species distinct from any other. In the same house (the Mexican or intermediate) there are flowering specimens of that magnificent hybrid *Cattleya exoniensis* and *L. Dormaniana*, a pretty, but not very showy novelty, with greenish sepals and an amethyst-tinted labellum. In the course of a few weeks there will be a grand display of the lovely *L. anceps* and its variety *Dawsoni*, of which there is an exceptionally rich collection.

Dendrobium Goldiei.—On this beautiful Australian Dendrobe and its near ally, *D. superbiens*, there is a fine array of bloom far more than we have hitherto seen at one time. The plants are grown apart from the general collection of Dendrobes in a small span-roofed house, which is always maintained at a high temperature, and is never shaded even from the fiercest mid-summer sun. Here the plants are grown in shallow pans suspended from the rafters, as near the light as possible, and their long fat, firm pseudo-bulbs indicate that it is just the treatment these Dendrobes require, and now that most of the bulbs are bearing long, elegant spikes of bloom they are a beautiful sight. We had long been wanting to see the distinctive characters of *D. superbiens* and *Goldiei*, and we saw them on this occasion. Though the two are nearly related, they differ in several respects. In colour *Goldiei* is more purple and paler, and the flower is longer and the labellum more attenuated than in *D. superbiens*, and what is most important its flowers

are said to last in perfection a much longer time. Grown side by side as they are here, these differences are easily perceived. Such a handsome Orchid as *Goldiei* flowering in the dull season, cannot be too highly recommended where there is a suitable house available to grow it in. Of course, it is only where large numbers are grown that special treatment, such as Mr. Williams gives, can be afforded this plant, and one plant or so may be grown with perfect success in an unshaded part of an East Indian Orchid house or stove. The conditions are plenty of heat, light, and sun while the plants are making their growth.

Cœlogyne barbata, the species about which so much was written last year respecting its beauty, will soon begin to unfold its showy blossoms on tall, erect spikes overtopping the leathery evergreen foliage. The flowers are as large, or nearly as large, as those of *C. cristata*; the sepals and petals are pure white, while the labellum is almost black or sooty, as some call it, a violent contrast seen in few if any other Orchids. It is an Orchid to recommend to the general cultivator, as it flowers in winter. Other *Cœlogynes* in bloom are the singular *C. speciosa*, which really is more curious than attractive. We also saw the rarely-met-with *C. corrugata* in bloom. We say rare, and so it is, as people rid themselves of it, finding it so stubborn in flowering. We remember a plant which for some twenty years had not flowered and grew into a specimen a foot and a half across. It was at last decided to throw it away, but it was put on a high shelf and forgotten. There it was literally baked in the sun, and had not a particle of water during the summer, and in autumn, when it could get a little moisture from the atmosphere and the drip from the glass it burst into a shower of bloom, which is of snowy whiteness, save a few yellow streaks on the lip of the flower.

Oncidium Rogersi.—This variety of *O. varicosum* may here be seen in its true character, and a great beauty it is, the queen of yellow Oncids. The broad lip of the flower, which measures $1\frac{1}{2}$ inches across, is a sufficient distinction from the typical form which is flowering by its side, and in which the labellum is less than half the size of *Rogersi*. The clear bright yellow of the blossoms and the manner in which they are borne in crowded and elegant clusters on long, slender stems render this one of the finest of November Orchids and one that should be sought after by amateurs who do not possess it. It is either amenable to pan, pot, or block culture in an intermediate house.

Cymbidium Mastersi is another chastely beautiful Orchid that may be recommended for general cultivation, as it combines with its beautiful clusters of blossoms such elegant, grassy foliage as is possessed by few Orchids. Some of the specimens here bear a dozen or more of its ivory white blossoms in clusters on stems long enough to show them to advantage and render them useful for cutting. To grow it well it needs to be treated liberally, as it is more terrestrial in growth than most others. In a short time there will be a fine show of bloom on the *Cymbidium eburneum*, which is just pushing up its spikes.

Cypripediums in flower include *C. Haynaldianum*, in the way of *C. Lowi*, but scarcely so handsome; *C. Harrisonianum*, and a fine variety of it called *superbum*, differing in its larger and much darker coloured blossoms; *C. Ashburtoniæ*, one of the handsomest of the hybrids of the *insigne* type; *C. calophyllum*, also a fine hybrid. To these may be added the superb *C. Spicerianum*, which is a great beauty, and the two varieties of the old *C. insigne*, *Maulei* and *Chantini*. These two have been obtained from the original sources, so that there is no doubt about their being true to name; there is also no doubt about which is the finest, *Chantini* being superior to the other in every respect, and a really fine Orchid.

Cool Orchids include the chaste little *Masdevallia towarensis* with its snow white flowers borne in twins and triplets on erect stems just overtopping the leathery foliage. Some specimens of it bearing some dozens of blooms are little

gems, and are in beautiful contrast to the higher colours of the other showy flowered species, such as *Veitchi*, *Lindeni*, *Harryana*. *Odontoglossums* of the *Alexandra* type create a beautiful display by their long elegant spikes, representing among them the finest possible forms. The singularly handsome *O. tripudians* and the almond-scented *O. madrense*, which has a spike of seven or eight large white blossoms, may be singled out, too, as worthy of note, for both habitually flower in the dull season. Among other flowering Orchids are *Zygopetalum Clayi*, one of if not the finest of all hybrids of this genus yet sent out. It is a cross between *Z. crinitum* and *maxillare*, and possesses the free and vigorous growth of the former with the intensely rich violet-coloured labellum of the latter. It is a free grower and an abundant bloomer, its flowering season extending over a long time. In the *Vanda* house there are still several plants of the tricolor varieties in flower, besides a grand specimen of the handsome *V. Batemanni*, the long spike of which has been unfolding its blossoms for the last three months. In the Mexican house *Maxillaria grandiflora*, a species with ivory-white blossoms some 3 in. or 4 in. across, and emitting a delicious perfume, may be ranked among the best of winter Orchids, and is particularly valuable for cutting on account of the lasting property of the flowers. Among the *Phalænopsids* we noticed the pretty little *P. Esmeralda* in bloom in company with a similar species lately named *P. antennifera*. It differs from *P. Esmeralda* chiefly in colour, which is a pale lilac with two conspicuous orange-yellow blotches on the labellum.

W. G.

Dendrobium leucolophotum.—This new species we saw a few days ago in flower in the Royal Exotic Nursery, Chelsea. It may be best described as a magnified form of *D. barbatulum*, except that the flowers are pure white, not having the pretty purple touch in the throat of the flower. The flowers are borne numerously in dense clusters on long wiry spikes, springing at almost right angles from the stem. It will be a valuable addition, particularly for cutting from.

Saccolabium Harrisonianum is unique in the genus so far as regards the cultivated species, as it is the only one with pure white blossoms. These are produced in massive, dense spikes, and they emit a powerful and delicious aromatic perfume. Its value is much enhanced by its flowering during late autumn and winter, and it is to be regretted that it is so uncommon. It may now be seen beautifully in bloom in Messrs. Veitch's nursery, Chelsea.

Vanda insignis.—This beautiful species, hitherto so rare, but which has been recently imported and sold in large quantities at Stevens' Rooms, is now in flower in Messrs. Veitch's nursery at Chelsea. It is similar in growth to *V. suavis*; the flowers, produced on short axillary spikes, are about the size of those of *V. tricolor*, but the sepals are broader, slightly incurved, and of a greenish yellow ground tint, copiously barred and blotched with reddish chocolate. The labellum is broader than in either of the species mentioned, and it is of an intensely rich amethyst tint, surmounted by a white crest. It is one of the "select" among Orchids. It is well to know that there are two plants under the name of *V. insignis*; the true one is that alluded to above, while the other is but a form of *V. tricolor*.

The white Lycaste Skinneri.—Of this chastely beautiful Orchid there are now some half dozen plants in bloom in Mr. Peacock's collection at Sudbury House, Hammersmith. There are few white Orchids comparable with the purity of the flowers of this variety, which have only a faint blotch of yellow to mar the spotless whiteness of the thick wax-like petals and sepals. Associated with the darkest varieties, such as exist in this collection, the contrast is very striking, and shows well what a wide range of colour exists in this species. The white variety proves itself here to be quite as free and vigorous a grower as the

type, and flowers quite as abundantly. One of Mr. Peacock's plants has incidentally cropped up from a large quantity of imported plants of the ordinary L. Skinneri, which is fortunate, seeing that the white is still so rare and commands such extravagant prices.

Two good cool Orchids.—This remark is applied to *Pilumna fragrans* and *Odontoglossum Rossi majus*, sent to us this week by Mr. Fowler, Ashgrove, Pontypool. Both are represented by uncommonly fine varieties. The *Pilumna* is of the variety called *nobilis*; it has a spike bearing five flowers each, with a labellum measuring fully $1\frac{1}{2}$ inches across, and of snowy whiteness, its chaste purity being set off to advantage by a bright yellow central blotch. The spike emits a delightful fragrance, like that of the *Tuberose*, strong enough to pervade a good sized room. The flowers last for several days in good condition in a cut state, a purpose for which they are admirably adapted. The *Odontoglossum* likewise represents an exceptionally fine form, one with flowers over 3 inches across, having a pure white labellum, pink column, broad petals, two-thirds pure white, the rest heavily blotched with chocolate-red on a white ground, while the narrower sepals are wholly of the same colour. These two cool Orchids are among the easiest to cultivate, and both may be grown well in a cool, moist atmosphere, such as is usually maintained in an *Odontoglossum* house. We have seen *O. Rossi* succeed best on a suspended block or trellis, but some grow it well in hanging pots or pans. The *Pilumna* is more terrestrial in growth and needs pot culture.—W. G.

Temperature of Orchid houses.—"Peregrine" does well to direct attention to this, although I fancy both "T. B." and the writer of the *Orchid Calendar* may be right. The Vandas about which "T. B." wrote were, doubtless, varieties of the *V. tricolor* and *V. suavis* type. These should not be grown in the temperature of the East India house. All our Vandas are grown in a *Cattleya* house temperature the year round, with the exception of *V. teres* and *V. Hookeri*, which are grown in a high temperature during the summer and autumn months, but are wintered in one of from 50° to 55° , and are kept quite dry at the roots. I do not like the temperature of the East India house to fall below 65° . Many species of *Aerides*, such as *A. quinquevulnerum* from the Philippines, *A. suavis* from the East Indies, all the *Angracums*, with the exception of *A. falcatum*, like a high temperature. Many *Cypripediums*, such as *C. laevigatum*, *C. Stonei*, &c., all the *Phalenopsis* and all the *Saccolabiums* must have a high temperature. The best growers of Vandas adhere to a temperature 10° lower, and this has been recommended in *THE GARDEN*.—J. DOUGLAS.

***Odontoglossum crispum flaveolum*.**—Of this beautiful and rare variety there is now a plant in flower in Mr. Peacock's collection at Sudbury House, Hammersmith. The plant in question is a good sized one, and bears a long, graceful spike, branched at the base, and carrying just a score of flowers about the size and shape of those of what is generally accepted as a good form of *O. crispum*. The colour is a delicate soft yellow, almost a bright canary, while the labellum is wholly of that tint. The flower—both sepals and lip—is heavily blotched with reddish chocolate, which adds considerably to its beauty. Yellow varieties of *O. crispum* are extremely rare; those we know of could be counted on the fingers of one hand, and among the crowds of other *Odontoglossums* at Sudbury House this yellow kind at once arrests attention. One form of *O. crispum* called *Blunti* we thought the finest we have ever seen, the flowers being large, the petals and sepals broad, and the lip wide and bordered with a distinct line of reddish chocolate, a colour which pervades the whole of the flower in the form of heavy blotches on a delicate white ground flushed with rose. This is the type of *O. crispum*, which collectors should endeavour to secure and send home in quantities, for such would always find a ready market and fetch high prices.—W. G.

***Vanda cœrulea*.**—Seeing your account of the spike of this *Vanda* in *THE GARDEN* of September the 30th, I thought it might interest you to know that we have a plant here bearing three spikes—two on the main growth, and one on a side piece which started last year. The plant measures 2 ft. from the pot (a 12-inch one). The best spike has twenty-eight flowers on it, all open save one; it measures exactly 2 ft. The other has eighteen flowers, and the one on the side piece has nine, thus making a total of fifty-five. There are four other spikes started half an inch, but as the others took the lead, they have not moved since, and I do not think they will now. The same plant last year had four spikes, with a total of seventy-six flowers all open at one time. The plant is grown in a small mixed stove, which is kept at a fair stove temperature. Have any of your readers had a better flowered plant than this?—S. S. Bradfield, Cullompton, Devon.

FLOWER GARDEN.

DOUBLE DAHLIAS.

If the public taste has of late been largely diverted from double Dahlias to single ones, certainly the Dahlia fanciers have themselves to blame. They have so largely departed from what might be termed natural progression in their "points," that a high class show Dahlia is truly one of the most artificial of flowers. Whether deserving or not the designation of "lumpy," at least we can hardly help admiring the fine rotund form, the exact setting of the rounded and quilled petals, and the perfect fulness seen in the floral formation. But whilst rotundity is an essential element in all good double flowers, and almost invariably in good single ones, fulness is more or less desirable according to the character of the petal and the general outline of the flower. Thus we admire a double Rose bloom just as the petal is large or small, incurved or reflexed. Still, the very handomest flowers are invariably those in which, whilst the petals are large, stout, and pleasingly reflexed, they are not so densely set as to exhibit crowding or to destroy the good effect produced in the flower by each individual petal. On the other hand, a Rose bloom having quilled petals, however loosely or thickly set, would be regarded as a monstrosity of the worst kind. Besides the Dahlia we see in the African Marigold flowers that often assume a quilled form, but as often the petals, though very densely set, are flat and slightly reflexed; on the other hand, the true French Marigold always exhibits flat-petalled flowers not so densely set as in the African, and if the blooms are smaller they are always more elegant. Some of the Continental raised forms of bedding *Tagetes* show double quilled flowers, but these are miserable things compared with the pretty flowers which good French Marigolds produce. Again, how much of the charm found in Carnations, Picotees, and Pinks comes from the flat form of the petals; and as we know fanciers of these hardy flowers are so impressed with this fact that they, by the use of tweezers, endeavour to improve upon Nature, and do so no doubt, but it is all in the direction of producing handsome, well arranged, flat-petal overlapping flowers. How in these particular florists' flowers would a quilled petalled flower be regarded? Would it not be at once discarded? Very certainly the Dahlia raiser of the future can find no better example for the kind or form of flower he should work for than is seen in the Carnation or French Marigold. We might, perhaps, think that the large, flat-petalled *Pæony* would be not an undesirable example to take, but these are largely cup-shaped, and that is not the form assumed by the present family of single Dahlias. The more these are bred the more clearly do they show that not only is a flat-rounded petal Nature's ideal in their case, but also that the continuity of duplicate or added petals as time goes on will certainly, if not otherwise diverted from their natural form, as in the past, assume not only an overlying position, but also a somewhat reflexed form. Now

with regard to the show double Dahlias of the present, we see abundant reason to believe that as double quilled flowers they have seen their best days. Out of the many hundreds of blooms staged at the National Dahlia Exhibition, the premier blooms in both sections of show and fancy sorts were of kinds by no means new; indeed it is doubtful whether in form and fulness we have seen any real advance in these Dahlias during the past three or four years. Variations in markings and lines of colour seem now to be all that is left to stir the ardour of the raiser of quilled double Dahlias. The rage, if it may be so termed, for single Dahlias will soon resolve itself into taste of a far more prosaic kind, and enthusiastic admirers of flowers will sigh for other forms and fashions. The ungainly pointed petalled or *Cactus* Dahlia will please no one; neither do we wish to see its deformities perpetuated in size or other hues of colour, and raisers or seekers after novelties will do well to aim at producing a race of broad flat-petalled Dahlias, in which not excess or abundance of petals shall constitute the most favoured properties, but rather the moderate few, evenly and neatly laid one on the other, leaving no staring yellow eye to disturb our appreciation of good double flowers. A. D.

LOASA, OR THE FLOWERING STINGING NETTLE OF CHILI.

I HAVE now three varieties of the above-named curious and interesting half-hardy annual in flower in my greenhouse and garden, namely, *L. vulcanica*, received from Mr. W. Thompson, of Ipswich, and figured in *Botanical Magazine*, vol. cv., tab. 6410, which is perhaps the most generally known of the family, and may be considered as a hardy annual, self-sown seedlings of which came up in my garden, and having been potted in September continued to bloom till the end of November, forming quite an ornament to the greenhouse; *L. hispida*, of which seed was sent me by the late Mr. Joad, of Wimbledon, which has golden flowers with white centres, and is figured in the *Botanical Magazine*, vol. lviii., tab. 3057; and *L. lateritia*, a red flowered trailer, for which I am indebted to Mr. Milne Redhead, of Clitheroe, and which is figured in no fewer than three works—*Botanical Magazine*, vol. lxx., tab. 3632; *Botanical Register*, vol. xxiv., tab. 22; and *Paxton's Magazine of Botany*, vol. v., tab. 77.

Of these two last named varieties I am now saving seed as it ripens, of which I shall be pleased to send a portion to any reader of *THE GARDEN* who sends me a stamped envelope addressed to themselves as long as the supply lasts. *L. lateritia* is a most abundant bloomer, and well adapted for covering a wire trellis in the summer garden where it continues to bloom till cut down by the frost; it is stated in the *Botanical Magazine* to be at least a biennial, and to be increasable by cuttings as well as seeds. Its seed-pods are also exceedingly curious, resembling in form a brown twisted caterpillar, unfolding exactly like those of a *Streptocarpus*, and altogether dissimilar to those of the other varieties known to me. The colour of the flower is perhaps hardly exactly reproduced in either Curtis' or Paxton's work, Dr. Lindley's figure in the *Botanical Register* being by far the best and most accurate representation of the flower as it really is.

Of the thirty varieties mentioned in Pritzel's invaluable "Index," I find I have portraits in the works to which I have at present access of ten, besides those above mentioned, some of which, however, seem to be only fine or improved forms of other named varieties, as, for instance, *L. Placei*, figured in *Botanical Register*, vol. xix., tab. 1599, and *Botanical Magazine*, vol. lx., tab. 3218, is evidently nothing but an enlarged and improved form of *L. nitida*, figured in *Botanical Magazine*, vol. l., tab. 2372, which is a coarse grower with smaller and less conspicuous flowers of exactly the same colour (orange), with a clear red centre. Again, *Ambrosiaefolia*, figured in *Botanical Register*, vol. xvi., tab. 1390, is apparently only an inferior form of *L. hispida*, having smaller flowers

of a paler yellow colour. An exceedingly beautiful variety figured in the *Botanical Magazine*, vol. lxx., tab. 4095, under the name of Pentlandi, and in Paxton's *Magazine of Botany*, vol. ix., tab. 7, under the slightly varied name of pentlandica, has large deep red flowers, and between this and L. lateritia a still handsomer hybrid form has been obtained, named L. Herberti, after that celebrated florist, the late Dean of Manchester. This is figured in Paxton's *Magazine*, vol. ix., tab. 269, and is said to possess the good qualities of both its parents with larger flowers of a finer and richer shade of red, and is undoubtedly the handsomest of all the varieties yet known to me. The figure referred to was drawn in the year 1842 from a plant in cultivation at Messrs. Henderson's nursery, Maida Vale, and has been, I fear, in the interim probably lost to gardens, as, being a hybrid, it would have to be increased by cuttings, not very easily obtained from plants of this trailing nature; but if its other parent, L. Pentlandi, is still in cultivation, the cross could doubtless again be made, and this fine variety re-introduced to our gardens.

Of the other varieties of which I have portraits, the handsomest and most conspicuous flowered is L. picta, figured in the *Botanical Magazine*, vol. lxxv., tab. 4428, and in Van Houtte's *Flore des Serres*, vol. v., tab. 439; it closely resembles L. vulcanica, but is in every way a handsomer and more conspicuous and desirable variety with larger flowers, which have a distinct and broad band of gold colour at the base of the white petals, making a charming contrast between them and the crimson centre. Altogether this is a very beautiful species, which I should much like to add to my collection if still to be found. The five remaining varieties figured in my books may be dismissed with brief descriptions; as compared with the fine varieties above mentioned they are hardly worth cultivating. L. acanthifolia, figured in the *Botanical Register*, vol. x., tab. 785, is apparently a coarse grower, with large golden flowers with red centres. L. alba, figured in Sweet's *Flower Garden*, 2nd series, vol. ii., tab. 192, is a pretty slender trailer, producing medium-sized white flowers of rather thin form and with red centres. L. incana, figured in the *Botanical Magazine*, vol. lviii., tab. 3048, has hoary foliage and small, pale whitish flowers of no great beauty. L. tricolor, figured in *Botanical Register*, vol. viii., tab. 667, has small and insignificant yellow flowers with red centres. I shall be much obliged to any reader of THE GARDEN who may know where any of these fine Loasas are still to be found if they will let me know of their present whereabouts.

W. E. GUMBLETON.

Belgrove, Queenstown, Co. Cork, Ireland.

THE CLOSE OF THE FLOWER SEASON OUT-OF-DOORS.

THE season on the whole, if less brilliant than some, has been tolerably well prolonged through the later months of the year. The advent of Michaelmas Daisies found goodly company in flowering Begonias, single and double Dahlias, and in many places Roses, Ageratums, and foliage plants. In regard to many of the latter, the more they were washed by drenching rains the brighter and fresher they looked. Some of the more tender, such as Alternantheras and Coleus, were blackened by an early frost in September. But Iresines, Perilla, variegated Maize, Wigandias, Solanums, &c., have escaped till now.

Flowering and foliage Begonias have also stood the rain remarkably well, while Dahlias have been in full beauty and glory, but the fierce storm of wind and rain of to-day (24th ult.) has laid most of them in the mud. We have recently had a succession of heavy rains, with more or less of wind, but nothing of exceptional force has come till to-day. The wind suddenly veered from south-west to due west, and began to blow with hurricane force. Simultaneously with the change of direction and the intensified force of the wind, the temperature fell rapidly, and the floods of rain became at times thickly mixed with snowflakes of enormous size. A

considerable amount of snow fell, yet at no time could the weather be described as a snow-storm pure and simple. The snow formed an addition to the torrents of rain that fell throughout the afternoon. The wind also blew in tremendous gusts, reminding one of the storm that wrecked the Tay Bridge, or that other of October twelvemonth that levelled almost as many trees with the earth. The air was filled with leaves and driving boughs and branches that were torn off the yet leaf-laden trees. And no doubt in exposed localities and on thin soils many trees have been wrecked, and much damage done by sea and land. While I write at 8 p.m. the wind still blows hard, though the rain and snow have ceased. It is hardly too much to say that the storm found a paradise, albeit a little seedy, and has left behind it a wilderness of broken debris and tangled confusion. Writing broadly, few or no flowers are left standing, and Roses have suffered very severely. Some of our finest standards have been snapped off stout stakes and stems as well close by the surface, and not a few dwarfs even have been blown out. The rain was so heavy and the wind took such purchase on the shoots yet clothed with foliage, that the stems were loosened, and worked backward and forward till a hole full of water was formed. The more water the looser they became, till they began to give way in a wholesale way till trampled home during the worst of the storm. This was a new experience to us in Rose growing, and I have never seen strong Roses worked and washed out by the combined force of wind and rain in such a manner before. Of course exceptionally strong stakes and ties would have prevented it, but one is not always hurricane-proof, as I fear not a few horticulturists and others have found to their sorrow on this 24th day of October, 1882.

D. T. FISH.

NOTES FROM NORFOLK.

THE winds and rains of this October (the wettest of the twelve during which I have kept a rain gauge), to say nothing of the frosts, ought thoroughly to test our hardy flowers. Anything still bright and cheery is therefore worthy of consideration. Of climbers, Tropæolum tuberosum stands out by a long way first. Everywhere—north, south, east, and west—it still displays a mass of unscathed foliage of the healthiest green, but with me it blooms only on an east wall (is this the case everywhere?). There its red and orange flowers are now at their best, and there is a profusion of unopened buds likely to improve daily until some frost of greater severity than 5° (they have already withstood that) cuts the plants down to the ground. Tropæolum speciosum, out of bloom but in full leaf, on a north wall has done well, but not quite as well as in some past years. Probably had it been cut down to the ground instead of allowed to shoot out from its main stems, which survived the winter, it would have done better. With Tropæolum polyphyllum and T. pentaphyllum I have always been unfortunate; they will not grow with me. I have tried all positions and all aspects but west and north, and as these plants are described as delightful in sun, I presume I am right in eschewing such shady places. Can any of your readers help me in my struggles? Will Mr. Wolley Dod give us one of his delightful papers on Tropæolums? Would that as a boy I had but as attentively listened to his sentences as I peruse them now; I should be a much wiser man than I am. Of other than climbing plants Tritoma Uvaria variety glaucescens is now the garden king. Of the few varieties known to me it certainly is by far the best for continuous bloom; coming with flowers a few days earlier than the more brilliant T. Uvaria, it outlasts it by weeks, aye, months, and often helps in church decorations both for Harvest Thanksgiving and at Christmastide. T. Burchelli seems to be but a dwarfer and poorer variety of glaucescens. The despised Eucomis punctata still survives where it has bloomed now for seven successive autumns in the open ground; unprotected through the winter save by a handful of ashes over its

crown, it still has two long spikes of flower some 15 inches in length, not counting the bare stalk. Surely no White Queen or other single Dahlia can ever drive the white Japanese Anemone from the place it has held in our gardens and affections for the past ten years. It still yields a few chaste blooms, and on referring to my garden ledger I see its first flower opened so far back as July 15. Can any Dahlia, except, perhaps, our little friend glabrata, the only Dahlia still surviving in my garden, beat or equal that? Exogonium Purga is worthy of a trial wherever even but a small space can be spared on a south wall; in fact, it requires no clear space, being well pleased to ramble over any Rose or other creeper. If the Exogonium will flower in Norfolk, it will do as much in almost every other county. Two perfect blooms are, indeed, all that I have as yet had. I fear King Frost will forbid more buds to expand, but these two grand flowers are ample repayment for the little attention given. Had some noxious insect (not a snail or a caterpillar—a beetle, I suspect) been less cruel in August, or sun been more kind in September, a wealth of exquisite long-necked, Convolvulus-like, magenta blooms would have delighted mine eyes. I purpose again this winter leaving the roots undisturbed, and shall hope for grand things another season. Am I justified in my measures and hopes?

NORMAN.

VIOLA PEDATA BICOLOR.

In your article on this Viola last week you quote as follows from Mr. Ingram: "If, as I presume, the stock from which the figure is taken is better adapted for cultural purposes than those previously introduced, all who delight in spring flowers may anticipate a charming addition to their collection." I do not know where the stock from which Mr. Ingram made the figure was obtained, but as I have myself plants that resisted last winter successfully, and as I gave many plants to Mr. Ingram, it is just possible he drew the figure from one of those plants, as to which he will perhaps inform you. I consider the stock certainly well adapted for culture, both from its hardiness and its very free blooming propensities. The original bicolor form was a seedling doubtless from V. pedata, and the fact that it varied very much in its colouring seems to confirm this view. It grows far more strongly than the type, and blooms more freely. In New Jersey, Messrs. Woolson tell me it is perfectly hardy, and no doubt if careful selection is made of the hardiest plants it will soon be so in England. I have one plant in the open air some 14 inches across, while others have remained far smaller. It requires a light sandy rich loam, and is propagated by offsets that the plant throws off every year. It is particularly suited for forcing in a cool greenhouse, when deep coloured flowers 2 inches and more across are produced. It is found somewhat sparingly in the Eastern States, but is more common in the West. I found it myself in Colorado. I shall distribute some of this stock among my friends.

H. STUART WORTLEY (Colonel).

FLOWER GARDENING.

Vases, baskets, &c.—In their proper place and in due proportion vases and baskets are indispensable in flower gardens, but not unfrequently they are used out of all proportion to the style of the garden and its surroundings—then it is that they become objectionable. Perhaps the tendency to over-decorate in this way must be credited to the severely geometrical plan of many gardens, when to square with many meaningless angles, vases are placed on every available pedestal and corner. Happily, this style of gardening is giving place to a less formal one in which vases and baskets can be used or not, according to the taste of the owner, and yet the garden appear perfect in either case. For a geometrical parterre they are needed to complete the design; at the same time, there is no reason whatever why they should be used so largely as to offend good taste. A pair of vases on the pedestal of steps, and others on the turf at the angles of the most

formal divisions of the garden, to break the lines somewhat, are about all that are ever required, even in gardens of the most formal type. When, however, they are present in too large numbers, much may be done to remove this objection by planting in the vases plants of a drooping character; indeed, vases in every position look most natural when planted with a mixture of plants, and when trailers or climbers droop over the sides. Basket-formed beds are well suited for almost any position in pleasure grounds; but the best of all spots is in an isolated recess on the turf, and next, as a central bed in a flower garden, where the surrounding beds are circles or ovals. We have one the extreme length of which is 16 ft.; it is 8 ft. wide in the middle, and stands 2 ft. 6 in. above the turf, and is made of Portland cement. The principal plants used in it are Marguerites, Pelargoniums, Heliotropes, Fuchsias, Marvel of Peru, Abutilons, Castor-oils, Cannas, Japanese Honeysuckles, and Tropæolums. More rustic forms of baskets than this would be better suited for isolation on the turf and distant parts of the pleasure grounds; and very good ones can be formed with wirework lined inside with zinc, also with barked oak boughs instead of wirework. For ferneries, rock gardens, and wild flower dells, the best forms of vases and baskets are those that are carved out of decayed tree stems, which, by a little manipulation in the matter of nailing on Oak boughs, can be made to look just as handsome as the specially made baskets. In baskets and vases of this kind permanent plants should be used, such as the variegated Ivies, Periwinkles, Japanese Honeysuckles, Clematises, and climbing Roses, space being reserved for flowering plants in summer and for small shrubs in winter.

Coloured foliage.—The use of coloured and other fine foliaged plants in the flower garden has of recent years greatly increased, the causes for such extended use being, first, the new introduction of such a large number of suitable plants; secondly, the foliage and subtropical bedding of the metropolitan parks; and, lastly, the weather, which for the past six or seven years has been so gloomy and wet throughout the summer season, that no sooner have ordinary bedding plants got into full flower than they have been dashed to pieces by the rain; hence the desire that has arisen to have plants that would withstand such washings and yet give us brightness appropriate to the season. The sunless and wet character of our summers of late is no doubt the strongest reason why the adoption of coloured foliage is to be commended and practised, at least within reasonable limits. What that limit shall be must of course be left to the taste of owners of gardens. For my own part, as regards coloured foliaged bedding plants in particular, I do not think that if half of the whole of the plants used were what are termed foliage plants, it would be at all out of proportion; of course, in such coloured foliage I would include all the variegated Pelargoniums which, if thought well, could be allowed to flower. Hardy variegated plants would also be included, such as Japanese Honeysuckles, variegated Periwinkles, Ivies, and similar plants; also the hardy Sedums, Saxifrages, and others of the carpeting type. The grand effects that can be had with this class of plants, and variegated and coloured-leaved plants of the tender section, with graceful leaved plants in combination, are infinitely greater than any that can be had with flowering plants alone, not to mention the additional merit of standing all weathers without injury. One of the brightest and most perfect beds as to colouring—planted in geometrical form, for summer effect—that I have ever seen, was composed of the following plants, viz.: Sedum acre elegans, creamy white; Sedum glaucum, grey; Herniaria glabra, green; Mesembryanthemum cordifolium variegatum, light yellow; and the bright orange and scarlet Alternantheras, all dwarf plants; the standard or central plants being Grevillea robusta and variegated Abutilons. Thus much with reference to coloured foliage. The question of to what extent it should be used for shrubbery and landscape effect must also depend largely on indi-

vidual taste, and on the selection of plants made. For instance, if the favourite foliaged plants be, say, variegated Hollies, then it is almost impossible to get too large a percentage of coloured leaved plants, at least of this type, as they harmonise both in colour and habit with shrubs and trees of almost every description, and are alike useful for the shrubbery as for isolation, as specimen trees on turf. The variegated Maples, purple Beeches, and Hazels should be used much more sparingly, as colours so decided and so different from the generality of ornamental trees are so conspicuous that the eye is unwillingly diverted from the general landscape effect to these particular trees. If they must be used in large numbers, grouping them together would be the best plan to adopt, the groups forming foregrounds to the general shrubbery or plantation. These remarks only apply to plants of such distinctive colouring as those just named. All the varied tints of greens and greys to be seen in the numerous coniferous family can safely be employed to any extent, without the slightest danger of their appearing to overpower any other colour in the landscape, and the nearest approach to perfection in shrubbery and landscape planting is when it is impossible to decide as to what tint of greenery or other colour predominates.

Succulents.—By way of variety, succulents are a desirable class of plants to employ in the flower garden, more particularly in dry positions and under the shade of trees, where other kinds of bedding plants do not flourish satisfactorily. Perhaps they may be considered quaint rather than pretty; nevertheless, arranged on a groundwork of dwarf Sedums, Saxifrages, Antennaria, Herniaria, and similar plants, few bedding arrangements elicit more admiration. But, even apart from this reason, and because of their withstanding storms of wind and rain, drought and cold—indeed, are always in good form—they should have a place in summer flower garden arrangements, i.e., in gardens of any extent. Their variety is greater than that of many other classes of bedding plants, and this merit is enhanced by the fact that they harmonise well with many kinds of hardy plants, that serve as cushions on which to, as it were, display to the full their quaintness. The term succulent includes all plants of a fleshy, juicy character, the more common types being the Sempervivums, Echeverias and Mesembryanthemums; Cotyledons, Kleinias, Pachyphytons, Agaves, and Aloes being more rare, but none the less valuable for bedding purposes. The following are the best bedding kinds: Sempervivum montanum, tabulæforme, and arachnoidum, soboliferum, canariense, calcareum, arbo-reum, arboreum variegatum, ciliatum, globiferum, urticum, and Hendersoni; Echeveria pumila, rosea, secunda glauca, metallica, glauca metallica, farinosa, and Peacocki; Mesembryanthemum cordifolium variegatum, caulescens, tigrinum, inclaudens, and conspiciuum; Agave americana and A. variegata; Pachyphyton bracteosum and roseum; Cotyledon pulverulentum and falcatum; Kleinia repens and tomentosa. To these, though strictly speaking not succulents, may be added many kinds of Sedums and Saxifrages; the most suitable varieties being, Sedum glaucum, Lydium, corsicum, acre elegans, dasyphyllum and hispanicum; Saxifraga aizoon, and its small variety hirta, rosularis, pectinata, and hypnoides. When to this list, which is in every way suitable for association with all the foregoing, is added Antennaria tomentosa, Herniaria glabra, Leptinella scariosa, several prostrate growing kinds of the Veronicas and Thymes, it will be seen that, with such range of variety, how very easy it is to make succulent bedding interesting. W. W.

Chrysocoma Linosyris (Goldilocks).—I have had a batch of this local British plant sent to me this month from the Orme's Head, Llandudno, both in flower and seed. It grows in crevices of the mountain limestone rocks exposed to the south, and it must here attain its most northern site. Koch gives it as growing sparingly on the southern ledges of the Alps; and Reichenbach further remarks of it that it is found on sunny hills, rocks, and meadows, especially in

chalky soil, in the middle and southern tracts of Europe, though rarely in the north. At Llandudno, in North Wales, I have always found it in company with Rubia peregrina, occupying indeed the same ledges.—PETER INCHBALD, *Fulwith Grange, Harrogate.*

Single Dahlias.—A. P. M.—Among the seedlings you send there are two which are distinct from any we have seen. These are named Sunset, buff-yellow, with a conspicuous yellow ring encircling the disk; and Sunrise, a new colour to us, and in this also a sulphur-yellow ring round the centre adds much to the attractiveness of the flower.

Tall Asters.—I was surprised to see A. versicolor over 6 feet high lately in Dorset (the form I had grew 2 feet); not less at seeing A. lævis nearly 10 feet at Penrhyn, where it is grown among the hardy plants for cut flowers. By the way, this is a good feature here. By growing the finer hardy plants in rich borders quantities of fine flowers are obtained for the house—not a few of them being as much admired as the choicest hot-house flowers.—V.

New double Dahlias.—A correspondent in your issue of the 7th ult., which only just now caught my eye, gives an interesting list of double show and fancy Dahlias, with other welcome information. I have grown forty varieties this year, principally introductions since 1879; and though recent storms have made sad havoc among them, snapping off some of them—as Kremihilda, introduced only last year, and Modesty and Revival the year previous—without giving them the chance of opening, I have still many looking very fine, and would like to add to those given by your correspondent two, viz., Lucius, a rich, white, softly-shaded lemon-yellow, and James Dick, dark purple shaded maroon and light red, really fine.—W. J. M.

Perennials for winter and spring.—I cannot understand why anyone who really desires it need have his flower beds empty from this until next April or May. Permit me to add the present contents of some other beds to those you published for me in your last issue (p. 414). Centre double scarlet Lychnis (L. chalcedonica fl.-pl.), then seedling gold-laced Polyanthus, and next the Box edging variegated alpine Veronica (V. gentianoides variegata). The tints of colour in this last are very effective. It must be divided every year in early autumn. Another bed adjoining has the outer circle Saxifraga Wallacei, the best of the Saxifrages; next Viola Countess of Kintore, the best of all the Violas; and the centre alpine Auriculas (selected). Again Aubrietia deltoidea, Spirea Filipendula—effective every day in the year—and centre Campanula persicifolia fl.-pl., all showy and dwarf; and so on in the case of others.—W. J. M.

The purple Mullein (Verbascum phoeniceum).—In last week's GARDEN "W. G." recommends this "as a showy and elegant plant;" and I quite agree with him, but his notice of the plant does not agree with my experience. He says it "is not a true perennial, but requires to be raised yearly from seed." In *Curtis' Magazine*, on the other hand, we read that it "is a perfectly hardy perennial (the root, as Parkinson observes, abiding sundry years), though some have supposed it to be only biennial, an error still handed down in Martyn's 'Millers' Dictionary.'" Now, my experience tallies with that of Parkinson and Curtis. I have in my garden two plants of Verbascum phoeniceum, which I have grown for more than forty years without renewal, except by the natural pushing of fresh heads (and those few in number) from the old brown, ragged-looking root; the root penetrates not less than 18 inches into the soil. "W. G." says also that "seedlings spring up spontaneously in most seasons." Now, in all the years I have had V. phoeniceum I have never seen a spontaneous seedling, and I need scarcely say my plant has never varied in colour. Is it probable that the Verbascum phoeniceum of modern gardens is the result of crossing by an annual or biennial

Mullein? and has its character been changed accordingly? From the same remote time I grew also *Verbascum cupreum*; not, however, as a biennial, but on its own old stock. I lost it about four years ago.—T. H. ARCHER-HIND, *South Devon*. [At Kew, from which my note was taken, this plant is not a true perennial, but it may probably be so in more southerly localities.—W. G.]

PLANTS IN FLOWER.

CENTAUREA ALPINA is a distinct looking species, and for late autumn flowering valuable. It has long pinnate or deeply-pinnatifid leaves of a deep green colour and large, tassel-like flower-heads of a pale yellow hue. A fine flowering specimen of it is sent to us by the Rev. Wolley Dod from his garden at Edge Hall, Malpas.

PAROCHÆTUS COMMUNIS.—This is a charming little rock plant at all times when in flower, but more particularly at this season when so few plants are in bloom in the rock garden. During the week Mr. Stevens brought a bunch of its pretty porcelain-blue blossoms, which remind one at first sight of big Violets. It is a wiry trailing plant, and in the rock garden at Grasmere, Byfleet, it thrives admirably in light sandy soil.

AURICULA MAUD BROWNE.—I send you a few blooms of my seedling *Auricula*, Maud Browne. These autumn blooms convey but a poor idea of the rich-shaded, plum-purple pips that we have in the spring. The plant is of robust growth, and one that (so far) appears to be a favourite with the few who have seen it.—W. H. BROWNE, *The Laurels, Aldborough*. [A pretty variety, with good circular pip and well defined golden centre. It will probably come better still in spring.]

TORENIA BAILLONI.—This yellow-flowered species proves itself to be a valuable winter-flowering plant for the greenhouse. It is of dwarf spreading growth, and bears a profusion of bright yellow flowers, marked with conspicuous dark blotches. In one of the greenhouses in the Victoria Nurseries, Upper Holloway, it is one of the brightest plants in flower, and has a pretty effect amongst its associates. It requires treatment similar to that usually given to the better-known *T. asiatica*.

TAGETES LUCIDA.—I send you blooms of this perennial form of *Tagetes*, which is desirable for the mixed border, as it continues in flower all through the summer and autumn until this late period. It grows about from 12 inches to 18 inches high, branches freely, and bears numerous flat bunches of golden orange blossoms on slender, wiry stems, and where yellow flowers are needed is useful for cutting. It is an old introduction from the Cape, and was figured many years ago in the *Botanical Magazine*.—J. T. Poë, *Riverston*.

TABERNÆMONTANA (AMASSA).—As a perpetual flowering stove shrub, yielding a profusion of pure white blossoms like miniature *Gardenias*, this has few equals, and its blossoms are valuable in a cut state when white flowers are needed in winter. It requires to be grown in rather a high temperature, but is not difficult to cultivate, and does not require the attention that *Gardenias* do. In Mr. B. S. Williams' nursery, Upper Holloway, it is grown largely, and some large bushes of it afford a continuous supply of bloom for cutting.

ASTER TURBINELLUS.—This is the most elegant in growth of all the Michaelmas Daisies, and should be always included among the select few if a full collection be not required. When fully developed the plant forms a spreading bush, some 3 feet or 4 feet high, and it has long, slender, wiry branches, which are copiously furnished with flower-heads, large compared with those of the majority of other kinds, and they vary from a pale mauve to deep bluish and reddish purple. Of the latter tint Mr. Stevens brings us a fine specimen, which for some time past has been beautifully in bloom in his garden at Byfleet. It is a little later than most of the other kinds—a point in its favour.

Mr. Stevens also brings *A. horizontalis*, a species in the way of the common old *A. dumosus*, of almost every cottage garden, but distinct in having the branchlets spreading out horizontally; also *A. ericoides*, a pretty little species, having myriads of small white blossoms on very twiggy shoots.

CLEMATIS LUCIE LEMOINE.—I send you a bloom of this *Clematis* (one of the Florida section), showing how late this will bloom if it only receives a slight protection. This, in August, with *C. Miss Bateman* (patens section) is grown one at each end of my alpine house, and they are now becoming established, and appear quite at home in their north aspect. How long they will remain in this aspect and ripen their growth remains to be seen. However, if wisdom cometh from the east, floral beauty with depth of colour predominates in the north.—W. H. BROWNE, *The Laurels, Aldborough*.

RUDBECKIA PINNATA AND SUBTOMENTOSA.—These two species come in a flowering state from Mr. Wolley Dod. The first has large flower-heads with bright yellow ray florets and a high conical disk. If we remember rightly, it is a vigorous growing perennial that should not be placed too near weaker neighbours. It is desirable on account of its long and continuous flowering, prolonging the season of yellow composites to well into November. The other species, *R. subtomentosa*, resembles the popular *R. speciosa* or *Newmanii*, as it is oftener called, but the flower-heads are small and the plant taller and more straggly in growth than that species.

ASPARAGUS PLUMOSUS IN FLOWER.—At all seasons the elegant feathery foliage of this plant renders it sufficiently beautiful, but when covered with myriads of tiny white blossoms, it is still handsomer. A large specimen of it may now be seen in a flowering state in the Royal Exotic Nursery, Chelsea, where it is one of the prettiest objects imaginable. As a plant for draping a rafter or pillar of a warm greenhouse it is most valuable, and there are few more elegant plants to cut from for mixing with cut flowers. There is a dwarf variety of it called *nanus*, but that in question is called *A. plumosus scandens*.

ASTER PANICULATUS ALBESCENS.—From the Rev. Wolley Dod we have received this extremely elegant Michaelmas Daisy. Its flower-heads are comparatively small, but plentifully produced on very twiggy shoots. The colour is purplish white, a tint that associates well with that of almost any other flower. Another Mr. Dod sends us without a name, except that of "Archer Hind's Aster." This is, we consider, the finest of all the Michaelmas Daisies. The flowers are large, of a bright purple-blue, and borne in profusion in big, much-branched clusters. It appears to us to be identical with that named at Kew *A. lævis* by Dr. Asa Gray a year or two ago, but which is now rather past its best in the Kew collection. It is one of the few Asters that can be recommended for general culture.

CHRYSANTHEMUM LADY SELBORNE.—This new variety, a sport from the well known *James Salter*, one of the Japanese type, will no doubt be the finest novelty of the season in the way of *Chrysanthemums*, for it possesses all the good qualities of *James Salter*, and its flowers are pure white. In the large *Camellia* house in the Royal Exotic Nursery, Chelsea, there is a full collection of varieties, many of which are in flower, and the new *Lady Selborne* may be singled out from amongst them, even from a distance, owing to the profusion of its shaggy pure white blooms. Its earliness, too, is a point in its favour; it seems to expand its blooms naturally as early as *Elaine*, now a well established favourite, though of the two we should prefer *Lady Selborne*. During the coming season we shall no doubt see this beautiful novelty in great perfection, and already we have heard reports of its producing exceptionally fine blooms. It originated two or three years ago with Mr. Salter, Mr. Southgate's gardener, at Selborne, Streatham.

URCEOLINA PENDULA.—This is both an elegant and a handsome bulbous plant belonging to the

Amaryllis family, and valuable for supplying bloom during October and November when little else in stoves is in flower. From the globular bulbs a stout flower-stem arises erect about 1 foot high, terminated by an umbel of about half a dozen gracefully drooping, urn-shaped blossoms some 2 inches in length. These are of a bright canary yellow tipped with Pea-green and white, a singular combination which at once attracts attention. The plant is of easy culture, requiring much the same treatment as that usually given to *Eucharis amazonica* during the time when it is making its growth, but during the flowering season, which extends over several weeks, it sustains no harm in a cool conservatory, the atmosphere of which conduces to preserve the flowers longer in perfection than they otherwise would be. We have never seen this plant grown so well or in such quantity as in Mr. B. S. Williams' nursery, Upper Holloway, where in one of the cooler greenhouses it is now making a fine display. It is a native of the mountains of Peru, and though an old introduction, is by no means so common in gardens as its merits entitle it to be.

PHILODENDRONS AT HOME.

WHEN it becomes the fashion to construct the interior of our plant houses in a less formal way than at present, and arrange their contents in a more natural and picturesque manner, then probably we shall better appreciate the value of *Philodendrons* and crowds of other handsome leaved climbers and epiphytes at present confined to such gardens as that at Kew. In plant houses of the ordinary stamp it is almost impossible to cultivate rampant tropical plants such as the *Philodendron*, for, more than any other class of plants, they like to grow freely in their own way, and resent such treatment as that to which they are sometimes subjected, viz., growing them in pots or pans, and pegging their stems down on a pie-like mound of soil. Managed in this way, they soon outgrow the limited space allotted to them, and have to be cut and otherwise restricted, thereby destroying all natural beauty. The accompanying engraving, from a sketch by a traveller in tropical South America, shows well the way in which the *Philodendron* grows naturally, and nothing could be more picturesque or beautiful either as regards form or colour. To imitate in plant houses the natural habit of these tropical Aroids would not be a difficult thing. For instance, they delight to climb the bare face of a moist wall, to which their long, thong-like aerial roots cling with great tenacity. They are quite at home, too, climbing the dead trunk of a tree placed erect in a warm, moist stove; this they rapidly drape with beautiful foliage, and if these tree stumps were placed around the ugly, bare iron supports, often so obtrusive, a sad disfigurement to our stoves would be effectually hidden, and a feature of considerable beauty added to them. In many plant stoves, too, one often sees ugly, bare walls which certainly ought not to exist now when there are so many fine foliated plants with which to clothe them. The Aroid house at Kew (No. 1), or the similarly fine house at Schönbrunn, affords ample material from which to select the finest species of *Philodendron* most suitable for general cultivation. At Kew they may be seen revelling in almost natural luxuriance, some scrambling over the face of a high, moist wall, others draping iron supports, and the majority clinging to branches and trunks of trees fixed firmly erect. In round numbers there are about half a hundred species of *Philodendron* in cultivation, but only about a quarter of these can be recommended; the selection should include *P. daguense*, *Lindenii*, *melanchrysos*, *Carderi* and *gloriosum*, all of which have beautiful foliage, and are of scandent growth. The culture of *Philodendrons* is extremely simple; in a small state they require pot culture and a little attention, but when of good size, say a foot or so in height, they may be placed against walls, tree stumps, or used in other ways, and all they afterwards require is plenty of heat and moisture throughout the year.

W. G.

ST. JOHN'S, RYDE.

THE Rev. H. Ewbank's garden at St. John's, Ryde, Isle of Wight, is at all times so interesting that even thus late in the season I availed myself of an invitation from its owner to pay it a visit in order to see what was in flower in the second week in October. Mr. Ewbank, an enthusiastic gardener, wisely discards all coarse-growing subjects, and in that way is able to utilise every inch of his garden to the fullest extent with plants of the choicest kinds. Even in gardens of ten times the extent I never saw collected in one spot so many rare and beautiful plants. In ordinary gardens this is the dreariest time of the year—a

name is written with a pointed piece of wire, which, by removing the last coat of paint, leaves the letters in white on a black ground. Labels of this kind are cheap and durable, and above all do not offend the eye, even where hundreds of them are used, yet the name is clear and distinct.

Amongst plants in flower *Milla biflora* has lovely blossoms of the purest white, but it is not wholly hardy. Mr. Ewbank grows it in pots plunged in the open ground, and moves it under the shelter of a glass roof when in bloom; it is a real gem. Another beautiful plant in open beds is *Sternbergia lutea*, the flowers of which resemble those of a beautiful clear yellow *Crocus*. *Schizostylis*



The *Philodendron* at home.

time when tender plants are being lifted and when beds are being prepared for spring flowers and bulbs—but St. John's is not an ordinary garden; on the contrary, no radical changes take place in it. In every foot of soil some rare plant is located, and even though dormant as far as top growth is concerned, its resting-place is accurately marked by labels, of which an illustration appeared in THE GARDEN for 1879 (p. 488). These labels are made of pieces of soft wood, cut into convenient sizes by a neighbouring carpenter at a trifling cost per thousand. The wire is cut into lengths of about 6 in., and inserted in holes made by a sharp bradawl or very small gimlet. When in use the moisture causes the wood to swell, and the legs are thereby rendered immovable. Two coats of white paint are put on, and allowed to dry. When required for use a coat of black paint is applied, and the

coccinea seemed to be quite at home, its foliage and flower-spikes being more like those of some *Gladiolus* than anything else with which I can compare them. *Crocus longiflorus* and *C. speciosus* were just coming into full beauty, and numerous other bulbous plants were just pushing through the soil. Associated with these were also many varieties of *Cyclamen* with pretty flowers and mottled foliage, *Sedum spectabile* in fine condition, and several other varieties of *Sedum* that succeed specially well on elevated dry positions. *Asteriscus maritimus* was covered with yellow flowers; *Papaver umbrosum*, a magnificent Poppy, had large red flowers with a black blotch; and *Anemone japonica* was also in flower.

A large mass of *Desmodium penduliflorum*, with long shoots trained on arched stakes, was quite covered with purple Pea-like blossoms; and on a

mound in the wild garden was the finest plant I ever saw of *Eryngium pandanifolium*. It had noble *Pandanus*-like leaves, and from the centre rose a grand flower-spike quite 12 ft. high and regularly furnished to the top with Blackberry-like flowers. This noble plant looked like a giant amongst pigmies, for around it the ground was carpeted with *Saxifrages* on one mound, *Sedums* on another, and so on, with little winding footpaths just enough to get amongst the plants without treading on them. In close proximity to this was a beautiful bush of *Escallonia montevidensis*, with large tufts of bloom resembling those of a white Lilac, and invaluable at this season in a cut state. Side by side by way of contrast was a beautiful bush of *Berberis Fortunei*, brilliant with autumnal tints and very effective. *Desfontainea spinosa*, with waxy red and yellow flowers and shining Holly-like foliage, was doing well in this sea-side garden, and giving promise of making a beautiful bush. *Choisya ternata*, too, was in thriving condition, and *Rosa rugosa* and its white flowered variety are now covered with their large and showy hips; while growing on stakes as Hops are usually trained was *Exogonium Purga*, a highly ornamental climber, producing purplish rose, Ipomea-like flowers in great abundance. This is one of Mr. Ewbank's special favourites; a few ashes put over its roots in winter is the only protection it needs.

On walls large number of climbers are grown, and amongst them *Mandevilla suaveolens* was specially attractive, being cleaner and healthier than one ever finds it under glass. Associated with it were *Billardiera longiflora*, covered with purple berries, and *Vitis humulifolia*, fine as regards foliage and covered with flowers, but it needs a hot summer to perfect its sky-blue berries; then it is perfection as a climbing plant. Under the shelter of a glass roof, *Bougainvillea glabra* was in grand condition, and the perfume of *Jessamine* exquisite; but it is outdoor plants that constitute Mr. Ewbank's strong point. Amongst these the beds of *Lilies*, *Irises*, *Cypripediums*, &c., would occupy much space to describe in detail. In such a garden as this there is no such thing as a dreary, uninteresting time of year, for no sooner is one phase of beauty ended than another commences. And let it not be thought that because I said digging and forking in the ordinary sense was impossible, that cultivation is neglected. No; on the contrary, it is carried out with a vigorous hand when requisite. It is the perpetual uprooting of the occupants of beds and borders that is not practised here. For instance, when a bed of *Lilies*, *Irises*, or whatever it may be, needs replanting, they are taken up, and the soil is entirely removed and replaced by fresh material, or it is so deeply cultivated and enriched that it does not need disturbing again for some time, except to remove weeds or lightly loosen the surface, operations needing to be very carefully done, so closely are choice plants everywhere placed; but right well do they repay the care expended on them, for St. John's, although greatly favoured by Nature, has yet its garden enemies to contend with. The wind in spring left its mark here as elsewhere that is not yet wholly obliterated, and brought the fruit crop to a low ebb, and slugs and snails wage perpetual warfare; but it is by overcoming difficulties that a true gardener is known, and here results amply testify that the owner and his garden are in happy accord.

J. GROOM.

Seaford Nursery, Gosport.

INDOOR AND OUTDOOR GARDENING.

IN floral and ornamental gardening two different phases compete for favour, and these are indoor and outdoor gardening. Those who can indulge in both are favoured, but in too many cases one phase suffers at the cost of the other, neither, perhaps, being as well done as they should be. At the present time extra temptations exist to indulge in the luxuries of Orchid or plant culture; and many, we fear, are tempted in this direction without considering, or perhaps knowing, the pleasures and advantages to be derived from the freer and

more natural open-air gardening. Neither can be carried out well or satisfactorily without expense; and where both phases cannot be indulged in on a scale of sufficient magnitude to afford real satisfaction, it is well worth anyone's while to consider which shall have the preference. To the query, Shall it be hothouse plants and flowers, or an open-air flower and pleasure garden? most people, after mature consideration, would, we think, vote in favour of the latter. The pleasure derived from a collection of plants under glass is upon the whole limited, and has been unduly exaggerated.

Most of the plants are grown under conditions that prevent as full an enjoyment of them as if they were in the open garden; for steaming hothouses like Turkish baths are hardly the places anyone would select by preference to take their pleasure in, and are as seldom situated or arranged for such purposes. The writer was not far wrong who said that a stuffy hothouse was the last place one would think of sauntering in for pleasure under any circumstances. It is a fact beyond dispute that the hothouses of private gardens are not as much frequented by their owners as they might be, and probably would be, but for reasons given above. They are regarded more as "curiosity shops" than anything else. The only phase of hothouse gardening that really commends itself to a proprietor and lover of flowers is the conservatory—an adjunct to a mansion which is not half enough appreciated or understood.

The conservatory affords by far the best means of enjoying the pleasures of indoor gardening; and if gentlemen would devote their resources more to this style of gardening, and less to the culture of specialities in multifarious divisions of uncomfortable and inaccessible plant structures, they would confer a great deal more pleasure on themselves and their families, and at the same time provide a sanatorium for those who need such a resort. A conservatory, properly planned and furnished, should be the aim of all who would grow plants for pleasure; and it is only the want of a plan and a clear conception of what is wanted in this respect that has hindered many a garden from having a good conservatory. To be enjoyable, such a structure should be large and commodious, light, and be kept at a comfortable temperature for visitors. In such a house numbers of fine plants will succeed well permanently planted out, and the temperature will suit all flowering subjects from hot or cold houses during their flowering season, and do them no harm whatever, such as warm and cool Orchids, stove and other plants. All that is wanted, in addition to a conservatory of this kind, is a few pits and small houses as feeders for the conservatory, in which the plants can be grown in the temperatures that suit them till the time comes for them to be displayed in the right place. Gardeners can grow any kind of hothouse plants for exhibition purposes to the very day or week they are wanted, and all they would be required to do would be to study their employers' wants in the same way. It has often occurred to the writer that the means in many fine gardens have been frittered away in making a small village of glass houses (which are not ornamental, attractive, or convenient) that might have been spent in making a really pleasant garden under one roof. The conservatory should be the first glass house built in a garden, and the others added as they are wanted. At present the tendency seems to run in favour of Orchids, at the risk of neglecting other subjects hardly less beautiful or interesting, if cheaper and more easily grown. But even Orchids will pall on the taste in the end, and it is found that the truest enjoyment is derived from a garden which presents us with the greatest variety. Such are the main advantages and pleasures of indoor gardening, and the best means of securing the same; but, after all is said that can be said about it, we have still

The outdoor garden to fall back upon, and it claims even a larger share of our consideration. The scope here is far greater than under glass, and the enjoyment to be derived from it is greater also, provided it is

planted and managed as well as our hothouses usually are. Gentlemen put up glass structures, and, because they have cost a certain amount of money, they like to see them utilised to the full; and quite rightly, too; but it must not be forgotten that the outdoor garden has cost money too, and is costing money every year, and good management is as necessary and important there as anywhere else. Practically, those who cannot afford glass houses on a scale sufficiently extensive to provide for the proper culture of their inmates, or to be of much real benefit or pleasure to themselves, we should advise to go in for hardy open-air gardening in its various aspects, and do it well. Outdoors we can have flowers as pretty as we can have them indoors, and far more plentiful; and the enthusiast will find more scope for his taste, and also for his purse, than than in the culture of Orchids even, or any other phase of indoor plant culture. We have bestowed if anything too much attention upon flower gardening under glass at the expense of flower gardening out of doors, and it is now time the latter had a turn. We speak within the mark, and from knowledge, when we state that more money has been spent year after year in many gardens simply on exhibition plants and their culture than would have furnished a pretty flower garden and gone far towards its keeping. These remarks appeal to all, but chiefly to those about to lay out and furnish gardens. They have first got to ask themselves what their object in having a garden is, and next what kind of garden will best fulfil that object. Fruit culture is not under discussion, only ornamental gardening; but it may be stated that those who have a well laid-out and well-appointed hardy garden, and a few nice fruit houses as well, if they will have glass houses, have much to be thankful for. But, if it be a question of building and filling a few small plant houses at great and disproportionate expense, or of having a tolerably extensive and pleasant outdoor garden, then choose the latter by all means. Both are on the whole best; but most attempts at general plant culture under glass on a small scale turn out poorly, the evil being that too much is, as a rule, attempted, ending in dissatisfaction and disappointment to everybody, and much waste of means; for wherever glass is erected, the cost of keeping the garden is nearly trebled, and the outdoor garden is apt to be neglected.—*Field*.

EFFECTS OF WEATHER ON INSECT LIFE.

MISS ORMEROD has lately delivered a lecture on this subject at Cirencester. She referred to the current opinion that weather affected all insect life alike; this was far from being the case. The golden chafer, or Turnip-flea beetle, thrive in very hot sunshine, while the daddy-longlegs or crane fly liked the cool dampness of overshadowed meadow Grass. What one species of insect thrived on in its fully developed state might be precisely what would not have suited it as a caterpillar or a grub. We also required to distinguish the meaning of the word, "weather," for differences in the amount of heat or cold acted very differently, according to the amount of rainfall or of moisture accompanying them. Many grubs, such as those called surface caterpillars, would stand severe cold so long as they were in their own specially prepared wintering-places, but if thrown out so as to be exposed to wet also, would die. A sudden downfall of cold rain in summer would clear off caterpillars, but with regard to some kinds of eggs, though heavy rain might destroy them, yet they would not hatch as well in drought or heat as when there was a certain amount of moisture in the air. Insect life was also affected, not only by the state of the weather for the time being, or shortly before any given time, but the effects of weather might be traced for one or two years or more, sometimes directly in the condition of the insects themselves, sometimes by promoting the growth of special weeds, which might be the food plant of some special plant pest (the Charlock, for example), and also by so affecting the state of the ground that regular measures of cultivation by which plant and insect vermin were

usually cleared out could not be carried on. If the condition of common insects during autumn and winter was considered the time when the ordinary operations of the year commenced, some of the reasons why they were uninjured even by severe cold would be seen. The winter state which they called hibernation was not simply a torpidity caused by the cold, for it was found, in cases where the regular time for hibernation had not arrived, that insects had carried on their occupation quite undisturbed by a drop in the temperature of some degrees lower than the warmth of some weeks later, when they were retiring in due course to their winter quarters. Hibernation appeared to be quite a distinct condition from the mere effect of cold; rather a constitutional seasonal influence in which insects, while they had still all their instinctive faculties in good order, prepared a shelter for the coming cold and want of food. They did not just pass into a state of torpor indifferently wherever they might be, but selected some special locality under leaves and stones, or some safe protection, or formed a cell, or in some way supplied themselves with shelter; and here they—or such of them as hibernate—passed into a quiet, motionless state, the animal functions decreasing in power with the increase of cold. Still, if even totally frozen so that they could be broken like sticks, many kinds of caterpillars were not injured so long as the freezing took place in the shelters they had made for themselves. The true remedy here was to cultivate the land in the autumn, and throw them out of their cells and lay them open to drying winds and frost and thaw and wet. This would effectually kill them. So far as the egg-laying is concerned, Miss Ormerod pointed out that the laying places—rank grasses and weeds—should be destroyed. Liming and chemical manures and sheep-folding were all sure means of destroying the eggs.

INDOOR GARDEN.

PLANTS FOR WINTER DECORATION.

Palms.—There can, I think, be no question that Palms stand in the foremost rank for decorative purposes during winter, and yet many refrain from growing them through the mistaken notion that they require heat and become large in a very short time; their growth is only rapid when they are well fed and allowed plenty of pot room, for when restricted in both, they may be kept small for years. That there are Palms which need great heat is well known, but there are plenty that are quite at home in a very low temperature, and one at least is hardy, and that, fortunately, is one of the best. The name of the particular kind is *Chamaerops Fortunei*, which has finely divided, fan-shaped leaves, borne on short stalks, rising from a shaggy tree-like stem, which when it attains age, is quite coated with fibre. Another striking Palm that will endure the temperature of a greenhouse is *Areca sapida*, which is very distinct from the one just named, as it has long erect leaves or fronds and is of most stately appearance. *Latania borbonica*, *Seaforthia elegans*, *Jubæa spectabilis*, *Phoenix dactylifera*, *Rhapis flabelliformis*, and *Sabal Adansonii* are all desirable Palms to have, and will go far to give character and produce a fine effect in any conservatory. What they look well with are variegated plants, and among these none are more valuable than *Aralia Sieboldi variegata*, which has noble foliage, most handsomely divided and margined with an irregular broad band of a rich creamy white, which shows up in pleasing contrast to the dark shining green of the centre. Unfortunately, plants of this beautiful *Aralia* are still very dear, as they all have to be got from cuttings made from side shoots, and these are not to be obtained in quantity; the process of working up a stock is therefore a slow one. At one time I thought I should be able to raise a lot from seed, but they nearly all came up with white cotyledons, and died off in the quick way such albinos do. The normal form may be got in any quantity by saving or buying the seed, which large, old plants yield freely, and if sown

in sandy soil in heat in spring, it soon germinates, and makes fine useful plants for furnishing in a few months.

The New Zealand Flax is likewise a valuable plant, the best variety being the variegated kind, which has rich bands or stripes up the whole length of the long, sword-like leaves that look very bright, and produce a most striking effect among other plants. The way to increase the variegated Phormium is by division, and the best time for doing this is in spring, when they may be shaken out of the soil, pulled apart, and if then repotted and kept close, will soon start to grow. Another plant that I can strongly recommend is *Aspidistra lurida variegata*, which is so tenacious of life that it will flourish almost anywhere, and even withstand the fumes of gas, which are so fatal to most other things. To bring out its variegation to the full this *Aspidistra* should be grown in peat and sand, and as it requires plenty of water, the pots should be well drained that it may pass freely through. For growing in rooms *Aspidistra lurida variegata* is quite

are desired, all that is necessary is to trim or disbud the stems till they reach the requisite height, when, by stopping, the plants will branch out and form nice little heads. To have good shaped pyramids, the side shoots should have the points nipped out to cause them to break back, which they will then do and become well furnished below. *Euonymus latifolius albo-variegatus* and *aureo-marginatus* are quite worth growing in pots, and unless kept under glass they are seldom seen in perfection. The first named forms a very beautiful plant, as it has large leaves broadly margined with a fine creamy white, and they are highly polished and very rich-looking. *Yucca aloifolia variegata* should not be forgotten, as it is a charming thing for table decoration or furnishing vases, for which purposes its general appearance and habit render it specially suitable.

S. D.

IPOMEEA MUTABILIS.

THIS very handsome stove plant makes rapid and extensive growth, attaining a length of about



Ipomoea mutabilis.

unsurpassed, and it is surprising the length of time it will last and succeed without receiving a shift, as however cramped its roots are it always does well. *Coprosma Baueriana* is also noted for its accommodating habit and lively looking foliage, which is so rich and bright that it quite lights up a place. To grow it well with large leaves it requires rich soil, such as a mixture of fibry loam and leaf-mould, with a sprinkling of rotten manure, and when well established should be supplied freely with liquid manure. In propagating this *Coprosma*, cuttings should be made from the half-ripe shoots in the autumn, or from the younger wood in spring, and if inserted in sandy soil and kept close and warm by placing a bell or hand-glass over them in a house or frame, they strike readily and soon make nice little plants.

Eurya latifolia variegata is another charming subject for the ornamentation of the greenhouse or conservatory, as in its markings and richness of leaf it is almost equal to some of the best of the *Crotons*, and is almost if not quite hardy, so that it may be used in any cold, draughty place without taking harm. Like the *Coprosma*, it may be increased readily by cuttings taken off during either spring or autumn and treated in the same way, and if standards

60 feet in three years from seed. Striking both in foliage and flower, it well deserves attention wherever there is room for its development. It may be made to form a thick evergreen wreath along the roof of the house, which it enlivens through half the year with many azure blossoms. The leaves are broadly heart-shaped, or may become three-lobed with lanceolate divisions, and the flowers are of a vivid ultramarine blue suffused with red before sunset, when they collapse. Although of such short duration, there may be for months a continued succession of them. It is very easily propagated by means of runners, which spring from the root and branches, roots being produced even in the air. It is a native of South America.

R. I. L.

Winter Zonal Pelargoniums.—It is not well to select for winter growth kinds that produce specially large pips or big trusses, but those having varied and specially distinctive colours should be selected. I have just now in bloom Dr. Denny, a lovely rosy puce kind that is most striking; also Guinea, the best orange-yellow flower we have; Lizzie Brookes, carmine-scarlet, truly beautiful always; Lucy Bosworth, delicate flesh pink; Lady Bailey, deep rosy pink; and Sir E. Landseer, rich crimson-scarlet. These

may be taken as examples of the varied forms which are suitable for winter culture. To these may well be added *Prima Donna* and *Eureka*, both good white kinds.—A. D.

Culture of Nerines.—With these, Dr. Thomas Cam, of Hereford, is most successful. He has had almost all the known varieties in bloom, including the true *N. cornu major* and *N. curvifolia*, which he obtained from the late Mr. Groom's Clapham collection, as well as *N. Cami*, *N. undulata*, and *N. O'Brieni* (the last a cross between *N. pudica* and *N. Fothergilli major*). This last has been greatly admired. It is a neat growing plant, bearing large heads of bright red flowers, with perhaps the broadest segments of any of the *Nerines*. *N. O'Brieni* lilacina has a decidedly blue tint; indeed, in the mature flower it comes so near blue as to suggest that a little more careful crossing would give us that colour. Dr. Cam grows his *Nerines* in loam, and keeps them in an ordinary greenhouse, and so easily does he manage them that he always regrets their scarcity in small establishments where they could well be grown, and where they could not fail to be a great source of pleasure.—O. J.

Salvia Hians (Gaping Sage of Cashmere).—This very handsome Sage, for which I am indebted to the kindness of the director of the Royal Gardens at Kew, is now blooming with me for the first time in a pot in the greenhouse, into which it was lifted from the open border about a week ago, when its bloom spikes first appeared. It is unfortunately not hardy, though said to be so by Dr. Lindley, who figured it in the 27th volume of the *Botanical Register*, plate 39, when it was first introduced from Cashmere (in 1840), where it is found growing plentifully in the upland meadows. After being several years in cultivation it was apparently lost to European gardens till re-introduced in 1877, when it was again sent to Kew and flowered there the following year from seed, and was again figured in the 106th volume of the *Botanical Magazine*, tab. 6517. There is, however, a striking discrepancy between the height assigned to the flower-stems in these two works above referred to, Dr. Lindley stating that they reach about 1 foot in height, and with this opinion my present experience of the plant inclines me to coincide; whereas in the *Botanical Magazine* they are stated to be between 2 ft. and 3 ft. in height, and to bring the stem within the compass of the small octavo plate it has to be bent up and down twice. The colour of the flower is of the richest sapphire blue, with a beautifully mottled white lip, with which the deep shade of the tube makes a most striking and charming contrast. The size of the flowers is large, and they are produced in rich profusion up the flower-stalk. When I stated that it was not hardy, I merely wished to imply that it died with me in the open border the first year I had it from Kew, but it may have succumbed to the long-continued wet and damp and may prove hardy in a drier climate.—W. E. G.

SHORT NOTES.—INDOOR.

Lilies of the Valley.—I wish to grow some of these in pots for winter flowering. Should they be treated the same as *Hyacinths*?—L. A. B.

Fuchsias.—"E. G." will find whites of the Mrs. Marshall class quite persistent, while there is hardly a dark double that can be made to hold its blooms.

Hardy annuals for early flowering.—Can any of your correspondents suggest any hardy annuals or plants that would bloom earlier than out of doors in a large unheated greenhouse, somewhat out of repair, that has regular beds (having been intended for a *Camellia* house)?—M. L.

Eucharis amazonica—This is well grown and flowered at Fern Dean, Gates-head. One plant in a 16-inch pot bears no fewer than thirty-nine spikes of flower, another thirty-four, and two smaller ones twenty-seven and twenty-one respectively, making a total of 121 spikes on four plants, and on every spike there are three or four fully expanded blooms.—WM. WHITING, *Shot Tower, Newcastle.*

Abutilon Boule de Neige.—This is one of the very best of winter-flowering plants; it not only flowers freely, but is one of those continuous bloomers that produce blossoms from the axil of every leaf as long as growth lasts; and the foot-stalks are long enough to enable the flowers to be used either singly for bouquets or for furnishing small vases, for which their delicate purity of colour makes them very acceptable. The best way to treat this plant is exactly that usually accorded to winter-flowering Pelargoniums. It should be grown on during summer out-of-doors in an open, sunny position. The bloom should be pinched off as soon as it appears, and the strong shoots should be stopped, so as to furnish a quantity of small spray-like shoots; and finally, the pots should be well filled with roots. If plants thus prepared are now set in a light house with an intermediate temperature, they will produce bloom up to Christmas; and as a subject for filling the flower basket during the darkest months, I feel sure anyone giving this Abutilon a trial will say it is one of the very best for that purpose.—J. GROOM.

PROPAGATING.

SOFT-WOODED CUTTINGS.

THESE are very liable to damp off. The best preventive is removing any decaying material every morning. If this practice is followed out it will be found that a few minutes will suffice to look over a great number of cuttings; indeed, no more time is occupied than when they are looked over perhaps twice a week, and the difference in the number lost from damping off under the two modes of treatment is very great. Another thing requiring great care is giving air, in speaking of which I do not refer to such as Pelargoniums and things of that class, but rather to cuttings of delicate stove and greenhouse plants kept in close cases in the confined atmosphere of a propagating house. For such the best practice is, the first thing in the morning, to take off all lights, bell-glasses, or other means of covering, and wipe and allow them to remain off as long as possible without causing the cuttings to flag. While the coverings are off look out for decaying portions, and take advantage of the opportunity to water those that require it. A good way is to have a case kept to which more air is given than to the others, to which the cuttings may be removed as soon as they commence to root, as the atmosphere of a close case is very weakening to any plants left in it after they are rooted, and when sufficiently established no time should be lost in restoring them to their usual temperature. In the case of cuttings in pits or frames out-of-doors it is sometimes necessary to give a small amount of air during the whole day, especially if the pits be in no way heated, as in that case the condensed moisture settles heavily on the foliage, and it is necessary to dry it up sometimes. When any signs of decay are manifest on delicate cuttings indoors it may often be arrested by giving a little air to the cases during the night, at which time it may be given with impunity, while in the daytime the cuttings would flag, and that would undoubtedly militate against their chances of success. T.

Pandanus Veitchi.—A ready way of increasing this plant is by means of suckers which are produced more or less freely from the old plants, but even if taken off with a root or two they often remain a very long time before starting freely into growth. I find that as a general rule the strong suckers are the most difficult to establish in this way; indeed, small pieces grow so much more readily as to soon overtake the others, besides which they form more handsome plants than the large ones. A good way of dealing with the suckers is to detach them carefully from the parent plant with a root or two however slight adhering thereto; indeed, if the suckers are produced so far above the surface of the soil that there are no signs of rooting, a good practice is to earth up the old stem for a little distance and

thereby encourage the shoots to send out roots before cutting them off. When severed, as they should be, by a large knife, there will be a clean cut, which is much less provocative of decay than when torn or bruised during the operation. For potting use sandy loam just lightened by the admixture of a slight quantity of leaf-mould and pot moderately firm, but avoid above all things burying the young plants too deeply in the soil. Well-drained pots must be used, and they should be as small as possible until the roots start into growth. As they are at times rather top-heavy, they should be tied to a small stake, or, better still, three sticks may be put in triangular fashion, and by passing a bit of matting around the three all will be rendered secure. When this is done plunge the pots in a close case where there is some bottom heat, when they will soon start, and as soon as rooted sufficiently must be shifted into larger pots, using much the same soil as before, and of course inuring to the air of the house by degrees. I find that if allowed to lie any time after cutting off, under the idea that by so doing the chances of decay are lessened, the contrary often proves to be the case, as they will remain a long time as cuttings and at last rot, so that they should be put in as soon as possible after separation.—H. P.

Anthurium Andreanum.—This beautiful Aroid, like most of its class, is easily propagated; not only can cuttings of it be struck without difficulty, but it also ripens seeds which germinate freely. For cuttings take off the top of a plant when long enough and put it in a small pot in light open soil, say good peat with a liberal admixture of sand, broken charcoal, and Sphagnum cut up finely. In this insert the cutting firmly and place it in a close case, with, if possible, a little bottom heat till rooted, which will not be long. After a time one, two, or even more shoots will be pushed out from the old base, and when large enough they may be also taken off and treated as just recommended. In this way one's stock may soon be increased, but at the same time I have noticed that the plants which bear the finest flowers are generally those having a short sturdy habit; therefore they cannot be increased so fast as those having a more rambling inclination with generally smaller flowers. Such being the case, the best varieties, as in the case of *A. Scherzerianum*, will be comparatively scarce for some time at least. Seed is readily obtainable if care be taken to fertilise the blossoms. Perhaps a rough and ready method, but with me a perfectly successful one, is to pass a camel's hair-brush up and down over the flowering portion of the spadix every day, thereby securing the fertilisation of a great number of blossoms, which, from their small size, cannot be individually operated on. As soon as the seed is ripe sow it in well-drained pans filled with peat, sand, charcoal, and Sphagnum—such a compost, indeed, as is recommended for the cuttings. Do not press the soil down too firmly, but make the surface as level as possible, and sow the seed thereon, just covering it afterwards with sand. A good place for the seeds is a close case, as recommended for cuttings; indeed, after they have germinated and are potted off, they are much better confined in that way during their earlier stages than in the ordinary atmosphere of the house, a greater degree of humidity being in this way secured. I am not aware of any home-saved seeds having yet produced flowering plants, but when that takes place a great number will in all probability require discarding.—ALPHA.

Bones as manure.—For some years I have used crushed bones in my small suburban garden, as well as stable and cow manure. Bones are handy to use, and involve less labour and dirt than the other manures. They are marvellous fertilisers. Let anyone try them next spring when sowing Spinach. For vegetable seeds I use a mixture of $\frac{1}{2}$ -in. bones and bone dust (as sold by the dealers). This is sprinkled in the row before the seed is put in. The sowing should be thin. For Cabbage and other plants the mixture is scat-

tered on the ground, and dug in before planting. For lawns I have used bone meal, which is a fine powder and quicker in its action than the larger material, but where small quantities only are required, the above mixture does just as well when rolled in. When planting fruit trees I use $\frac{1}{2}$ -in. bones. The tree is put in position and a little mould is thrown over the roots and then about a quart of $\frac{1}{2}$ -in. bones is sprinkled on the mould before filling in. In November we give the trees a mulching of half-rotten stable manure or that and cow manure mixed, about a forkful to each tree, taking care to keep clear of the stem, so as not to bring out fibrous roots above the level of the soil, as the manure will do if piled against the stem. The result is the trees are strong, healthy, and fruitful. The bones referred to above are sent out from the mills in bags of not less than $1\frac{1}{4}$ cwt., at the price of 8s. or 9s. the cwt. I estimate a bag to be well worth from two to three loads of stable manure. I should add that my soil is light, with a subsoil of sand and gravel.—C. G., Addiscombe.

GARDEN FLORA.

PLATE CCCLXI.

THE WARATAH.

(TELOPEA SPECIOSISSIMA.)

YEARS ago, and indeed down to within the last twenty or thirty years, hardwooded plants, as gardeners call them, belonging to the families Proteaceæ, Myrtaceæ, Ericaceæ, &c., were the pride of English cultivators, and thought to be quite indispensable. But now it is the exception rather than the rule to find a well-grown or full collection of such plants even in our largest botanical gardens or nurseries. Now the fashion is to cultivate plants of more rapid and easy growth, for it is well known that to grow hard-wooded flowering plants requires considerable skill and close attention. Nothing can well excel the beauty of many of these hard-wooded plants; amongst them the Waratah, of New South Wales, stands in the foremost rank. It belongs to a small genus, consisting of species wholly Australian, but none so showy as *T. speciosissima*, which is one of the most gorgeous of Australian Proteads. In the Blue Mountains it grows into a shrub 6 feet or 8 feet high, and its showy flower-heads are much sought after by the natives, who sell them in the towns. According to Miss North, whose paintings of the Waratah may be seen in her gallery at Kew, there is some fear lest it may become exterminated, the raids made upon it preventing the plants from seeding, and it does not increase freely by other means. Though the Waratah has been in cultivation many years, it has seldom been seen in flower. It was figured in an early number of the *Botanical Magazine*, but the most successful cultivator of it at the present day is Mr. Green, gardener to Sir George Macleay, Bart., Pendell Court, Bletchingley. At one of the meetings of the Royal Horticultural Society in April last Mr. Green exhibited a fine flower-head of it, and it is from this our drawing was prepared. The Pendell Court plant at the time of flowering was some 8 feet or 9 feet high, and bore its inflorescence at the apex of slender stems furnished with long leathery leaves of a bluish grey hue.

Culture.—Respecting this Mr. Green writes: "I have found it to succeed in a cool and airy greenhouse, potted in a mixture of very sandy

Growers or introducers of new plants will oblige us much by early intimation of the flowering of new or rare species, with a view to their representation in our "Garden Flora," the aim of which is the illustration in colour, and in all cases where possible life size, of distinct plants of high value for our gardens.



turfy loam, charcoal, and broken sandstone with thorough drainage, the latter being most essential in order to secure healthy growth and foliage. Thus potted, too much water cannot be given it during the growing season. After that when the wood is well ripened and the terminal buds finished water should be gradually withheld till signs of starting again show themselves; then give liberal soakings, which will induce the buds to break healthily. Allow the plants at all times as much sunlight and air as possible, and they should be placed near the glass in order to prevent them from being drawn up weakly. Propagation is effected by means of layers or cuttings made of small, ripened growths severed from the base of the plant. These I find strike more readily than side shoots from the main stems. They take a long time to root. I place them singly in very small pots in sand and charcoal; if hurried too much by means of much moisture and heat they soon die. No bell-glass is used in striking the cuttings; they are merely placed in some sheltered nook in the house and kept watered moderately." This plant is also known as *Embothrium spathulatum*.

FRUIT GARDEN.

FRUIT GROWING FOR PROFIT.

THE fruit season of 1882 has been a remarkable one, and has demonstrated the importance of shelter for fruit trees and plantations. It may be said that only in sheltered spots is there any crop of fruit on tall trees, for the severe gale on April 29 swept over the country and completely spoiled all the Apples, Pears, and Plums, and also considerably reduced the crop of Cherries. Those who fortunately had under-fruit have done well, and I must again specially urge on planters the advantage of planting both top and bottom fruit. Where fruit trees were on Grass, the value of the land so planted was not wholly lost; and it is satisfactory to find that to a great extent the trees injured by the wind have recovered, and promise well for next year. Such Pears and Apples as have been grown are much finer than usual, some small kinds being difficult to recognise. It is not to be doubted that a much better price would have been made of the soft fruit in 1882 if we had experienced the fine weather we looked for in June and July, as the quality of the fruit sent to market this year was low, demanding instant sale, and forbidding its being consigned to distant parts, while in cool weather the public generally do not feel that longing for fruit that is a condition of normal summer heat. Still, Gooseberries in one district have, it is said, returned from £70 to £100 an acre, and there is no doubt that the contract growers have this year taken the best prices.

Since last September a few isolated facts have come to hand. It appears that Black Currants are largely exported in order to give body and colour to the thin clarets and possibly other red wines of the Continent, so that to some extent the price which they make is dependent on previous vintages. The crop has generally been a good one. Green Gooseberries seem in great demand for "British champagne." A more wholesome wine than Gooseberry cannot be consumed, but I do not see why it should be sold at champagne prices. My notes give thirty-three half-sieves of Black-heart Cherries as the produce of one tree. A neighbour grew in 1881 the astonishing crop of 6000 bushels of Apples; the produce was sold and delivered to the railway at 3s. 6d. per bushel, and the windfalls were also included. In the Weald of Kent one grower refused £850 for his Apple crop on the trees, and it transpired that £1000 was the reserve price. When it is considered that in many cases these trees were on Grass, it is evidently not a bad investment to plant Apples. Two acres of Cherries (in a sheltered place) were sold this season for £84 (on the trees),

and the purchaser realised up to 25s. per bushel for them.

Manuring.—As a caution to planters I would advise that no manure be given to young trees, but old or worn-out ones will be immediately benefited by it. I know many old orchards which have been quite renewed and rendered profitable by the use of stimulants, but unfortunately there are many young ones that are vitally injured by them. Where tall fruit trees are grown among bush trees (which are benefited by manure), take care that the latter alone are so manured. I have been pleased to see Gooseberries and Raspberries in the London markets in upright punnets; no doubt this little extra care and labour was well repaid, and I cannot but think that the railway station refreshment stalls would find it to their advantage to have such little lots of fruit ready. Travelers do not care to pay 1s. or 2s. 6d. for a basket of fruit of one kind, but they would, I imagine, pay 6d. or 1s. readily for a nice assortment of fruit in a handy paper or chip basket.

Insects and protecting tree stems.—For the woolly aphis, best paraffin, applied with a brush, has been found a valuable and instantaneous remedy. The strength should be determined by the age of the tree, the young shoots being more tender than the older branches; it is used pure for most trees, and half water for young branches, keeping it constantly stirred up. With reference to insect blights, a wonderful new machine has been invented for Hops, and it is probable that a similar one, worked with a horse, may be brought out for the purpose of washing tall trees. In reference to the wire recommended for protecting the stems of trees, it would be found better to use that 9 inches or 12 inches wide lengthways, as it is easier to divide into pieces, and the edges are stout and not so likely to give way when sheep or cattle rub against them. A fresh preparation has come under my notice in the shape of a substance like cobbler's wax, which is applied with a stick to the tree stems, one touch being enough, and it remains for a long time, and effectually scares rabbits or hares from barking trees. We sent some to a landowner who had lost thousands of Ash and Chestnut in the woods previously, and not one of the dressed trees was injured. It is made at Leith, and is called "Davidson's Composition," and can possibly be supplied by oilmen and the seed trade. Casks of 56 lb. cost about 20s., 1 cwt. 40s., and the carriage. It must be cautiously used on soft-barked trees. Last year I had an opportunity of seeing a very interesting plantation of

Apples on a very poor clay soil, and as the cultivation differed from that generally advocated, some particulars may be interesting, but I am not at liberty to mention the proprietor's name. The trees were planted about from sixty to seventy years since, at a time when cider was the general drink of the country; they were planted in long rows, and laid down to Grass when established. The land is now ploughed up every third year, or at longer intervals, as the state of the trees require; the intermediate spaces are cropped with Rape, Mangold, Cabbage, or similar crops, which are fed off by sheep, when the land is again put into Grass, the trees being manured with crushed bones. I found the trees very varied as to size, according to sorts and the soil beneath, and in most cases Moss grown, but apparently healthy; but I am of opinion that the system of culture pursued was detrimental to their growth, as it would appear that the dressings and sheep feeding would draw the best fruit roots to the surface just in time for them to be destroyed by the ploughing, and thus tend to check them. I should rather have inclined to leave the Grass permanently, and feed it off with pigs, sheep, and lambs, and fattening upon it by feeding the sheep, which I think would do away with the mossy appearance to a great extent, as Lichens cannot find a home where a tree is in a growing state. Considering the valuable sheep shelter and feed provided, the experiment has certainly proved a success. When the orchards were first planted, trees of all the

best known kinds were put in, and the fruit then realised some 15s. per bushel, but afterwards fell to 3s. or 4s., when the poor bearing (but best quality) trees were regrafted with coarser kinds, and for the past thirty-five years cider-making has been given up, and now all the fruit is marketed. The purchaser finds baskets and takes all the fruit, good, bad, and indifferent, at a price, the owner gathering it and delivering to the rail. The crop in some years is enormous, the largest being 18,000 bushels, or 200 bushels per acre, the price ranging from 1s. 6d. to 5s. per bushel; at other times the crop has been a small one. The orchards are situated at a distance from the railway, otherwise a heavy dressing of farmyard manure would, I feel certain, produce astonishing results; and as all the neighbouring soil is particularly poor, this points out the fact how much can be done by cultivation, as the owner says the crop greatly depends on the amount of attention the trees get in the way of manure.

As showing how little the crop is affected where a variety of fruit is grown in established orchards, I learn that one East Kent grower has this season sold his "top" fruit for £1000, and this, with the smallest crop ever known in this part, while his under fruit has brought £700 more, and I believe this is the experience of most growers on a large scale. And were the landowners in a better position than they are, after the many bad years experienced by their tenants, I have no doubt that a very much larger area would be laid down in orchards, as such give, so to speak, three crops in a year—wool, mutton, and fruit. In sheltered spots our Cluster Damson has done well, one grower taking 2500 bushels, which realised 13s. per bushel.

Fruit growing is an occupation in which there is some risk, but the prizes far outweigh the blanks. I am glad to hear that in the north and west, where the salt gale did not appear to have penetrated to such an extent, that the crop of Apples is good; and from the fruit I have inspected from Hereford, it is unusually clear and heavy, but only certain sorts carry a crop; and here again growers will see my reason for recommending variety, as it is rare for an orchard so planted to produce none at all.

Maidstone.

GEO. BUNYARD.

COVERING OUTSIDE VINE BORDERS.

OPINIONS differ somewhat as to the advisability of covering the roots of Vines in outside borders when forced early, but I have no hesitation in saying that root covering forms a necessary part of the details of early forcing. If bottom heat is necessary to excite root action in stove plants, it is even more necessary in the case of the Vine, the branches of which are in a warm temperature, and the roots in an outside border. If forced Strawberry plants are the better, as some consider they are, for being first started with the pots plunged in a gentle bottom heat, it is not too much to expect that the roots of Vines would be benefited, if not to the same extent, to something approaching thereto, by having a good thickness of warm fermenting material placed upon the border in a judicious manner and at the right time. My own experience in the early forcing of Vines has long since convinced me of the necessity of maintaining the roots and branches in something approaching an equable temperature. During a somewhat lengthened experience I have had to deal with early forced Vines, the roots of which were entirely in outside borders, and also with Vines in borders both inside and out. I must say I like inside borders best, but my object now is to deal with outside borders only. I am not, I may say, an advocate for covering borders very early. An opinion has been expressed that artificial heat should be applied to the roots as soon as it is to the branches, but with this I do not agree; any extreme coddling of the roots is, I think, a mistake. I like Vines that are to be forced in November to have all the autumn rains and early frost that may occur up to the time when artificial heat is applied to the branches,

and even then a sufficient covering of dry leaves a few inches thick and some wooden covers or others of corrugated iron to keep off the rain are all that is necessary for the first month, or until the Vines begin to break.

The first signs of life in the Vines should be the signal to prepare some extra warmth for the roots, and as this must be done by means of fermenting material placed on the border, no better can be had than good Oak or Beech leaves and stable manure. The quantities should be one-third manure and the remainder freshly collected leaves. In the case of the manure it should be placed in a heap a fortnight previous to being used, and turned over twice during that time to exhaust the rank heat. At the proper time place the material on the border sufficiently thick to furnish in a week a heat of from 70° to 80°, and this point should not be exceeded. For my own part I should prefer a temperature of 65° to one of 80°, as any undue excitement of the roots at a time when there is not a sufficient demand made on them by the branches I believe to be injurious. A covering of some kind to keep frost, snow, and heavy rains off the fermenting material I believe to be a necessity, as the heat will be more regular and easily maintained. For this purpose we use wooden covers made with feather-edged boards, but corrugated iron answers equally well, and, of course, would last longer.

The renewing the heat on the border will, to some extent, depend on the weather. Cold, frosty weather, accompanied by wind, will reduce the heat in the fermenting material much quicker than dull or rainy weather. However, it is at all times desirable to have a store in readiness for use in case of exhaustion, but it will not always be necessary to renew the whole. Very often the first lot used may be made to supply sufficient heat for two or three weeks longer by adding to it a cartload of well-prepared fresh manure. When this course is decided upon, begin at one end of the border, turn the whole of the fermenting material over, and incorporate with it the hot, fresh manure. There are two periods of the season when I like to pay a more than ordinary degree of attention to the border heat, and these are when the Vines are in flower and during the stoning time. I like to have it right at these times, because a chill at the roots might prove disastrous to the crop. I therefore make it a point to renew the heating material just before the Vines come into flower and again just before the stoning period, and, to speak correctly, I do not trouble myself much about the other part of the season beyond seeing that a gentle heat is maintained.

Watering.—My experience has taught me this in reference to this subject, that if a strong heat is constantly maintained in the border, a good deal of water is necessary. I should call the heat strong when a thermometer resting on the border always stands at 70° or above that point, but where the heat does not rise above 60° or 65° I have found that two good soakings of water are sufficient for the maturing of the crop. The first application under the cooler treatment will be necessary as soon as the berries are set, and the last just as the fruit begins to colour. In all cases the water should be heated to 70°, and the quantity given must be sufficient to penetrate at least 1 ft. deep; the roots below that point will be able to take care of themselves. I never take the heating material off the border until the fruit is ripe, and then I am careful to remove it by degrees. The future well-doing of the Vines should be considered as well as the present crop, and a sudden chill even at this time might injure the next year's produce; but as regards any further care the border is left pretty much to take care of itself until early in the autumn, when once in two years it gets a good dressing of well-rotted animal manure.

J. C. C.

Forcing old Strawberry plants.—Once upon a time I found that I was to be short of pot Strawberry plants for meeting the demand likely to be made on me in April and May. This was

in October. I at once faced the difficulty by lifting a quantity of old-established stools, shook them out and potted the crowns, several together, in large 6-in. pots in friable loam, with a piece of turf for the bottom instead of crocks. They were plunged in ashes in cold frames kept moderately close for a time, received one good watering, and were kept in this position till wanted. The result was I met the demand far better than I had anticipated, and what I was more than astonished at was the freedom with which they set their fruit. The kinds were Prince of Wales and La Constante. No doubt other sorts would do likewise, and this hint may be of use to those in a similar dilemma.—H. K.

Colouring walls.—If "J. R. H." (p. 351) only wishes to change the colour of his walls, why does he select black? I would advise him to wash them with cement and red ochre, and he can make this any tint he pleases, but he must observe the proportions used the first time and continue the same, or he will have different tints. If he is really desirous of having it black, cement and soot or lampblack will answer his purpose. Finding pointing expensive and unsatisfactory, breaking away when the nails are driven, I made a thick mixture of lime and cement, and set one of the labourers with a brush to splash it on the wall with the view of filling the holes, the unfilled ones were filled with cement, another washing of cement and ochre was given to finish it. The result was better than my pointing. The mixture should be well stirred as the work is proceeding, and there is an advantage in having a second person or a boy to assist.—W. P. R.

DWARF MORELLO CHERRY TREES.

THIS seems to be a most prolific form of fruit tree for this part of the country; and indeed Morellos on all aspects, as we have them here, have been very prolific both last year and this. But what I wish to say a few words in favour of is, the dwarf mode of growing this fine, useful fruit. A row of trees bordering one of our kitchen gardens here has been laden with fruit, and admired by every one who has seen it. They were, moreover, very beautiful at the flowering time, and branches of the trees were used freely for flower decoration. I should say a quarter planted with these dwarf bushes, and attended to as to pruning—not too severely—would prove a most profitable outlay. They should be planted from 8 ft. to 10 ft. apart all ways, and cropped between moderately for the first half-dozen years; and where sewage or manure water can be got handy, a doze of it after the stoning period would be found beneficial, as also would a mulching of rotten manure spread over the roots in winter and allowed to exhaust itself without being forked in. Owing to the flowers opening later than those of the table kinds, and to the tendency of their slim shoots to bend to circumstances, storms and winds have not the same effect on them as on stiffer habited forms of fruit trees. Morellos are liked by many as a dessert fruit, especially when ripened in the sun, and not on a north wall, and certainly they are more wholesome than some of the so-called table kinds; and when in eating them the stones are swallowed with the pulp, as the French wisely do, they are still more wholesome. The best Cherry brandy I ever tasted was made by adding whiskey to the Cherries instead of brandy, and if anyone will try whiskey another year, adding 3 ounces of powdered sugar to 1 pound of Cherries—the Cherries of course to be sound and free from bruises—they will never use brandy in preserving their Morello Cherries again. In addition to its superiority, the whiskey is also about half the price.

H. KNIGHT.

Greenlands, Henley-on-Thames.

PEARS ON WALLS V. PEACHES.

I STATED IN THE GARDEN in the spring of 1880 that we had removed all the Peach trees from our open walls, as they were either dead or dying from the effects of the sharp winters, cold

springs, and sunless summers, and had planted in their places Pears. The wall mentioned is about 225 ft. long; we have since erected a small house on it 33 ft. long, planted it with Peaches, Nectarines and Transparent Gage Plums, to give a late supply of fruit. The back wall is covered in the usual way. The fruit trees are trained as cordons, close to the glass, a good distance asunder. The remaining 192 ft. of wall is planted with Pears and Cherries, the latter trained as upright cordons between the Pears. The Pears are horizontally trained trees; they had four and five side shoots when they were obtained, in order that we might not have long to wait for fruit. I send you a specimen or two for inspection, and I think you will agree with me that if Pears like these can be grown with ordinary care and labour, it is waste of time and money to try to grow Peaches where they will only partially succeed with the expenditure of much time and labour. I can confidently say there was more time spent about those Peach trees—washing, watering, picking off curled leaves, and dusting with tobacco—than was spent on all the other trees in the garden. Undoubtedly the new Peach house just mentioned will produce more fruit in one season than we were ever able to gather from the whole wall, leaving 192 ft. of space for the growth of Pears of the finest quality. The Pears gathered from south and west walls here this season, though not a heavy crop, are fine and free from spot and cracking; while those grown on east walls and standards, exposed to cold north-east winds, occasionally laden with fog from the sea, are all more or less damaged from the check the fruit received when in full growth. Here a cold, damp fog from the sea in summer generally brings mildew in its wake, especially after a spell of warm, dry weather and land breezes. My experience here, as well as in East Suffolk, has taught me that unless gardens are exceptionally sheltered, the east walls should be planted with Plums and Cherries, and the south and west walls with Apricots and our finest mid-season and late Pears.

WM. ALLAN.

Guntton Park.

[Along with this came specimens of one or two of our best dessert Pears, large and finely grown and excellent in quality. Amongst them were two fruits of Doyenné du Comice, concerning which Mr. Allan says: "The smaller one was gathered on the 13th of September, just a month before the larger one. The smaller one and six others were at that time the largest on the tree, showing how much the larger and thirty others have grown up to the 14th of October, when gathered. I may add the fruit in question was gathered for exhibition, but it also teaches us the lesson that Pears should not be gathered as long as they will hang on the tree."]

THE DUKE OF BUCCLEUCH GRAPE.

I RETURN to this subject to correct some of Mr. Thomson's statements. The circumstances related by me in my reply to "Cambrian" are correct as regards the Manchester "basket," and I reiterate the statement that any exhibits of the Duke I have seen have been baskets. I will not be sure about the year, but whenever it was, it is a singular commentary on Mr. Thomson's declaration that "he never exhibited a basket of this Grape at Manchester;" that, "Cambrian," too, vouches in the most circumstantial manner for the "basket," of which "J. S. W." speaks, testifying that "he helped to pack, take, and stage it at Manchester," adding, "I have been present when many baskets of the Duke were filled at Clovenfords," especially the exhibition ones. Mr. Thomson refers me to the reports of the shows at the time for corroboration of his assertions. I have done this—having looked up the reports of THE GARDEN, Chronicle, and Gardener for 1873, and find they do not support Mr. Thomson's assertions at Manchester; for, whereas in the other exhibits of single varieties of Grapes "bunches" are specified, in the case of the Duke it is not so. He is only mentioned as having exhibited his "new

Grape, the Duke of Buccleuch," a significant circumstance taken in connection with the avowal of "Cambrian," who "helped" to take and stage that "basket." He also speaks of other towns, including Edinburgh, where he showed single bunches. I have the report of the Edinburgh show for 1874 (*Gardener*, October), which states, not that he showed single bunches, but "a *box* only of the Duke of Buccleuch Grapes," which were deficient "in ripeness and colour."

In the *Gardener* reports of the autumn Edinburgh shows from 1872 to 1876 no mention is made of the Duke that I can find, save in 1874. When, therefore, did Mr. T. show the single bunches he speaks of at an Edinburgh show? At Glasgow great show, in 1872, the report says he showed *two* baskets of the Duke, one "just ripe" (with no single bunches) and one basket that had been ripe a while, with an odd bunch added of the last only. I ask any gardener if a couple of pairs of bunches would not have been better for both exhibitor and spectator on such an occasion if they had been forthcoming?

As to my Muscats, which he saw at Manchester in my first prize collection, I do not remember the circumstance alluded to at all, and I am certain he never saw Muscats shown by me spotted by the syringe, for I never do syringe them after they are set. I refer your readers to the correct report of them at the time, which leaves no doubt about what they were like. Whatever opinion I may entertain on the subject of setting, it is certain that Mr. Thomson's plan of roasting the Vines in a temperature of "75° by night, and 85° by day by fire-heat," with no moisture, is not now regarded as "the whole secret of setting Muscats" ("Book on Vine," pp. 38, 39). Lastly, how does Mr. Thomson get such marvellous crops from the Duke? Is it by foregoing the principles laid down so confidently in his book, and training it on the "extension system" advocated by the "incapables" once sneered at? I am surprised at Mr. Thomson's statement that "I have taught that the proper way to set Muscats was to syringe them well with cold water when in bloom." I challenge him to lay his finger on a single sentence I have ever written in proof of this. The statement is wholly without foundation.—J. S. W.

—As regards the Duke of Buccleuch Grape, during frequent visits to Clovenfords I had ample opportunities to judge of its merits, and I was always impressed with its good, free fruiting qualities in the big corridor there, where it was the principal Grape grown, and I do not think it would have been retained had it not have paid for its presence in such quantities. I have tasted it over and over again, and admired it for its good looks and good qualities for an early Grape. Whatever may have been its faults in other places, certainly there it was in perfection. I had one Vine of it at Floors, but it was grafted on Pince's black Muscat, and in consequence did not get a fair trial. At the same time, I always considered it worthy of a place in every vinery. In justice to Mr. Thomson, I do not consider "J. S. W.'s" remarks in reference to this question fair or in accordance with facts. "Cambrian" is slightly in error in giving Clovenfords as this fine Grape's birthplace. I believe it was Dalkeith.—H. K., late of Floors.

—As my name has been imported into this discussion, permit me to say that, though I have no recollection when visiting Wortley of having made use of the words attributed to me by "J. S. W." (p. 338) in disparagement of the Duke of Buccleuch, it is quite possible that I did express the opinion with which I am credited, as my experience of this Grape has been anything but of a satisfactory character, not from my inability to grow it, as Mr. Thomson infers (p. 388), as it both grew and fruited most satisfactorily, but the moment it was ripe the berries became spotted, and under no circumstances could the fruit be preserved, at least in a presentable condition, for even a week after that stage was reached, and it was for this cause alone that we discontinued growing it at Heckfield—a reason that all will consider sufficient when I say that my employer enjoys a daily sight of his

Grapes just as much, if not more, than he does the eating of them. Hence we must grow varieties that will hang at least a reasonable time after being ripe, and this the Duke of Buccleuch will not do.—W. WILDSMITH.

—Just a word as to the Duke of Buccleuch Grape. No doubt all that "J. S. W." has said respecting his inability to grow this Grape will be fully accepted by one and all of your readers as a statement of facts, as he is in the best position to answer for this, but his further assertions require some correction. In proof of this I may say that he is only two years out of his reckoning in fixing the time of my first going to work in the Tweed vineyard. This may seem a small matter, but to be told that my knowledge of the Duke began at Clovenfords the year after the young Vines of this variety were sent out from there is a mistake that must be set right.—CAMBRIAN.

[Here this discussion had better stop, as it is getting more personal than is desirable. We shall, however, be glad to record any facts about this Grape which may have come under our Grape-growing readers' notice.]

WORTHLESS GRAPES.

LARGE, showy bunches and thumping berries do not constitute good Grapes, and to me it seems an utter waste of time and space to cultivate such flavourless varieties as White Nice, Raisin de Calabre, and the Syrian. Quality should stand before quantity; nor do the three varieties just named exhaust the list of indifferently flavoured Grapes, for, compared with a good Black Hamburgh or Lady Downes Seedling, Gros Colmar is very inferior. Nevertheless, this variety gains favour with some, because it is easily managed and produces large bunches and berries. I grant it is a noble-looking Grape, but in eight cases out of ten a less handsome bunch of Lady Downes would be more appreciated on the dessert table. A bunch of Grapes that weighs from one to two pounds, according to the season of the year, and that is of good flavour, is far superior, according to my idea, to a bunch weighing four or five times as much, and I am convinced that a bunch of Muscat Hamburgh would in the majority of cases be considered worth ten times the weight of many of the larger ones. By the way, I should like to ask why this Grape is not more grown than it is by those who have inside borders. I know the variety is somewhat delicate, and that one cannot always depend upon getting it true to name; but once obtained in its true character and placed under favourable conditions, there is no other variety, except the Muscat of Alexandria, that surpasses it in flavour, yet the Muscat Hamburgh is but rarely met with. The Grizzly Frontignan, another distinct and finely flavoured Grape, has gone almost out of cultivation, and for what reason I know not, except it be that it does not always colour so well as the Black Hamburgh, but if the colour is not always the best the flavour is always right, and I remember many with whom it was a great favourite. I am afraid that the elephants amongst Grapes have driven it out of cultivation; in fact, I know of more than one instance in which the Barbarossa has been substituted for it. Here, again, big Grapes have gained an undeserved ascendancy. Pearson's Golden Queen is, in my opinion, more deserving of cultivation than any of those that produce monster bunches. Its rich juicy flavour, coupled with a moderate degree of piquancy, and its excellent keeping qualities make it a desirable kind to grow where quality stands before quantity. It is to be regretted that this Grape does not also combine a more pleasing appearance, what should be golden being only a dingy colour, with a transparency that is not so clear as it might be. Notwithstanding this, however, it is to be preferred to many varieties that produce larger bunches. Where large bunches are required the White Tokay might be more frequently grown in the place of the indifferent flavoured sorts than it is. I do not claim for this variety the highest post of honour as a good-flavoured kind, but it is supe-

rior to many, and as it is a good keeper and ripens its fruit in a Muscat temperature, I consider it worthy the attention of those who require show bunches for dessert or for purposes of exhibition.

J. C. C.

KITCHEN GARDEN.

LARGE-ROOTED CHICORY.

THIS is a variety of the common Chicory, and although but little grown in this country, it is cultivated on an extensive scale in some parts of France for the sake of the roots, from which is manufactured the Chicory of commerce. It is also grown by some of the Parisian market gardeners, as the blanched tops which it produces in winter are of rather finer appearance than those



Large-rooted Chicory.

obtained from the typical form. I would advise those who make a practice of forcing Chicory to give the large-rooted variety a trial. It requires the same general treatment as the ordinary kind, but when thinned out should have more space for development. It is best to sow the seed in rows 1 ft. apart, allowing a space of from 6 in. to 8 in. (according to the character of the soil) from plant to plant. Do not sow before May, or the plants will run to seed. Give them an open position and cleanly culture, and large, well-matured roots will be obtained; these, if placed during winter in a warm, dark place, will furnish an abundance of crisp blanched leaves, which will be found a very acceptable addition to the usual run of winter salads.

J. C. B.

THE COMMON RED TOMATO.

THE culture of this plant is now pretty well understood; but some of the directions given to pinch and prune it, in order to promote fertility, indicate quite a mistaken notion of its habit and capabilities. In growing Tomatoes for profit, they must, except in favoured localities in the south, be grown under glass, and they will repay anyone to raise them in that manner, as all the fruit that can be grown can be sold, and from April till August very good prices can be obtained, ranging from 1s. 6d. or 1s. to 8d., never, so far as we know, falling below 4d. per pound even when plentiful, which is from August till November, when prices go up again. Fourpence per pound will, however, repay anyone who goes in for Tomato culture on a sufficiently extensive scale. A beginner who does not already possess glasshouses would, I imagine, find low frames best and cheapest for his purpose. For years we found these equal to the best kind of glass structures. They may be made cheaply, too. A low post-and-rail frame, perhaps 3 ft. deep at

the back, or less, and 18 in. in front, 6 ft. wide inside and any length, would do, and the spaces between the posts under the top can be filled up by deal planks nailed on, or by mats doubled and stuffed between by straw, and nailed tightly to the rails and posts. This is not a lasting kind of lining, but it will do for a year or two, and costs little more than the work of erection. Turf, however, can be used for the same purpose; and if the frame be partly dug out, the less building above ground will be necessary. The posts should be the same distance asunder as the glass lights are wide, unless the top rail be extra strong, in which case that does not matter. The lights should be of the usual pattern, with panes 9 in. wide. The pits must be heated by a single row of 3-in. pipes running during the frost close to the posts, and returning by the back. Not much fire heat will be required, except when the plants are put out in February or March, and perhaps in autumn to ripen late crops, for it must be remembered that the Tomato bears just as long as it enjoys a suitable temperature, and it pays well to give it the small degree of artificial heat it requires. Many hundreds of feet of piping may be heated for a few pounds annually, and the first crop ought to pay, or nearly pay, for the outlay. In pits of this kind we have gathered plenty of fruit and to spare from May till Christmas. Our plan was to sow seed in January or sooner, pot the seedlings out into 3-in. pots, and soon after (as they grow fast) into 5-in. or 6-in. pots, in which they would attain a height of 2 ft. or 3 ft., when they were put out in the frame and pegged down over a few old Pea sticks laid on the soil; and, since thinning out the shoots, they required no more attention during the season.

Pruning and training generally.—As has just been remarked, a mistaken notion exists concerning the habit of the Tomato and its culture. As a rule, pinching is recommended to make the plant fruit, but this it does not need at all. In fact, pinching hinders both growth and productiveness. A Tomato allowed to grow unrestricted pushes laterals freely along its whole stem, and these branch out freely again, producing quantities of flowers at all points; hence all we have to do is to encourage as much growth as possible, as the more branches the more fruit. The plants will require to be thinned; that is, whole shoots will need to be removed at times, and even sometimes every alternate plant; but on no account should the shoots left be cut or shortened in the least. Run them out into fruit, and let them expend their force there. We have had rows of plants 15 ft. high that bore from top to bottom for months; and we have a batch of plants at the present time in 10-in. and 12-in. pots that are 12 ft. high, and that have borne most abundantly all the season, and are still laden with fruit in all stages of progress. In fact, we doubt if the weight and continuance of our crops, grown in this way, have been often equalled. When the plants are at their best, the clusters are enormous and the fruit large; and it stands to reason that we must have shoots and leaves to carry on such work. To sustain this degree of fertility and growth in pots, the plants have to be well nourished, and so they are. First, they are potted in strong loam and manure, and the pots are packed between with Moss on the right on which they stand to prevent evaporation. In addition, as soon as growth has fairly commenced, liquid manure is given every day, until in the end it is given almost undiluted from the farmyard; and the plants are all the better for it, as towards the end of the season the pots become a mass of hard roots. Planted out the Tomato bears the greatest weight of fruit, but the border must not be too deep, nor so rich as when pots are used, otherwise the plants grow more before beginning to bear; but when they do begin they make up for it in the size and weight of the fruit and in its quantity. Some people condemn large Tomatoes, and think they are coarse, but they are most popular for market purposes, and pay best, and the cook likes them. It is a great matter to get a good kind that is a good bearer, and in this respect we have met with

none better than the common red. It is not so handsome as the variety called Vick's Criterion and some others, but it is a much better bearer and as good otherwise, as we have proved more than once by growing the two side by side. The careful observer will, however, often notice a difference in plants from seed of the same kind. Some will produce larger fruit and more of it than others, and as it is quite an easy matter to save seed, it should be saved from the finest fruits and most prolific plants. We grow a variety saved in this way, which we think an extra prolific sort. Of course, those who only grow

Tomatoes for home use may supply their wants with a few plants grown in any warm or intermediate house; but to have a long supply they must sow seed early, and push the young plants on in a temperature between the greenhouse and stove. The Tomato rejoices in a very high temperature, with plenty of light and free ventilation, and it will bear long and well under such conditions; but it will also thrive in a temperature ranging constantly from sixty degrees to seventy degrees, so that it is not a difficult subject to accommodate in that respect. To have very early crops, cuttings of old plants should be struck in August or September, and wintered in a warm house or pit till December or January, and then planted out or potted. These plants will fruit in February or March, and continue to bear the whole summer and autumn. 1s. or 1s. 6d. a pound or more can be had for early fruit, and some single fruit will weigh nearly or quite a pound, so that early culture pays. Since the above was written I have come across a note regarding

The flavour of Tomatoes.—A good cook probably knows what good Tomatoes are as well as anybody, as he has to use them for a variety of purposes. In answer to inquiries on this head by the writer to a noted cook, his reply was, "We use them for salads, sauce, dressing, jam, and a number of savoury things; the piquant-flavoured ones are the best for general use, and some are more piquant than others," adding that the common red kind, as regard colour, firm flesh, and general good quality, was one of the best, and decidedly superior to Excelsior and others, which he said he had frequently bought in London, except in appearance. A flat-flavoured Tomato he did not like, and for general cooking purposes, the shape of the fruit, whether corrugated or smooth, was of no consequence, except when served up whole; he always picked the medium-sized and most symmetrical of the common red for that purpose; but only a few are used and at times in that way. Showing me a basin in which Tomato sauce was beaten up like paste, "See," he said, "good colour and flavour is all we want here, and for many other purposes." After all, however, it matters little what sort we grow if they are all grown well. The worst Tomatoes, like bad Grapes, are those which are not grown in the right way. Grown under the shade of Vines or Peaches, or outdoors, the Tomato is neither well coloured, well flavoured, nor firm-fleshed. It is a fruit that rejoices in the sunshine, and it is as cheap as any other to grow it in the right way, which is in a position fully exposed to the sunshine, with a tolerably High temperature.

J. S. W.

Ruby early-forcing Rhubarb is the most perfect kind I know, and must in time become the most popular Rhubarb for early forcing. Anyone who has to keep up a supply of this indispensable tart and pudding product would be astonished at its exceptional qualities as regards earliness, productiveness, and thorough goodness. Its colour is an intense cerise throughout its length and breadth, even in early-forced condition, and its flavour is everything to be desired. I would strongly urge gardeners to add it to their collection, and I am confident they will thank me for directing attention to it. We force ours on the ground as grown very freely, with Apple barrels and hot litter as a covering.—H. KNIGHT, *Greenlands, Henley-on-Thames.*

TREES AND SHRUBS.

THE SPANISH BROOM.

(SPARTIUM JUNCEUM.)

To the Order Leguminosæ belong nearly the whole of our yellow-flowering trees and shrubs, this Broom being no exception to the rule. It produces large, deep yellow coloured flowers during summer, and in that stage ranks amongst the most showy of the class to which it belongs. Being pretty well known,



Spray of Spanish Broom (Spartium junceum).

it requires no elaborate description; suffice it to say that it forms a graceful bush some 6 feet, 10 feet, or 12 feet high, somewhat erect in habit, and with nearly leafless branches of a deep green colour; therefore the absence of foliage is not so much noticed. This Broom is seen to the best advantage when associated with other shrubs in such a way that their uppermost shoots rise above those of the Broom, and thereby form as it were a setting for the wealth of golden blossoms which it produces. When standing singly it always requires support, otherwise comparatively large branches will often break off, even with very little wind, thereby disfiguring the plant. A

point in its favour is the fact that it succeeds perfectly on gravelly or sandy soils. At Kew, for instance, it has this year been very fine; indeed, surpassed by no other of its class. It is a native of Spain and Portugal, and is said to have been introduced into England more than three centuries ago. It is easily propagated by means of seeds, which, although they do not ripen in some parts of England, are readily obtainable, and if sown out of doors germinate freely. According to London there are two varieties, the sweet-scented (*odoratissimum*) and the double-flowered, but I have not yet seen either of them. This Broom is a good illustration of the fact that the best plants are not always to be found amongst novelties, and *Hibiscus syriacus* or *Althæa frutex*, as it is sometimes called, is another. This last was introduced about the same time as the Broom, and as an autumn flowering shrub it, or rather the many varieties of it, are unequalled by any recent discoveries; indeed, late in autumn these *Hibiscuses* are almost the only shrubs one finds in full bloom.

ALPHA.

CEDARS OF LEBANON.

A word of thanks is due to Mr. Marnock for his note on the Cedar of Lebanon in *THE GARDEN* (p. 349). Its hardness and adaptation to different soils may be generally recognised, but its rapidity of growth has up to the present time been but little understood. This has arisen from two causes: first, from the unfortunate fact of the tree escaping the notice of planters for some years past; and secondly, from want of careful observation. To the latter I must plead guilty, and doubly so, when I state that there are two good specimens here close at hand. They stand at different corners of the mansion, from which they are distant some 20 and 40 yards. One of them 4 feet from the ground has a circumference of 18 feet. It seems hardly likely these trees occupied their present quarters before the mansion was built—the work of Lord Clive, say between 1760 and 1770. I have ascertained that there appears little difference in the dimensions of the larger tree now and forty years ago. Putting these facts (or to speak perhaps more carefully, probabilities) together, we come to the conclusion that the tree attained its present size in something like seventy years. I am, however, strongly disposed to think that the growth is much slower in many places than in the case under notice or that instanced by Mr. Marnock. Can any of the readers of *THE GARDEN* throw any light on this matter? and also as regards the longevity of the Cedar in England? Whilst on the subject of trees I may note that the following kinds are among the first to lose their leaves: *Gymnocladus canadensis* is quite bare, *Pterocarya caucasica* nearly so, and a variety of *Quercus* with very large foliage has beaten the Lime in the way of leaf shedding.

Claremont.

E. BURRELL.

JUDICIOUS PRUNING.

MR. McCORQUODALE, Scone, lately read a paper at a meeting of the Scottish Arboricultural Society on "Judicious Pruning more especially applicable to Oak Plantations." He said: It is much to be regretted that there are so many conflicting opinions on this subject. Some authors strongly recommend the advantages of skilful pruning; and others positively deny that any advantage will accrue from even judicious pruning. In the English Crown Forests pruning was abandoned some thirty years ago; and, following that example, the same result has since taken place on many private properties in both England and Scotland. Some theorists declare that there is such a direct subsistence between the roots and branches, that when a live branch is removed, all the corresponding roots supporting that branch will immediately thereafter cease to perform their functions and will die. I well remember, nearly forty years ago, having a very interesting conversation with an able arboriculturist on the subject of pruning, when he substantially denied that the art of pruning in any shape or form would do

good. He maintained that when a live branch was pruned off a tree, the roots in the ground supporting that branch would die. After a considerable amount of discussion, I asked him to give me a satisfactory answer to one question in support of his theory and I would be satisfied. That question was, "Why is it that when a healthy Oak tree is completely cut at the surface of the ground, the roots do not die; whereas, on the contrary, the roots continue in vigorous action, and immediately thereafter the stool produces a healthy crop of Oak shoots." On hearing this, instead of answering my question he was speechless, and walked off. Shortly after this, I resolved to try experiments to enlighten myself on this subject by sowing a few seeds of the *Pinus Douglasi* in a convenient corner in my garden where I could make a daily inspection when necessary to see if I could make any satisfactory discovery relative to the subject of our discussion. From these seeds I reared one plant for four years till it was about 3 feet in height. During the whole of that period I never allowed even a bud to form on the stem of this plant. So soon as one appeared it was at once rubbed off. The plant, notwithstanding, grew with a beautiful clean, straight stem; but, unfortunately, in the fourth year of its growth, in autumn, when the hedger was engaged cutting the garden hedge, he accidentally broke it over near the surface of the ground. However, it answered my purpose very well. I grubbed up the root carefully at once for inspection, and to my agreeable surprise the root, as a whole, was unusually large for a plant of its size, seeing that it was never permitted to produce the semblance of a branch. The root was divided into three large forked ones, and each of these was matted with healthy fibrous rootlets at their extremities. From my friend's point of argument, I fully expected that this plant, which was reared branchless, would have no other root but the tap-root; but I found no difference in the ramification of its roots, from that of young plants of the same age having their whole natural branches. I shall add only one other illustration on the connection subsisting between roots, branches, and stools of trees, which, together with the foregoing remark, will, I trust, go far in demonstrating and confuting the opinion entertained by certain theorists that the removal of a live branch will prove fatal to all the corresponding roots supporting it. I have repeatedly fallen in with Pine-root stools which continued their vitality for many years after the tree was wholly cut down, with the face of the stool healing over from the outside as regularly round the whole stool, in the self same way as a wound on the trunk of a tree after a branch was pruned off. In all such cases it is found that the stools had, prior to the trees being cut down, roots united or naturally engrafted upon roots of an adjoining tree of the same kind, which roots continued to draw sufficient nourishment from the standing tree for the support of the stool for years after its own tree was cut away. About ten years ago I found a Larch stool in Scone Wood about ninety years of age, the tree of which was cut about ten years previously. This stool was a solitary one, too far apart from any Larch or any other Fir tree to nourish it. Yet this stool was in life, and healing all round. I got men with tools, and laid its roots bare. They were all far gone with decay, save one which was quite fresh. I traced it to its nurse, and found it to be lying across, and deeply embedded and strongly engrafted into a healthy root of an adjoining Ash tree. How is it, then, that this engrafted root without the aid of a green leaf, nourished the whole stool, giving circulation to the sap all round, and producing the formation of sap-wood and bark. This is a question for theorists to solve. I shall now make a few brief remarks on

Oak pruning.—Judicious pruning is a very important branch of forestry. I do not by any means hold that even judicious pruning will, as a whole, augment the bulk of timber in a tree; but, from my experience for nearly fifty years watching the results of the beneficial effects of trees for that period under my management, I certainly hold that early pruning, when followed skilfully

up periodically, will have the effect of producing ultimately a much larger yield of clean, straight, valuable timber per acre, than would have been the case were the trees to remain in the unpruned state. No doubt there are individual trees that grow on certain soils naturally tall and straight in the bole, and therefore such trees require but slight artificial training, but, generally speaking, with few exceptions all Oak trees require skilful training, and when trees are properly treated in this manner, a large number can be reared per acre, which are not so likely to be blown over with high gales, or have their limbs torn off. I should fancy that opponents of pruning never themselves had the experience of seeing the beneficial results of systematic pruning. The benefit accruing from such training is not to be obtained in a few years. An arboriculturist treating a young plantation in this way, and following up its training, may take forty or fifty years before he can see the actual result of his operations. Of Oaks that were pruned at Scone under my directions some forty-five years ago, hundreds of them are at present in the way of being cut up at the saw-mill for the building of railway waggons, and to me it is most satisfactory to find the timber so sound, free from blemishes, and beautiful. I have seen pruning performed so barbarously, mutilating trees in such a manner that it must have proved disastrous in the highest degree, ruining the constitution of the trees, retarding their growth, and ultimately yielding faulty timber. Such pruning should not upon any account be tolerated; and when such timber comes into the hands of tradesmen it is no wonder that pruning is condemned. But the effects of judicious pruning is of an opposite character.

Young Oak trees from the nursery for forest planting should receive no further pruning than the shortening of contending shoots or any individual strong side branch. When they arrive at 6 ft. or 7 ft. in height they should receive a regular course of training by pruning, when most of the work can be performed by the use of the pruning-knife. The pruner should always begin at the top of the tree, shortening rival shoots with the leader more than half their length. Strong rambling side branches should also be shortened fully one-half; and when a tree is found over-studded with strong branches lower down the stem some of these ought to be thinned out and pruned from the stem. Young trees at this stage of growth should be so well balanced and shaped that little or no pruning will be required for several years after. In the next course of pruning the pruner ought to be provided with ladder, pruning-saw, pruning-knife, and shears on handles about 7 ft. long. Before ascending the tree, the pruner should examine the tree minutely, and see the operation that will be required to balance and shape it properly. After ascending he should begin at the top, shortening the rival leader, if there be one, but as there is often a difficulty in reaching a rival top shoot, the pruning shears will require to be brought into requisition to shorten it. The pruner, in descending the tree, should shorten extra strong branches at least half-way in. These should always be cut over, at a lateral small branch, or twig, of an upright growth. Strong branches growing pretty low on the bole should be shortened well in near the bole, in order to throw vigour up the stem of the tree. At this course of pruning a few branches ought to be pruned away at bottom, close to the stem. Other successive courses of pruning should be conducted on the same system, with this addition, that more branches will be required to be pruned close from the bole. The point to be studied for the safe guidance of the pruner is—

What is the largest size of a branch that can be pruned from the bole without leaving any blemish in the timber? The health and vigour of the tree is the safe guide for this operation. I have seen the boles of trees thirty-five to forty years of age after being pruned healing at the rate of half-an-inch from each side of the wound, being an inch in the year, whereas trees in a less vigorous state did not heal over one-fourth of an inch in a year. Therefore the health and vigour

of the tree should be the guide, so as not to prune a branch from the bole of a tree, if the timber of the wound will in any way deteriorate before it heals over. Rotten branches on the boles of trees should be pruned off before they are affected with rot at the base, in order that the wounds shall heal before decay takes place. Great care should always be taken against over-pruning, as thereby trees are retarded in their development, and rendered very unsightly. Trees at the last and final course of pruning ought to be left with their heads varying from one-half to one-third of the height of the tree. Oak coppice has become so utterly worthless that pruning may in the mean time be discarded.

Mr. J. McLaren, Hopetoun, said he was in favour of judicious pruning. He was sorry to see so little of it carried on in the country. As to the branches taken off killing the roots, he did not believe in that at all. If our trees were well pruned and well balanced there would not be so many blown down. Mr. McGregor, Ladywell, corroborated all that had been said regarding the benefit of judicious pruning. With regard to the question of the pruning of branches causing the death of roots, he would like to ask the converse question, "If the roots are cut would the branches die?" Now if he had to prepare Oak trees for transplanting, his first operation was to cut all the roots, and yet he did not discover that any of the branches died. Mr. Dunn said that arguing from the theory put forward, a cutting of the stem or branch of a tree would die; yet, on the contrary, such cuttings very soon formed roots and grew vigorously. And again, if cuttings were made of the roots of certain trees they would quickly produce stems. It was, he thought, needless to discuss that point further in reference to pruning. In regard to pruning, he maintained that the more judiciously it was practised the better it would be for the arboriculture of the country. There was a great difference between judicious pruning and mutilation or the cutting off of big limbs. Many a fine and beautiful tree had certainly been ruined from the injudicious use of the pruning saw. They should go round the trees when they are young and tender; for then as much could be done in one day as could be done in a week when the trees had got up a bit. His motto would be, "Prune when small, or not at all." Mr. McCorquodale quite agreed as to pruning young, if a forester got charge of a young plantation. But when a forester went to a forest in all stages of growth, and which had been neglected, he must use the saw. Then he should go up the large trees with a ladder, and shorten the straggling branches half-way, to prevent them being broken and destroyed. The President (Dr. Dickson) said he was not aware of any case that had been noted, as the grafting of two such different plants as a Pine and an Ash, as mentioned by Mr. McCorquodale. The case was a very interesting one. As to pruning—everything turned on whether it was done judiciously. Every green leaf that was taken off diminished the supply of organic matter to the tree. The main question was the proper balancing of a tree, and of its being pruned so as to form a stem suitable for timber purposes. Probably if the only use of trees was to produce firewood, the best way would be to allow them to grow without pruning or training. But for timber purposes pruning was best.

THE BLACK WALNUT AT HOME.

In the seventh report of the Montreal Horticultural Society, just received, we find the following statements by the Hon. H. G. Joly concerning this Walnut, a tree now occupying considerable attention in this country: I am indebted, says Mr. Joly, to Mr. George Stanton, of Simcoe, for valuable and reliable information on the growth of the Black Walnut. Upon his remarking that he fancied, from reading my paper, that the Black Walnut trees must grow a great deal faster in his neighbourhood than with us, I begged of him to measure a certain number of them, ascertaining

their age as correctly as possible. I will now quote part of the interesting letter he wrote in answer: "You know that this Long Point country was a great Black Walnut district, and on the Lake Shore there are still quite a few trees left. I have measured to-day some five trees, and got their ages as near as I can, relying on what the owners have told me. The first tree that I saw measured 5 feet 8 inches 4 feet from the ground, and is twenty-four years old; it is growing on very rich black sandy loam. The second measures 5 feet 4 inches, 3 feet from the ground, is thirty years old, on very light sand. The third and fourth measure 23½ inches and 24½ inches respectively 3 feet from the ground, and both are eleven years old, on good clay ground, but were transplanted when young. Number five measures 7 feet 8 inches, 5 feet above the ground, and is fifty-five years old; this tree is on very light sandy soil. I mean in all the measurements the circumference of the trees. It will be seen from this that the soil has everything to do with the growth of the tree—the richer the soil the more rapid the advance—and therefore I hope that, by putting my trees on rich virgin clay soil, I shall have a return in about twenty-five years." I may add here that Mr. Stanton has sown last fall twenty-five bushels of Black Walnut nuts in the soil he mentions. I will now give in a tabular form, for the purpose of comparison, the results of Mr. Stanton's measurements:—

No.	Soil.	Age of tree.	Diameter.	Approximate annual growths.
1	Very rich black sandy loam	24 yrs.	22 in.	11-12 or very near 1 inch.
2	Very light sand	30 "	21 in.	About ¾ of an in.
3	Good clay ground (transplanted)	11 "	8 in.	Over 1 do.
4	do. do	11 "	8 in.	do. do.
5	Very light sand	55 "	31 in.	A little over 1 in.

With the soil and climate of Ontario, and average fair play, Black Walnut can be safely expected to grow at least two-thirds of an inch in diameter annually, say 20 inches in thirty years. I am speaking of that average; under exceptionally favourable circumstances it would, of course, grow faster. I am taking the average of Mr. Stanton's report between the trees growing on very light sand and those growing on rich black loam and good clay ground. With us, so far as I can judge, I should think the growth a little slower than in Ontario, and would call it half an inch in diameter, annually, say 20 inches in forty years. Last fall I measured five of my young Walnuts (seven years old), at 1 foot from the ground; one had 14 inches circumference (4½ inches diameter), two had 12 inches circumference, or 4 inches diameter, and two 9 inches circumference, or 3 inches diameter, showing an average of annual growth of half an inch in diameter. Those trees are growing on good soil, about 1 foot of black vegetable mould over thick blue stiff clay; but I would expect them to grow faster in deep, mellow, alluvial soil, such as Mr. Stanton alludes to. In fact, another lot of the same age, a few miles' distance, growing on an island formed by river sand and the washings of the spring freshets, are nearly as thick, though they have been seriously checked by transplanting. Whatever beneficial effect it may have in the future, the stiff blue clay does not favour the rapid development of the very young plant. As the trees advance in age, their annual growth appears to become greater. There is no saying how far we shall be able to stimulate the rapid growth of the Black Walnut with proper attention and care. I need not apologise for laying so much stress on the rate of its growth, since it is one of the first considerations that recommend the Black Walnut, in preference to all other trees, combined with the value of its timber and the facility and safety of its culture.

Return of one superficial acre planted in Black Walnut.—The Hon. J. B. Hough, head

of the forestry department of the United States, allows 680 trees, fifty-one years old, to one superficial acre, 8 feet distant from one another on every side. At that rate, one superficial acre of good soil, planted to-day in Black Walnuts, and carefully looked after, would yield, in about thirty or forty years, according to circumstances, a sum of over £4000, allowing 30 cubic feet (at 4s. a foot) for each tree, averaging 20 inches diameter; of course no one could rely upon such a result, which could only be achieved if none of the trees failed, but even after striking off 50 per cent. the return would still be such as no other legitimate investment could secure. At first sight it appears impossible that so many large trees should be able to thrive on one superficial acre, but in travelling through the woods this winter I have made a point of finding out, whenever practicable, how near to one another large trees could grow without interfering, and have found numerous instances where they stood nearer to one another than 8 feet, especially evergreens. The European writers on forestry do not allow quite as many trees to the acre as Mr. Hough does. I would think it pretty safe to rely on about two-thirds of his number, and, with all confidence, will endorse his statement, that: "The amount of timber grown on a given area, in some of the governmental forests in Europe that have been planted and managed according to the rules of forestal science, is very much greater than the same soil would grow in wood if left to itself." In calculating the number of years to elapse before obtaining a profit from a Black Walnut plantation, I have supposed that the trees would not be cut down before they were 20 inches at least in diameter. If you cut them when they give 12-inch to 14-inch logs, the average size of Spruce logs, you will get a return much sooner, but it will be a waste of timber, except what you must cut for thinning. Many people who are seriously concerned about the rapid destruction of our forests advocate the planting of trees in the woods in the place of those that are cut down; all practical men will, however, agree that it is next to impossible to do that, and it would be useless, for the young trees would do very little under the shade of their big neighbours. We can make our forests last a long time by sparing all trees under a certain size, giving a chance to the young trees, &c.; but if we want to plant forest trees with a chance of success, we must start a whole lot of them together, about the same age and size.

How to cultivate the Black Walnut.

—Whenever practicable, avoid transplanting, by sowing at once the nut, where the tree is to remain in rows, 4 feet apart on every side. Instead of spreading lateral branches (very fragile in the young wood, and liable to be torn off by snow, ice, wind, &c.), at that distance they will grow up in length, with no under branches, and can be thinned in the course of time. The nut must be sunk about a couple of inches in the ground. The rows ought to be quite straight set out by the line, and marked from place to place with pickets, so as to know exactly where the young plants are, the first year, and avoid hurting them when hoeing and weeding. The ground must be well prepared for permanent sowing; the richer the ground the more rapid the growth. If your ground is not ready when you receive your nuts, sow them in the nursery. We have sown about ten thousand in that way last fall, not having sufficient ground ready for permanent sowing. The rows in the nursery are 3 feet apart, nuts 18 inches from one another; the ground was laid out last summer as a Potato field, and is in very good order; there is plenty of room between the rows to pass with a horse-hoe; I hope to be able to transplant them permanently next fall. Better sow the nuts in the fall, however late. The squirrels are more apt to steal them (as I know to my cost), when you sow them in the spring than late in the fall. If you must winter them, do not keep them in the house; the slightest heat will make them turn rancid and kill the germ. To satisfy myself on that point, I sowed this spring 2000 nuts of the Butternut, wintered in a cool

garret. Not one came up, while several of the same nuts, lying where they fell in the fall, and spending all the winter without shelter, sprung up well in the spring, and a number of others, dragged by the squirrels or rolled under plank roads and piles of sawn timber, grew up beautifully, some of them sending up their stems through such small cracks between the deals of the plank roads, that the stems grew as thin as a sheet of very coarse paper and wide in proportion while in the crack, and these rounded again and sent out branches and leaves in the regular way. Those valuable trees have not yet been regularly cultivated on a large scale; we have a great deal to learn from experience as to the best mode of dealing with them. I have tried some of the nuts with superphosphate, others with plaster, &c., and have placed boards, at a certain depth, under others in the nursery to stop the descent of the tap-root and facilitate transplanting, and shall account in due form for the result of these experiments.

Cotoneaster Simonsi.—As a showy berry-bearing shrub in early winter this *Cotoneaster* has but few rivals, for it invariably bears an abundant crop of berries about the size of Peas, and as bright in colour as red sealing-wax. Good-sized bushes of it grouped here and there enliven shrubberies at this season of the year. Some excellent specimens of it come from Mr. Stevens, Grasmere, Byfleet.

Illicium religiosum and Indigofera floribunda.—I wish to try these out of doors. When should I plant them? and on what aspect?—IGNORUS. [The first is properly a greenhouse plant, and should be tried on a south or west wall. *Indigofera floribunda* is hardier, but will do best in a similar position. It may also be planted in the open, in a sheltered situation, if protected like a Tea Rose in winter. Both should be planted out in spring, so as to become established before winter.—R. I. L.]

Salisburia adiantifolia.—This is commonly called the Maiden-hair Tree, and well it deserves that name, as the shape of its leaves closely resembles that of a Maiden-hair Fern. On the long wall under the castle at Drumlanrig there is a fine specimen of it, and as seen there it is both interesting and ornamental. The branches are trained against the wall, many of them being 12 feet long or so, and they have a remarkable likeness to Fern fronds.—CAMBRIAN.

Microcachrys tetragona.—This is just now profusely laden with brightly-coloured fruit on one of the side stages in the temperate house at Kew. It is a small prostrate-growing Conifer, of no particular beauty under ordinary conditions, but, when seen as it is there, very attractive. It is about 2 feet in height, and the colour of its small Pine-apple-shaped fruit is externally bright red, but after a time they commence to open, when, more of the interior being visible, they assume a paler hue. This plant is a native of Tasmania, and will not stand our winters out of doors in England.—H. P.

Spring v. autumn planting.—Under this heading (p. 389), "F. F. W. W." says: "Wounds inflicted on the roots of deciduous plants in autumn do not heal and form rootlets before spring, as some assert." In contradiction to this I can state two positive facts. Four years ago a number of dwarf Roses were lifted and laid in by the heels while the soil in the beds was renewed; owing to severe weather they were not replanted until February 1, when they were found to have made large numbers of fresh roots all along the old roots. The same thing happened last year in the case of a Gooseberry bush, which was laid in, and, not being wanted, remained for about two months. Your correspondent does not say at what date in autumn his Apple trees were root pruned; perhaps it was late in autumn. I am of opinion that the last half of October and the first half of November is the best time for planting deciduous trees and shrubs, the last fortnight in October to be preferred. We have been

busy during the last fortnight planting Rose, Currant, and Gooseberry bushes in full leaf. The Roses moved October 12 look the same as those not moved; for a few days the soft points drooped, but now they are quite erect. Young Peach trees lifted October 15 have not lost a leaf, and look as fresh as those not lifted, while the wood is ripening as well as can be desired. If planting cannot be done early in autumn, I would prefer early in spring. To be more explicit, what is not done in November I leave till February.—W. CRANE, *Quartermoon Park, Mallow, Co. Cork.*

SEASONABLE WORK.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

THE hurricane and rain which occurred on the 24th ult. made a complete finish of all kinds of summer bedders, which have been, by reason of the absence of frost, more than usually prolonged this year. Violas, Calceolarias, Ageratums, Marguerites, single Dahlias, and tuberous Begonias being magnificently flowered up to the very last—a fact that we have noted for use next year, when these classes of flowers will be grown more largely, to the proportionate exclusion of Pelargoniums, which are among the very first to be affected by rain or frost. The beds should now be cleared of all plants that will not withstand frost. Dahlias, Begonias, and other tuberous rooted plants should be placed in safe quarters—a cool shed—and the roots laid in dry vegetable soil, in sand, or Cocoa fibre, there to remain till February. The beds should then be replanted for the winter, either with bulbs and spring flowering plants and annuals, or else with evergreen shrubs. Violas and Pansies may remain, for with mild weather they will flower more or less the winter through, so that all that is needed to furnish these kinds of beds for the winter are a few small shrubs, such as Cupressus, Retinosporas, or Aucubas; they should be planted at regular intervals over the beds, the Violas serving as a groundwork, into which may advantageously be dibbled a few Tulips or Hyacinths for early spring flowering. Other beds may be treated in like manner, as, for instance, those that have been carpeted with hardy plants of the Sedum type. Do not remove this, but plant in it Stocks, Wallflowers, Forget-me-nots, &c., as well as suitable shrubs in the larger and more conspicuous positions. By this means the work of re-furnishing will not only be less, but the beds will look well at once. I need hardly add that the edgings of beds ought to be neatly trimmed, and bare spots of earth be mulched with fine vegetable mould or fibre. This done, an occasional sweep up and rolling of turf will be all the attention the parterre will need for months to come.

Mixed flower borders.—There is at present an inevitable look of untidiness about these, wind and wet having done their worst. Chrysanthemums need tying up, and some of the clumps may be worth protecting from frost, which is easily done by placing a few sticks round the plants and lightly wrapping round them pieces of tiffany or matting. Other plants, such as Antirrhinums, Michaelmas Daisies, and Anemones, that have done flowering should be relieved of useless spray and seed-pods, and annuals be encouraged to make sturdy growth by being well thinned out, and the entire surface of the border be freed of weeds and be lightly pointed over, but previous to which all vacant spots should be filled up with any spare biennials or bulbs there may be left from the general planting.

General work.—The due preservation of neatness must have first place under this heading, and next comes the pressing forward with alterations and improvements whilst the weather continues open, and therefore favourable to all transplanting operations, that generally form a large proportion, and by far the most important, of the work connected with extension and alterations; but under no circumstances should planting be

done when the soil is in a puddled condition, but the work may at that time be advanced by carting the necessary soil and manure to the ground, and getting it ready by deep trenching and draining where needed. Bedding plants now need careful treatment to keep them in good health. All kinds should be watered but sparingly—Pelargoniums more particularly so, or the late-struck plants that have as yet made little root will quickly rot off. Verbenas, Petunias, Ageratums, and others of similar hardiness should be kept as cool as possible; cold pits that can be well covered in the event of frost are the best structures for these. Prepare protection in the way of litter or Bracken for protecting plants that are being wintered in ordinary cold frames. Of course this need be applied only in exceptionally severe weather, as the covering with ordinary mats will suffice at other times.

FLORAL DECORATIONS.

JAMES HUDSON, GUNNERSBURY HOUSE.

FOR using in many ways the autumn flowering varieties of *Salvia* will now prove valuable. *S. splendens* is still one of the best of its colour and very floriferous. *S. Bethelli* is also a fine variety of a purplish shade. These, with one or two more distinct colours, will at all times make an excellent arrangement for the dinner table, being careful to preserve at least some of their own foliage intact. Medium-sized epergnes, with either a trumpet-shaped glass or one more dish-shaped, will do excellently for these flowers, their colours contrasting well with that of the silver and other surroundings of a dinner table. Some Fern fronds of any approved kind will add to the effect, or in lieu thereof the elegant foliage of the cut-leaved Bramble, and a few pieces of one of the ornamental Grasses can be turned to good account. Another valuable class of plants at this dull season of the year are the Gesneras; for tall trumpet vases the spikes of these, when well developed, are excellent. The old *G. zebrina* is especially telling when used in this way; its own foliage, which is always handsome when the plants can be kept in good health, will be quite sufficient to show off the flowers to good advantage. The handsome blossoms of the *Belladonna Lily* will also be valuable just now for arranging in many ways. The individual flowers can be used in association with those of the *Amazonian Lily* for a dinner-table arrangement, selecting a glass stand with a flat base resting on a tablecloth, and a trumpet-shaped glass arising out of its centre. Around the stem of this a few blossoms of the red and white *Lapagerias* and some small growths of these climbers might be entwined with good effect. In the glass itself two or three nice feathery pieces of the red and yellow varieties of *Celosia pyramidalis* and a few spikes of dried Grasses would make a pretty arrangement under artificial light. Some few healthy green tufts of either *Cyperus alternifolius* or *laxus* would look well with the Lilies, which should be resting on a carpet of green Moss or *Selaginella*, and there should be a fringing of Fern fronds of a somewhat bold character. Spikes of both of these Lilies cut to a good length and having several expanded flowers will also do well as a bold arrangement for either a sideboard or entrance hall. The foliage of the green variety of *Aspidistra* will associate well with them, and a leaf or two of *Amaryllis aulica* if to be spared. A small spike or more of the Pampas Grass towering above all would be effective. A dark blue or even a black-coloured china vase might be selected for such an arrangement as this. Camellias in many places will now be yielding a fair quantity of their blooms; these will come in handy for specimen glasses. It is well, however, to take a precautionary measure with these to prevent them from dropping any of their petals prematurely. A little gum worked in between the outside petals will generally prevent this annoyance. Choice bits of Orchids should be made the most of for small glass vases, taking care that these do not stand too close to any window that is opened on chilly or windy days. If this be overlooked the blossoms will quickly fade.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Camellias.—One of the most disagreeable circumstances connected with gardening is that it is necessary to keep up a war with insects that never comes to an end. Plants in the open air, with few exceptions, are little affected with animal parasites that hold on to them beyond a limited time during the year; but with those grown under glass the conditions are wholly favourable to insects, which go on increasing more or less, according to the active or more dormant time of the year, and unless there is unremitted attention given to their destruction, the plants never can thrive or appear as they ought to do. The course sometimes followed of allowing plants to get badly infested, and then to subject them to extra cleansing, is the worst possible method, for not only is the work thereby much increased, but the plants themselves, beyond the harm done to them by the insects, have their leaves more or less injured by whatever means are employed in the cleansing process. Gardeners who keep the best ahead in the destruction of insects not only reduce the amount of labour to a minimum, but invariably reap more satisfactory results by the cleaner and better condition of their plants. The best season to attack the enemy is during the autumn and winter, when insects increase much more slowly, and the press of other matters gives more leisure for the work. Camellias more than most plants suffer through the presence of white scale, the most difficult of all insects to get rid of, for the reason that many of the plants subject to it will not bear the application of any insecticide sufficiently strong to destroy the pest without seriously injuring the foliage. When the plants are much infested, it congregates about the extremities of the shoots and on the flower-buds; where the growth is vigorous, and the buds are set in clusters, it is well to thin them out sufficiently, so as to be better able to get at the scale. This thinning out is also essential to obtain full-sized flowers, for although the reduction of the buds is not necessary to be carried so far now that the blooms of these plants are generally gathered without any of the wood in the way that was long looked upon as essential, and consequently through the non-mutilation of the shoots they are enabled to develop more flowers, still it is bad practice to allow too many. Some of the best of the market growers, who naturally are anxious to let as many remain as the plants can fully support, thin out the buds to two or, at most, three to a shoot. I have found nothing better to clean these plants with than an ordinary tooth-brush for removing the scale, finishing by sponging with ordinary soap and water; the strong applications of soft soap not unfrequently used in the cleaning of many plants often does more harm than good, and in the case of Camellias causes numbers of the buds to drop, although this often occurs so long after the dressing as not to be attributed to the effects of the soap. If the plants are badly affected it will be well to go over them twice. With the damp weather we have recently had, necessitating a considerable use of fire heat in most conservatories to expel the vapour, it will be requisite to see well that the plants are sufficiently moist at the roots; this not alone applies to those that are grown in tubs or boxes, but also where planted out, the soil often being too dry below when the surface looks moist enough.

Oranges and Citrons.—These are troublesome plants to deal with in the matter of scale, and now when transferred to their winter quarters should be thoroughly overhauled, so as to remove the pest, which in their case often establishes itself where there is the least inequality in the bark, as well as on the leaves, the young wood, and about the stalks of the fruit. These plants should never be allowed to get badly affected with scale, as it seldom fails to give a yellow sickly hue to the leaves, in addition to causing their premature falling off, and so imparting a half-clothed appearance, which much reduces their beauty. Where Oranges are grown

in numbers with a view to their fruit being used, they should have much more warmth than when only required for ordinary decoration, otherwise the fruit can neither be plentiful nor high flavoured. Bottom-heat is sometimes advised where the crop is required for use in this way, but it is not absolutely necessary. A genial warmth of about 55° in the night through the winter with an atmosphere neither too dry nor too moist will answer for them. By some the flowers are as much esteemed for their scent as Violets, and where this is the case much may be done in lengthening the supply by introducing a plant or so at a time to a little more heat, as there is no particular season in which they cannot be had in bloom. Though smaller in the flowers, the small Otahite variety is useful for blooming. There is one advantage with this sort; the plants not being large, a succession may be brought on to flower without the over-abundance at a time that often occurs where the large kinds are forced.

Winter-forced flowers—Lily of the Valley.—Where this is wanted in bloom by Christmas there is no difficulty in having it, if strong, full-sized crowns are obtainable that have been cultivated under conditions such as to bring their growth to maturity early in the season. The German roots that are now sent to this country have been in this way especially prepared for forcing, so that when they arrive by the middle of October the crowns have already pushed $\frac{1}{2}$ in. or so. If these are at once potted, and allowed a week or two before putting them in strong bottom heat, there is little doubt about their moving freely, and coming into flower during the latter part of December.

Poinsettias and Euphorbia jacquiniiflora.—Poinsettias intended to come in early should now be subjected to a brisk stove heat, keeping their heads if possible all but touching the roof, by which means additional brilliancy of colour and a harder condition such as to enable their bearing a cooler temperature when fully expanded will be secured, very different to that which will result from their being brought into bloom with their heads several feet from the glass. Regarding the Euphorbia, the time it can be had in flower will depend upon how the plants have been treated. Cut-back examples, such as bloomed last season, that were started into growth sufficiently early in spring and pushed on in a warm house with the shoots not stopped more than once, will flower much earlier and produce double the quantity of bloom that such as are weaker and have made their growth later will. There is no plant that I have ever used for forcing that has the condition of its flowers so much dependent upon its being brought on to bloom with the tops of the shoots all but touching the glass. When so treated it will stand in a cut state for a week; whereas the bloom from weak plants that opens in a dark house or under less influence of light is of so little use for cutting, that both the leaves and flowers flag almost as soon as they are severed from the plants. Neither of the above plants will do well with the soil keeping so wet as many things; the comparatively few and delicate fibres which the Euphorbia especially makes cannot at any season bear the soil being wet unless in very small well-drained pots and under an exceptionally high temperature. Anyone possessing a large plant of the old Euphorbia splendens trained on a back wall, round a pillar, or in any situation where it will receive a moderately brisk heat through the winter, will have a continual succession of brilliant flowers. This plant likewise is impatient of much moisture in the soil unless the roots are confined within a restricted space. Even when allowed plenty of head-room in the way above indicated, it is better kept in a comparatively small pot than turned out in a border.

ORCHIDS.

J. DOUGLAS, LONFORD HALL.

East India house.—It will now be a good time to thoroughly overhaul the plants, and wash them well with soft-soapy water. Those that are growing in pots should have these washed, and

where the plants have been placed on inverted pots they also should be removed, and clean ones be put in their place. The best stages for an Orchid house are those made of slate with a neat cast-iron edging screwed on to them. Some gravel, spar, or broken sea-shells may be placed on the stages to stand the plants upon. I noticed that small coal was used in Mr. Bockett's houses at Stamford Hill, and it seemed to answer admirably. Devonshire spar forms the best surface, but it is also the most expensive. Some fresh material may now be added. Another matter which demands attention is cleaning the glass roof. The wood and glass work should be well washed with clean rain water; a very little soap should be used, as strong soapy water has a tendency to take the paint off the wood. The importance of a clear light at this season through clean glass is of much importance in any of the departments, but much more so in this one. I should not advise any potting of the inmates of this house until after Christmas, when the plants will succeed better with the lengthening days. The earliest ripened Dendrobiums should be placed in the coolest end of this house, and they ought also to be placed quite close to the glass, so that the young growths may be strengthened by the light and also by the more buoyant atmosphere. The growth of some species and varieties may even have started; in the cool airy house where they have been at rest they will of course grow with more vigour when placed in the warm, moist atmosphere of this house. The Vanda teres and V. Hookeri, which have been grown in this house up till now, ought to be removed to the temperature of the Mexican house, and they should be placed where they will be fully exposed to the light. They must also be gradually dried off, so that from the middle of November until about the end of February they get no water whatever. Some of the Cypripediums that delight in a warm house should be carefully examined, as a section of them, notably C. Veitchi, are very liable to be attacked by thrips; and as the leaves cling so closely to the surface of the compost, it is not very easy to dip them. We usually go over them with a brush, dipping it into the soapy water, and then it is easy with the brush to get at the thrips in the centre of the plants.

Mexican house.—The same remark as to cleanliness applies to this house. Indeed, I fancy the whole of the true Mexican Orchids luxuriate in more light and air in the winter as well as in the summer than they usually receive. I have in a previous number more fully gone into this matter. Besides the useful late autumn and winter flowering Cattleyas alluded to at p. 364, the charming Barkerias ought not to be omitted. B. elegans is one of the finest of them, and produces its spikes of rich rose coloured flowers from the top of the bulb. B. Lindleyana, with its graceful spikes of rosy purple coloured flowers, may be more valued by some, and as the flowers remain long in good condition, its value to produce cut flowers is greater. B. Skinneri produces its long spikes of rose coloured blossoms from this time and well into the new year. It is free flowering, and is a very valuable winter Orchid. All of them succeed best when tied to Teak rafts.

Lælia autumnalis and varieties of it now in flower claim a very high position; although usually grown in this house, I have grown it in the cool house, and find it succeeds well there. I have always given it and its near relative, L. majalis, the lightest corner in the house, and find the first named species succeeds well and flowers every year; whereas the latter scarcely grows and but seldom flowers. The Lælias are watered freely while making their growth, but during the resting season they do not receive nearly so much water. Lælia albidia is one of the prettiest of the small-flowered species, and they are even more useful because they bloom now. I have always grown L. albidia warmer than the others; it may not require more, but I find it succeeds well in a warmer house. L. anceps and varieties of it are highly valued in the winter, and are now showing.

Cool house.—The last night or two the temperature has fallen as low as 42° , and as it would not be safe to allow the temperature to fall lower than this, a little heat in the pipes will be necessary to keep up the temperature to 45° . It is worthy of remark that our cool Orchid house has not required any artificial heat from May until the end of October. Indeed, it is a question whether the New Grenadan *Odontoglossums* require more heat than the majority of New Zealand plants which are cultivated in a cool greenhouse. Probably, too, they would do with almost as much air as the New Zealand plants. At any rate most Orchid growers give their plants more air now than was deemed advisable less than ten years ago, and the cool section may be aired more freely than the others. I have heard of plants of *Odontoglossum crispum* being placed near the open ventilators of a greenhouse, where they succeeded well, making good flowering growths with the ventilators open night and day. We have removed a few of the plants of some Orchids that flower best in a temperature of not less than 50° at night, and in mild weather this ought to be 55° . If the cool house is kept at 50° as a minimum, a temperature at which most of the occupants of the house will do well, there is no need to remove the white winter flowering *Masdevallia tovarensis*, M. Wagneri, or the *Restrepia*s; whereas if the temperature occasionally falls to 40° it is better to remove them to the cool end of the Cattleya house. *Odontoglossum vexillarium* should also be in a Cattleya house temperature now; it does not like a high temperature, nor are the plants safe in a low cool house one. If a winter temperature of 55° as a minimum can be afforded for them, it will suit better than any other. The handsome *Oncidium macranthum* succeeds well in the lowest temperature. In some cases the flower-spikes will be showing, and they are very attractive to slugs; these troublesome pests may be found any time at night, and also at daybreak in the morning. A little caution is necessary in damping the house at this season, an over-moist atmosphere causing the flowers to spot almost as soon as they open.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Cherries.—Where these are wanted very early, the first set of trees may now be pruned and cleansed ready for tying in when opportunity serves. As these and Plums are often injured by a sudden outbreak of aphids when the trees are in flower, too much attention cannot be devoted to the washing and dressing of the stems and spurs, care being taken that the insecticide used is not strong enough to injure the buds. If, as is generally the case, these excitable trees have the benefit of a movable roof, the lights should be thoroughly washed, or, what is almost as cheap, painted inside at least before they are put on for the winter. Vigorous young trees which have been partially lifted or root-pruned will not require mulching or stimulating until after the fruit is set, but the borders occupied by the roots of old ones may be covered with a good layer of rotten manure as soon as they are tied, and to prevent the buds from dropping, an occasional soaking with diluted liquid will be highly beneficial to these, as it is to all other kinds of stone fruit trees when grown under glass. When all is finished the house must be kept well ventilated and as cool as possible until the time arrives for forcing. If trees in pots are still standing out in their autumn quarters they may be placed closer together and well packed with Fern or litter to keep out frost. Where birds are numerous a piece of fishing-net should be thrown over them to protect the blossom buds when they begin to swell.

Strawberries in pots.—The heavy rainfall of the past month, combined with mild weather, has kept the plants growing rather more freely than is good for them, as it is now getting late for them to ripen up their crowns properly. Much however, may be done to facilitate this process by

moving the pots occasionally to let in light and air, and to prevent the roots from penetrating into the bed of ashes upon which they are placed. If forward batches of early kinds are wanted for starting, a more decided check may be given to vegetation by placing them on their sides, or setting the pots in cold pits where the lights can be pushed down and tilted in wet weather. As the general stock will continue growing for a considerable time, yet they may with advantage remain out of doors until severe weather approaches, when they must be placed in their winter quarters until wanted for forcing. When thoroughly at rest pot plants should not be allowed to become dry at the roots, neither should they be coddled by being kept in a close pit when the weather is mild. In my own management I prefer leaving all the plants out of doors until the middle of November, when they are removed to cold pits, and plunged up to or slightly over the rims in Oak leaves or tan, for the two-fold purpose of keeping the roots moist and the protection of the pots from the action of frost. The lights are thrown off in fine weather, and well tilted to shelter them from heavy rain. No attempt is made to keep out ordinary frost, as decided rest is highly important; but a thin layer of dry Fern is spread over the crowns when it is unusually severe. When Strawberry plants are wintered in houses they should be placed close together on a cool, damp floor in preference to elevating them on shelves.

Cucumbers.—If plants in manure pits and frames are still giving a supply equal to the demand, keep September-sown plants divested of all male and female blossoms, and train the young growths regularly over the wires. Add more lumps of turfy loam to the roots as they appear on the surface of the hills or pots, but avoid the use of stimulants until they begin to bear fruit. Keep a sharp look-out for mildew, and check it at once by the application of dry sulphur to the leaves, renovation of the fermenting material, and the abundant use of water at a temperature equal to that of the soil containing the roots. Keep succession plants growing by shifting them on before they become pot-bound if the pit in which they are to be planted is not ready for them. Never bury the stems of winter plants, as deep potting or heavy earthing is the frequent cause of them going off before the inexperienced are aware of their danger; but in potting or planting always keep the top of the ball near the surface, and coax the roots away into feeding ground some distance away from the stems. Where old veterans are still doing good service keep them copiously supplied with good warm, generous liquid, mulch the balls with short stable manure, and encourage an extension growth by allowing a number of the most promising Vines to ramble over any unoccupied part of the trellis. In every department keep the foliage free from insects by means of sponging or fumigating, and endeavour to maintain a healthy sturdy condition by internal cleanliness and the frequent removal of matter which may accumulate upon the glass, and so interfere with the passage of solar warmth and light.

KITCHEN GARDEN.

R. GILBERT, BURGHEY.

GLOBE ARTICHOKEs have for some years had a rough time of it, but last season, being so mild, they sprang up with their usual strength in the spring, and now present a very respectable appearance. Give them a good mulch with cow manure, and afterwards protect them with dead Bracken. February is the best time to make new plantations. Slipping off the offshoots from the parent plant is a much better system than growing them from seed. Digging, trenching, or manuring, as the case may be, all vacant quarters or borders after the crops are secured will be the order of the day. The time is fast approaching when Seakale, Asparagus, and Rhubarb will want looking to. Rhubarb, in fact, may be taken up now to force; it is quite ripe enough for that purpose. We gathered our first Mushrooms yesterday (Oct. 26); they promise to be a good crop. Now is a capi-

tal time to plant Cauliflower plants under hand-lights, planting five under each light in a warm corner on a south border. In the case of Cauliflowers to plant out in March, I find by far the best plan is to plant them in small 3-inch pots. Keep them in cold frames, and expose them fully on all occasions except when there are heavy rains or sharp frosts. They get nice, stiff, and sturdy plants by March, and if turned carefully out of the pots, they never feel the effects of the shift.

GARDEN DESTROYERS.

FIR TREE OIL AS AN INSECTICIDE.

THIS is the time of year to wage war with all insect pests, not only because many plants are dormant, or making but little growth, but also because the rate of increase in insect pests is slower than during the summer months; moreover, every mature insect destroyed now will save a great deal of trouble next season. All plants when placed in their winter quarters, if at all affected by mealy bug, scale, thrips, or fly, should receive a thorough cleansing. Amongst insecticides useful for this purpose I find Fir tree oil to be very efficacious, and, moreover, quite safe if used with care. This is most needed in the case of plants with woolly leaves; for hard-wooded or shiny-leaved plants it may be applied much stronger. The best way is to put about a tablespoonful of the oil into a shallow pan or saucer and add about four times its bulk of warm water; stir it up until well mixed, and apply it with a soft brush or sponge. In a few hours every insect will come off quite clean if syringed with tepid water applied with force; even scale, that holds on so firmly while alive, will after an application of this mixture become quite brown and fall off. Of course in the case of large plants this hand-washing is out of the question. For Azaleas and similar plants that are liable to be attacked by thrips, the best plan is to mix a large quantity of say six or eight gallons at the rate of half a pint of oil to every gallon of water, and apply it by means of a garden syringe furnished with a fine rose. The plants to be operated on should be laid on their sides over a large tub, as it is the under portions of the leaves that are the most affected, and on the thorough wetting of the entire surface depends the success of the experiment; by having a tub or tin large enough to catch the mixture as it drips from the plants, little need be wasted. After the plants get dry a thorough drenching with the garden engine will entirely free them from all insects that might recover if free them from all insects that might recover if left undisturbed. For Vines and fruit trees at rest the mixture may be applied much stronger than in the case of soft-wooded plants. First wash the wood of Vines and fruit trees infested with scale or American blight all over with a strong application of the mixture, and when dried in apply a dressing of paint made of clay, soft soap, sulphur, and Fir oil. If this is worked into every crevice of the bark, very few insects will escape.

J. GROOM.

Seaford, Gosport.

GOOSEBERRY CATERPILLAR AND AMERICAN BLIGHT.

ABOUT three years ago when going over the nurseries at Sawbridgeworth Mr. Rivers told me to use a weak infusion of powdered alum to get rid of Gooseberry caterpillars. I have used this remedy for three years with complete success. Mix four ounces of powdered alum in two gallons of water. If hot water is at hand, the alum may be melted in half a gallon of hot water before filling up with cold. Syringe the trees well and the greater part of the caterpillars will be disposed of. What becomes of them is a mystery. In two or three days go over the trees again and syringe where necessary. This year I saved the leaves and flowers of a Spindle tree (*Euonymus europæus*) in the same way from a caterpillar

that sometimes strips it of all foliage. The trees should be syringed the moment a caterpillar appears.

While treating the Gooseberries I noticed several Apple trees affected with American blight, and at once gave them a dose of the alum water, sending it with great force on the clusters of blight, which it completely disturbed and destroyed. In a few days I found other places affected, and treated them in the same way and with the same result. This was done a third time, after which the blight disappeared. The trees affected were two espalier Ribston Pippins and an Emperor Alexander about twenty years old, and two bush Ribston Pippins about ten years old. Other Apple trees (about twenty-five sorts) were not touched. These include two descendants of Ribston Pippin, viz., Cox's Orange Pippin and Sturmer Pippin.

Addiscombe.

C. G.

Slugs.—Rock and herbaceous plants are more or less attacked at this season of the year by slugs; traps for them should, therefore, be placed about the garden. Pieces of young Cabbage leaves make very good traps if placed in the afternoon between the plants. With a lantern in the evening one may find them busily feeding upon the Cabbage leaves, off which they may be with ease collected and dropped into some small vessel containing a little salt water. In this way I caught over 1700 in two nights. — DANIEL HARRIS, *Munstead*.

Auricula fungus.—I am surprised to read Mr. R. Dean's communication on this subject (p. 377) and his amusing comments. The disease of Auriculas was unknown till about five or six years ago, when it suddenly appeared, everywhere at the same time, in different parts of Britain. Auricula growers at that time stated in print that entire collections of Auriculas had been swept off by the disease, and it was then popularly termed a "fungus" ailment. I was the first person asked to report on the disease, and I at once referred it to insect agency, although no insects were at that time found. This idea met with great opposition, chiefly because no insects were forthcoming; but at length Mr. Andrew Murray, who received my idea unfavourably at first, acknowledged me to be right, and the insect (allied to the American blight) was found and described as a new species by Mr. Murray before the Scientific Committee of the Royal Horticultural Society under the name of *Trama auriculæ*. Other species of *Trama* attack the roots of different plants, and Mr. Dean may possibly have seen traces of these creatures on the "roots of Thistles and on other ordinary weeds of the field." Whether Auriculas never do well in Yorkshire till they are attacked by this fungus (?) or woolly aphid I leave Yorkshiremen to decide, but I think Mr. Dean has been working in the dark with the soot and water experiment. — W. G. SMITH.

Primula insects (*T. B. Dolby*).—Your Primulas are attacked by the Black Vine Weevil (*Otiorhynchus sulcatus*). Examine carefully the roots of the plants and destroy all you can find. Waterings with insecticides is not of much use, as the grubs will hardly be reached by them. Tobacco water and Quassia water have been recommended for this purpose. The parent beetles feed on the foliage of Vines and other plants. In the spring and summer place sheets under the plants, and after dark enter the house with a light, the brighter the better; many will fall at once, and others on the plants being sharply tapped. The beetle is black, and nearly $\frac{1}{2}$ in. long. — G. S. S.

Worms on lawns.—"J. W." in his reply to "S. A. M." recommends the use of lime water that is not "too strong." I would ask "J. W." to fully explain his meaning, because I have always been taught that water will only take up a certain amount of lime, and the same result is attained with about 4 lbs. as with a bushel to the gallon of water. 1 lb. of good unslaked lime will fully charge a gallon of water, but from experience I have found it useful to use more, as lime varies in quality, and that which has been much exposed is not so good as that which is freshly burnt. It

may, perhaps, be of use to say how lime water (not limewash) is made. In a clear tub place as many gallons of water as may be needed, and to this add freshly burnt lime at the rate of 3 lbs., or stale unslaked lime 4 lbs. to the gallon of water. Stir well while the shell is breaking, and then let it settle for some hours, or till quite cold. Take off the scum on the surface, and use the clear water only, which is not, as a rule, injurious to plants. A lawn watered with this in showery weather will have all the worms brought to the surface, and they can then be picked off. The advantages in using lime water is its freedom from liability to poison anybody or thing, its perfect success, its cheapness, and not least (on a lawn) it does not change the colour of one blade of grass, whereas corrosive sublimate turns the grass brown as a rule. — WALTER J. MAY, *Walton-on-Thames*.

Packing flowers for transit.—I regret that I cannot satisfactorily give "G." the information which he requests with respect to the packing of flowers for transit. It is not a matter in which I have had experience, but many readers of THE GARDEN doubtless have. In this case it is not so much the experience of the sender as that of the recipient that is desired, and if editors of gardening papers were put into the witness box they would probably have to say that senders pack flowers badly. The best experience would, however, come from flower dealers and salesmen, who receive literally tons of flowers during the year, very many coming long distances, and who could tell us not only what kind of packing answers best, but what flowers travel best. I think that, as with fruit so with flowers, clean Moss would be found to be the best packing material, though in the latter case somewhat moistened. Cotton-wool or wadding is about the worst material that could be used; though soft, it sticks to the flowers and robs them of their moisture. Air-tight skins might be serviceable on the outside of a box of flowers, but they are not of much use within. For Roses I use no packing material whatever; and, further, invariably find that flowers of any kind make almost the best own packers if associated with a few soft leaves and some Fern. — A. D.

NOTES OF THE WEEK.

WEATHER AT WILTON HOUSE, SALISBURY.—October 15, barometer 9 a.m., 29.824; wind S.E.; force 1. Rain commenced at 12 noon and continued almost incessantly till 11 a.m. on the 16th. Amount registered, 2.635 inches in 23 hours. October 23, barometer 9 p.m., 29.462; wind, N.W. by W.; force 1. October 24, barometer 9 a.m., 28.864; wind, S.W. by W.; force 3; minimum, 10 a.m., 28.740; wind, S.W. by W.; force 5. A terrific thunderstorm occurred between 8 and 9 a.m., accompanied by snow, hail, and rain, the latter falling at times in perfect torrents, and the wind at intervals blowing quite a hurricane. Total fall of rain, 1.985 inches. — T. CHALLIS.

OPEN SPACES.—At a meeting of the Hackney District Board of Works, which took place the other day, Mr. Runtz, the Hackney member of the Metropolitan Board of Works, reported that the plans for the laying out of Hackney Downs as a place of recreation for the people had been submitted to the Parks Committee of this Board, and that the improvements incorporated with suggestions from the Hackney Open Spaces Committee would prove highly satisfactory both to the Board and to the public. Local settlements were also effected as to the open spaces in Dalston Lane and Grove Lane, and these would be laid out as soon as practicable. Shacklewell Green was also under the consideration of the Open Spaces Committee of the Hackney District Board.

A GREAT SEED RAISER.—Mr. H. Sibley, nurseryman, Rochester, New York, made a statement lately before the Tariff Commission in favour of putting seeds on the free list, saying it was not right to impose a high tax on seven millions of

seed users for the benefit of one hundred seed growers. He was introduced by ex-President Hayes as "the largest farmer in the world." He is the owner of 143 farms, which he rents to tenants, and of a still larger number, which he cultivates. He is the owner of the famous 40,000 acre Sullivan farm in Ford County, Illinois, and of the Howland Island farm, Cayuga County, the largest farm in the State of New York. He cultivates more acres for seed raising than any man in this or any other country, and is also engaged in the timber, salt, and banking business.

LIVING PLANTS BY POST.—On several occasions I have brought under the notice of your readers the facilities afforded by the Post Office for the transmission of small living plants. Only a few days ago I had another example of this. A correspondent in Hawaii (Sandwich Islands) sent me a post packet, weighing about 9 ounces, containing about a dozen species of Ferns, upwards of one-half of which are living, including two tree Ferns (*Cibotium glaucum* and *Chamissoi*), new, I believe, to cultivation in this country, as most of the others are. The plants are very small indeed; had they been larger, probably the whole would have lived. The gutta-percha covering in which they were enclosed kept them moist during their six weeks' journey from their far distant home. For further information on this mode of transmission I must refer those interested to THE GARDEN of March 18 last, where it is more fully noticed. My correspondent, referred to above, is a good botanist, and spends his leisure in collecting and drying the Ferns of this group of islands for sale. I have just received for myself and some friends several sets, 116 species in each, costing, including postage, about £2 4s. 6d. All the specimens are correctly named, and represent, I believe, nearly all the Ferns found in these islands. For anyone desiring acquaintance with them I will be happy to order a set, or put him in communication with the collector. — P. NEILL FRASER, *Rockville, Murrayfield, Edinburgh*.

NORDMANN'S FIR CONING.—Mr. A. D. Webster, of Llandegai, Bangor, sends us two fine branches of *Abies Nordmanniana* bearing a couple of cones each, a sure proof that this Conifer—one of the handsomest of all exotic species—thrives to perfection in that district of North Wales. The cones are some 5 inches or 6 inches long, cylindrical, rounded at the apex, and densely set with imbricating scales, which, as in all the Silver Firs, are extremely fugacious.

CALLICARPA PURPUREA.—In one of the houses in Messrs. Veitch's nursery there is a fine specimen of this old, but uncommon plant, with its long, slender shoots completely wreathed with dense clusters of bright purple berries, a little larger than gun shot. We have hitherto seen this plant grown in a greenhouse, but here it has been grown with great success in a warm and moist house. We have never seen a finer example, and it well shows what a beautiful plant it is when grown well. It will retain its berries throughout the winter, and will be highly ornamental.

AUTUMN TINTS.—Mr. Stevens brings us a few branches of trees and shrubs with their decaying foliage in rich autumn garb, reminding us of the approach of winter. Some are uncommonly rich in colour, particularly *Rhus Cotinus*, *Ribes pensylvanicum*, and several *Spiræas* and *Azaleas*. These trees and shrubs which have habitually such bright tints in their decaying foliage are useful features in the home landscape in the autumn, and they should be disposed in a garden with an eye to this character. At Kew lately the brightest sight we saw in the arboretum was a shrub of *Nyssa aquatica* with decaying foliage, resplendent with red, scarlet, and yellow of various shades, thus enlivening the whole surroundings.

ST. MARY'S GARDEN.—A welcome addition to places of public recreation in Birmingham was made the other day by the opening of St. Mary's Garden, which is situate in a densely-populated neighbourhood. The disused churchyard of St. Mary's has been transformed into a pleasant playground for the young. It covers two acres and a

half, and the cost of laying it out has been about £1500. The work of planting the shrubs and flowers, and generally converting the ground into its present aspect, has been carried out by Mr. Alfred Rodway, curator of Public Parks, from plans and designs prepared by the Borough Surveyor. The walks are paved with the Val de Travers Paving Company's limestone paving. In the centre of the garden, which is provided with several sheltering sheds, there is a drinking fountain, which is also close to the children's playground.

THE KEW GARDEN GATES.—The following letter has been received by Mr. J. M. Lucas, Ennesdale Road, Kew Gardens: "H. M. Office of Works, Whitehall Place, October 26, 1882. Sir,—I am directed by the First Commissioner of Her Majesty's Works, &c., to inform you that in fulfilment of the promise which he made to the deputation which recently called upon him upon the subject of the proposed removal of the temperate house gates at Kew Gardens, he has given further and careful consideration to the subject, and he has visited the spot with Sir Joseph Hooker. The First Commissioner desires me to repeat to you the assurance which he orally gave the deputation that the alteration was only undertaken under the belief that the new arrangement would in every way be more convenient to the public. It appears, however, that the public are not satisfied with the change, and would be better pleased if the gates were left where they were. This being so, the First Commissioner, with the full concurrence of Sir Joseph Hooker, will not proceed further with the alteration, and the gates will be replaced in their former position.—I am, Sir, your obedient servant, A. B. MITFORD, Secretary."

THE CROWN FORESTS.—From the recently issued report of the Commissioners of Woods and Forests for the year ending 31st March, 1882, we learn that the total receipts from Royal Forests and Woodlands, for the year, amounted to £30,500 4s. 10d.; and the total expenditure to £19,997 19s. 7d., or a balance of £10,502 5s. 3d. of income over expenditure. Of this surplus the New Forest, extending to about 62,000 acres of Crown property, but subject to the commoners' "rights," produced the sum of £2537 14s. 8d., or about 9½d. per acre. The Dean Forest, extending to about 22,000 acres, presents the Crown with a surplus of £3074 16s. 4d., or about 2s. 9½d. per acre. From Highmeadows Woods there is a surplus of £2117; from Alice Holt Woods, a surplus of £182 11s. 9d.; from the woods on the Woolmer Estate, £3175 11s. 11d.; from Bere Woods, £447 17s.; and from Parkhurst Woods, £171 9s. 6d. The whole area occupied by these Royal Forests and Woodlands extends to upwards of 100,000 acres, and produces for the Crown, on an average, less than 2s. per acre, per annum.

OPENING OF KEW GARDENS.—A meeting was held at Kew last Saturday to protest against the late hour at which Kew Gardens are opened, and other restrictions which are placed upon the public enjoyment of the Gardens. Letters were received from Sir Henry Peek, M.P., Sir Trevor Lawrence, M.P., Mr. Mitchell Henry, M.P., and others expressing their regret at their unavoidable absence. Mr. Joseph Beaumont, who presided, expressed satisfaction at the determination of Mr. Shaw-Lefevre to reinstate the temperate house gates, which Sir Joseph Hooker had commenced to brick up. This, however, was only an insignificant matter compared with the much larger question of the right of the public to be admitted to the Gardens at a reasonable hour. In asking for the opening of the Gardens at ten o'clock instead of one, they were doing nothing to injure or impede the scientific objects of the Gardens, for the report of the director did not reveal one single operation which would be in any way interfered with by the admission of the public at an earlier hour. He also expressed an opinion that the very ugly wall that hid the Gardens from people passing along Kew Road, and which had been raised in order to shut out the view from the houses on the opposite side, would have to come down, as did that of

Kensington Gardens a few years ago.—Mr. Porcelli moved the first resolution, which declared that the public, at whose expense the Gardens were maintained, were entitled to free access to them, subject only to reasonable restrictions, as to such parts as might be required for scientific or other consistent purposes.—Mr. John Maxwell seconded the motion, and said the Botanical Gardens at Dublin, Edinburgh, and elsewhere were open to the public all day without any evil results being experienced. The motion was passed unanimously.—Dr. Selle moved a resolution declaring that under the existing management of Kew Gardens a disposition was shown to disregard the just claims of the public to their use and enjoyment.—This was seconded by Mr. Colman, of the Kew Gardens Public Rights Association, who said it was intended to bring the matter before Parliament unless these public grievances were redressed before the Session of 1883.

ROYAL BOTANIC SOCIETY.—The following are the dates of exhibitions for 1883: Spring exhibitions, Wednesdays, March 28, April 25; gates open at 2 o'clock. Summer exhibitions, Wednesdays, May 16, June 13; gates open at 2 o'clock. Evening fête, Wednesday, June 27, 8 to 12 p.m. Special exhibitions not yet fixed. Promenades every Wednesday from May 2 to August 1, excepting May 16, June 13 and 27. Lectures at 4 p.m. Fridays, May 4 to June 22. General meetings for election of new Fellows, &c., Saturdays at 3.45: January 13 and 27, February 10 and 24, March 10 and 24, April 14 and 28, May 12 and 26, June 9 and 23, July 14 and 28, November 10 and 24, December 8. Anniversary, Friday, August 10, at 1 p.m.

PELARGONIUMS IN WINTER AND SPRING.

THOSE who first attempted to improve the Zonal Pelargonium with a view to the production of free-flowering, compact-habited varieties suitable for the open air in summer probably little thought that from their labours would result a most valuable race of winter-flowering plants. Such is the case, however, and within the last few years the popularity of the Zonal Pelargonium as a winter blooming subject has deservedly increased, for it is found that with a proper system of culture, a brilliant show of bloom almost, if not quite, equalling that which is obtained in the open air in good summers, may be had under glass during the dull months of the year, no matter how unfavourable the weather may be. It will be admitted that a house of Zonals in full bloom at Christmas is a bright and cheering sight, and curiously enough the colours are seen to even greater advantage at that time than in the summer season, the bright tints becoming even brighter as the days decrease in length, whilst the delicate shades of pink become more refined, and the whites quite lose that pinkish flush which distinguishes nearly all of them when the flowers develop under a clear sky, assuming, indeed, an almost pearly whiteness. This is very noticeable in the case of White Vesuvius, one of the best of winter bloomers. In the full summer's sun the flowers develop a distinct shade of pink, whilst in late autumn and winter they are as chaste and devoid of colour as the purest of white flowers. What increases the value of Zonal Pelargoniums for winter blooming is that the individual flowers last a long time in perfection. I have marked flowers expanding in the middle of November which were perfect and undimmed at Christmas, so that under good management a fully developed truss will remain effective quite six weeks. This long duration of bloom is even more marked in the semi-double kinds, some of which, such as Guillaume Mangilli, flower so freely at mid-winter as to be brilliantly effective; and as the individual blooms last long when cut and are just the right size for button-holes, they may be regarded as some of the most profitable winter flowering plants that can be grown.

Preparing the plants.—To many I think the term "winter-flowering Pelargoniums" is misleading, they being apt to imagine that the plants naturally bloom at that period, and that by merely

taking up healthy specimens from the open air in due time, and growing them under ordinary greenhouse treatment, their blooming season will be prolonged throughout the winter. Although some bloom may be obtained in this manner during the late autumn and early winter months, a complete breakdown will be sure to take place at the most critical moment. What one has to do is to take advantage of the late blooming, free flowering habit which many varieties possess, adopting means of throwing them out of the flowering season most natural to them, and at the same time endowing them with a strong reserve of blooming capacity, which may be called into action when most required. Plants which have flowered in the open air, or small specimens which have been employed for conservatory decoration in summer, may be grown on the following summer for winter flowering. Wintered in the ordinary way, they will have to be cut back rather hard in March or early in April, but I have always preferred young free plants, such as strong cuttings struck in August will give. It is best to strike them singly in small pots, as then they can be better treated with respect to light and air than when crowded together a dozen or more in a 6-inch pot. Strike them early in August and let them have the fullest exposure to the sun in autumn, so that the stems get brown and woody, and the foliage assumes a bronzy tinge, these being sure signs of great substance and hardened maturity. The following April shift into 2½-inch pots, keeping them quite cool and as near the glass as possible, so that they may make a free but sturdy growth, thus laying the foundation for a dwarf habit and robust constitution. I may also mention that strong woody cuttings such as are to be found on old plants that have not been cut back the previous autumn will, if struck in March or April, give good bloom the following winter, but not so abundantly as those propagated in autumn; and I would also remark that the best of summer treatment will never thoroughly obliterate the injurious effects caused by over-crowding or deprivation of light and air in winter and spring. By the middle of June if all goes well they will be established in 4½-inch pots, and after that time I would prefer for them a frame in a sunny position, not that they need the protection of glass, in a general way being all the better for full exposure to sun and air, but when, during July or early in August, they are shifted for the last time into 6-inch pots, I would like to have the power of sheltering them against heavy rains. When once the roots touch the sides of the pots, the best place will be on an ash bed in an open, breezy situation, standing them so far apart that the air passes around and amongst them, thus bringing to perfect maturity both shoots and foliage. Although Pelargoniums will bear better than most tender plants want of moisture at the roots, they are none the less benefited by very careful supervision with the watering-pot. Want of water in hot, dry weather causes the lower leaves to turn yellow and eventually to die; and, although in the course of the summer and autumn some of the first-formed leaves will decay, it should be slowly and naturally, as any enforced or premature decay necessarily lowers the vitality of the shoots to which they belong. Were our seasons uniformly fine, I would say plunge the pots as soon as the plants are shifted in a bed of ashes or Cocoa fibre. I am convinced that such a practice is, in the case of newly potted plants, often productive of much harm, as the soil, not being able to dry out, becomes close and sour before the plants can fill it with roots. I would therefore counsel the expenditure of a little more labour in the matter of watering, as being most likely in the long run to secure the best results. I need say but little in the matter of soil, as nearly every one knows that the Pelargonium likes sandy loam. We must, however, modify our practice a little, as it must be borne in mind that our plants have to bloom in winter, when root action is feeble and the functions generally languid, and I have found that Pelargoniums quickly suffer from an error in watering at that time. What is absolutely needful is to keep the roots healthy and active all the winter

they will then do their work well, and any nourishment administered will be quickly conveyed by them to the flowers. I would therefore add a little leaf-mould and some coarse silver sand to the loam, for although in the case of perfect loam this may not be necessary, it becomes so when that ingredient is close and somewhat deficient in fibre. If manure is used let it be thoroughly decomposed, otherwise some artificial manure will be preferable; pot firmly, and give rather more drainage than would be allowed for summer blooming. I find I have omitted to mention that a certain amount of stopping must be practised during the growing season. Now and then a shoot will start away stronger than its fellows; this must have the point nipped out, which will cause it to ramify, and will equalise the general growth of the plant. The bud which forms must also be picked off until October.

Winter management.—By the middle of September our plants, being well formed, will have to be placed in their winter quarters, but they should be very gradually inured to confinement, leaving open the ventilators night and day unless there is danger of frost penetrating the glass. This is, however, scarcely to be feared until the latter end of October, by which time it will be necessary to make a little fire at night unless the weather should prove unusually mild. Often after housing bright and even hot days are experienced, when plenty of water must be given, as the pots ought to be crammed full of roots, and any deficiency of moisture just then will cause the foliage to turn yellow, and will diminish the substance of the flower buds. During the winter the day temperature should range at from 50° to 55°, running down to 45° at night, and giving air as freely as weather permits. As one great point is to keep the flowers dry, it will be found necessary even in cold weather when an over-moist, stagnant atmosphere prevails to open the top ventilators a little, heating the pipes sufficiently to keep up the proper temperature, so that the warm, dry air continually passing upwards over the heads of the plants will dry the flowers, and will just suffice to render the atmosphere of the house sweet and buoyant. The great point is to keep the plants gently moving, not allowing them to come into a state of rest, but never subjecting them to anything like a forcing heat. Avoid heavy waterings, but keep the soil just nicely moist, and spill as little water as possible on the stages and paths, never on any account wetting the foliage. Plants which have flowered continuously from November till February will by that time have become somewhat exhausted, so that for spring flowering a fresh relay of plants will as a rule be necessary. These having been grown as recommended should pass the winter in cool quarters, placing them in warmth at the turn of the year. During March, April, and May they will be grandly effective, good specimens, well clothed with foliage and carrying some half dozen large trusses of bloom, proving extremely serviceable where large conservatories have to be kept well furnished with bloom at that time.

Varieties.—Amongst the single varieties none are better than Vesuvius and its white variety, as they are dwarf and compact in habit, producing numerous trusses of medium size, which are of great service for cutting. Another excellent variety is Henry Jacoby, which is one of the darkest coloured varieties in cultivation. West Brighton Gem is also a free flowering kind, which is likely to become very popular for winter flowering; and Charles Schwind is a dark crimson variety of much value. Other good single flowered sorts consist of Atala, orange-scarlet, bearing large well-formed trusses; Burns, having large scarlet flowers; Lizzie Brooks, Kleon, the flowers of which are of great substance; John Gibbons, Aida, and Titania, very distinct and extra good. We must not, however, omit the double and semi-double varieties, as, owing to the persistency of the individual flowers and the long time they last undimmed, they are more suitable than the single kinds for bouquets, button-holes, and such like purposes. Of the two I should give preference to the semi-doubles, as they have not

such a lumpy appearance as the double kinds, and yet possess all their good qualities. Guillaume Mangilli has of late been highly praised for its merits as a winter bloomer, and these are certainly of a high order, the flowers being intensely brilliant, trusses of medium size thrown up boldly above the foliage, whilst in growth it is exceptionally dwarf and compact. No collection of winter flowering Pelargoniums should be without this, but it is right to mention that it has one defect, *i.e.*, slow growth, so that those who depend upon spring-struck cuttings are liable to be disappointed with it. As this Pelargonium makes about as much growth in two years as most kinds do in one, the natural inference will be that two-year-old plants are best. The better plan with this variety would be to bed the young plants out the first year, growing them on in pots the second. Other good kinds consist of Wonderful, Henry Cannell, Souvenir de Carpeux, Aglaia, Sergeant Hoff, a semi-double of much merit, Una, Gambetta, and Meteor Flag. Amongst double whites we have Madame A. Baltet, which by many is considered to be the best in this class; Candidissimum plenum, Heroine, and Album perfectum. The above are only a few of those varieties which, under proper care, flower as freely in winter and spring as at any other time. Most growers have their favourites, but for those beginning the sorts here described would form a good commencement. Now that so much attention is given to the Zonal Pelargonium as a winter bloomer, we shall probably in time witness great improvements, and may obtain a race of plants which, like some winter flowering Tropæolums, show a marked disinclination to flower in summer, but which do so in great profusion at the approach of winter.

Best form of structure.—I think the time is not far distant when a house for winter flowering Pelargoniums will, in large trade and even in private establishments, be considered indispensable. It is well known to all engaged in floral decoration that when Chrysanthemum time has passed there occurs a void not easy to fill, and that to great abundance of bloom quickly succeeds such scarcity as to render the contrast very marked; as Pelargoniums properly managed would be in full bloom by the middle of December, they would effectually fill the gap, and there would not be that absence of brilliancy which too often distinguishes the conservatory during the few weeks which precede and follow Christmas. No practical man will require to be told that the firing bestowed on these winter-flowering Pelargoniums would be profitable in more ways than one, as the trade grower would have abundance of bloom when most needed, and as the plants go out of flower they would furnish a valuable amount of cuttings early in the year. Everyone knows that the cuttings taken from plants which have been kept gently moving through the winter are infinitely superior to such as are afforded by quite cool treatment. Then, too, the private grower would have at command a number of healthy, well-developed specimens suitable for employment in many ways that I need not describe. The best form of structure is of course a span roof, and I should be inclined to the belief that it should face east and west, as the amount of light the plants would receive would be more evenly distributed amongst them; at the same time it is worthy of attention that our largest and best grower has all his houses fronting the south, so that it would appear that this aspect is also suitable. As watering in winter when the air is surcharged with moisture is a necessary evil, it is evident that the soil in the pots should not be subjected to drying out any more than is possible. For this reason wooden stages are to be avoided, the best position for the pots being an ash-bed, so that the roots do not quickly get dry. In Mr. Cannell's houses at Swanley a wall borders each side of the path, the space between it and the outside wall being filled up with earth or some such material, so that the plants stand upon a cool, moist surface. Another important point is the disposition of the hot-water pipes, as when these make the circuit of the house, they are apt as generally arranged to lie so near to a portion of

the plants as to unduly parch the soil and foliage when heated to exclude frost. To obviate this defect the flow pipes in the Swanley houses pass up the path on the ground level, and the returns consist of inch gas-pipes, which are brought along near the roof, so that the houses are efficiently heated, and every portion of the warming apparatus is so far removed from the plants that they do not experience any ill effects from it. Another advantage obtained from this disposition of the pipes is that during periods of very damp weather the foliage and flowers are kept dry at a comparatively slight expenditure of fuel, for, as would be easily seen, the pipe which passes over the heads of the plants keeps the glass free from moisture, an advantage in more ways than one, much drip being thereby prevented, and the plants getting the full benefit of the light, which is often partially excluded by the condensed moisture on the glass on dull days. Frost, too, is in this way more easily excluded. No side ventilation is required for Pelargoniums in winter, as the object is not to admit any great volume of air, but simply to create a gently moving atmosphere by warming the pipes and opening the top ventilators slightly. Light being such an essential point, the woodwork of the house should be as little cumbrous as possible, and the squares should be from 15 in. to 20 in. wide, so that with ordinary care in ventilating and heating there will be no fear of the plants becoming drawn. J. C. B.

Botanical gardens.—One word only with Messrs. Max Leichtlin and "Hortus." They are right from the present point of view, but I look forward and consider also the evil effects of an ugly botanic garden. That many of them at home and abroad are ugly, I will not waste your space in proving. The one word I have to say is one that I hope may lead them and others to think, "*Is it not possible for a botanic garden to do all they claim for it, and be also a beautiful garden?*" If they say, No, then the look-out for gardening is not very bright so far, as it will depend on them to show the way. We have many more plants already introduced than we do any justice to. How is it that all our recognised introductions only lead to the few miserably common things one sees in every villa garden?—TRAVELLER.

Lichens (*J. H. D.*).—These occur most plentifully in wet and cold climates, and on trees growing on ill-drained land.

Vanda cœrulea.—Some uncommonly fine blooms of this lovely Vanda from Messrs. Heath, Cheltenham, measure 4 inches across, which shows what a variation in size there is among the varieties of this fine Orchid.

Geranium roseum.—What does Mr. Smith, of Newry, mean by this? I rejoice to see him on the track of so many good things. I do not remember the name of the above. No Geranium I know of beats our own blood Geranium, *G. sanguineum*, but there are a number with good qualities.—J. H.

Names of plants.—W. J. Rawlings.—*Melilotus sativa.*—*Texteth.*—*Oncidium Forbesi* (a good variety).—*W. H. H. A.*—The composite is *Liatrix scariosa*; the Campanula is not in character to name.—*A. W.*—1, *Davallia canariensis*; 2, cannot recognise; 3, *Asplenium septentrionale*; 4, *Eupatorium ageratoides*; 5, apparently *Senecio maritimus*; 6, *Arabis albidula*.—*A. B. S.*—*Veronica scutellata*; *Peplis Portula* (with small round leaves).—*J. M. Burton.* *Saxifraga Fortunei.*—*Plants in the box (Grantham post mark).*—1, *Pancratium speciosum*; 2, *Cryptopodium venustum*; 3, *Phyllanthus nivosus*; 4, *Thujopsis dolabrata*; 5, *Asclepias curassavica*.—*S. H. T.*—1, *Oncidium pulvinatum*; 2, *Miltonia Clowesi*.

COMMUNICATIONS RECEIVED.

L. K.—*J. D.*—*E. G.*—*G. B.* & Co.—*E. F.*—*H. W. S.*—*J. C.*—*J. S. W.*—*J. S.*—*W. M.*—*P. G.*—*J. S. W.*—*W. W.*—*W. C.*—*S. W. J. S.*—*Cambrian.*—*W. J. M.*—*H. W.*—*E. E.*—*W. G. S.*—*E. G. L.*—*J. D.*—*P. I.*—*W. P. R.*—*T. B.*—*J. C. R. G.*—*W. T.*—*J. H.*—*A. D.*—*V. A.* & Co.—*R. B. S.*—*Delta.*—*D. E. D.*—*A. H.*—*G. B.*—*Dido.*—*T. B.*—*J. W. R.*—*C. J. P.*—*W. H. B.*—*Norman.*—*A. W.*—*D. T. F.*—*W. H. S.*—*B.*—*H. A. M.*—*J. M.*—*R. D.*—*Beginner.*—*J. S. W.*—*Hemans.*—*J. T.*—*D. A. M.*—*H. C.*—*H. K.*—*W. C.*—*J. S.* & Sons.—*A. D. W.*—*S. H. T.*—*R. H.*—*C. U.*—*W. H.*—*B.* & *W. O. E. S.*—*R. I.*—*Sylvestris.*

"This is an Art

Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

GRAPE GROWING AT CLOVENFORDS.

UNLIKE many other places where good Grapes have been or are grown, Clovenfords more than sustains its old reputation, and in the interest of horticulture as well as in that of one of its ablest and most honourable representatives, it is to be hoped that the time will never arrive when a chapter on the rise and fall of Grape growing in the Tweed Vineyard can be written, and assuredly there is no material for the latter half of such a chapter at present; no, not even in reference to the Duke of Buccleuch Grape. The Vines of this variety are as vigorous, and the Grapes as fine and well finished as ever. No one who has ever seen it at Clovenfords could for a moment doubt Mr. Thomson's ability to grow and finish it to the highest perfection. It will also be admitted that as grown by Mr. Thomson and others it is a Grape of noble appearance and sparkling character. Thin skinned and juicy almost to a fault, it is one of the most refreshing and pleasant of all Grapes. So much is this the case, that most of those who have once tasted the Duke in good form ask for it again, and the demand for it far exceeds the supply. The very merits of this Grape raise difficulties in the way of increasing the supply. Though it keeps well at Clovenfords, it proves perishable in many places, the skin being thin and the flesh soft and tender. It is also of necessity a bad traveller, and in these days of the all but universal conveyance of ripe fruit, those that travel indifferently labour under a great disadvantage. More than this, a good many, myself among the number, have failed to grow the Duke creditably. But what then? Only this: the more honour to Mr. Thomson and others who continue to grow it well and with apparently as much ease and success as they grow Hamburgs, Gros Colmar, Lady Downes, Alicantes, and Muscats. Some make a great point against the Duke because Mr. Thomson grows more of other sorts than of it. But as well condemn the Black Hamburgh on the same ground, of which very few indeed are grown at Clovenfords. It by no means follows, however, that the Black Hamburgh is not yet and probably for all time the best of all black Grapes, because Mr. Thomson finds it more profitable to grow house after house, each 200 feet long, of Gros Colmars, Alicantes, or Lady Downes. Season of ripening, capacity for keeping, ability to travel, the demands of the market, all will influence and determine the relative proportion and varieties grown in a wholesale factory for the production of enormous quantities of Grapes like that of the Tweed Vineyard at Clovenfords.

The chief points that strike the visitor are the number and size of the houses, the weight, condition, and position of the crops, the vigour, perfect cleanliness of the foliage, the number and activity of the roots, and the character and finish of the wood. Somewhere near a score of houses are devoted to Grape growing, most of them averaging about 200 feet in length, and from 18 feet to 25 feet in breadth. Most of these are lofty, span-roofed houses with Vines planted on both sides, and a considerable width outside is converted into borders for their roots. Several of the vineries are built on sloping ground, the houses raking, as it is called, with the slope of the ground, and this fact adds somewhat to the richness and grandeur of the effect as one walks from the lower end to the upper. But taken either way, the size and number of the houses and their wonderfully perfect condition give one new and higher ideas of the prodigal fertility and matchless beauty of the Grape Vine. The next point is the weight, condition, and position of the fruit. My last visit to Clovenfords was on my way to the Great International Show

at Edinburgh in the end of September. I had, therefore, the pleasure of meeting there several distinguished horticulturists. The only phrase we could find to describe the crops—and it was repeated again and again—was "walls of fruit." Leaving the path and treading over the borders in all directions to get a closer and better sight of them, the Grapes looked more like a solid phalanx of fruit than an ordinary or even an extraordinary crop. The weight on each rod is quite double, or more, that generally seen. There are no sensationally large bunches. This is prevented, in fact, by removing the shoulders when any tendency to exceptionally large bunches is developed. Each bunch is as like its neighbour as if cast in a mould, and, judging from the eye or memory, would average probably between 3 and 4 pounds apiece. Each of the big houses were expected to yield somewhere about 2000 pounds of Grapes. And the berries were simply perfect, all full sized, and those that were ripe were perfectly coloured and covered with bloom. The black Grapes were black as Sloes, the Muscats laying on that golden amber which at once indicates maturity and reveals the highest quality. Next to the number of bunches, the size of the individual berries were their most striking characteristics. The quality of those ripe was also of the highest. The position of the bunches was also another striking feature of the Grapes at Clovenfords. To say that they were as regularly distributed as if they had been put on by line and rule only points to such perfect management as might be expected from Mr. Thomson; but to add that the finest bunches were found, as a rule, nearest to the base of the Vines, is a still higher encomium on the same management. A probable reason for this will be advanced; therefore, for the present the fact that such was the case is merely noted. The next most notable point was the vigour, size, and perfect cleanliness of the foliage. Each leaf as well as each bunch seemed a specimen of its kind. Alicantes and Lady Downes are well known for their noble and beautiful foliage. The same cannot always be said of Gros Colmar. Its peculiar woolly-like surface on the under side suggests suspicion of mildew at times when none is present. At Clovenfords the foliage of the Gros Colmar was as fine as that of its two rivals, Alicante and Lady Downes. It was not only as clean and vigorous, but also of marvellous size. In all the many houses not a trace of mildew nor spider nor a suspicion of insect nor disease was visible.

The number and activity of the roots was the next point discovered by careful inquiry and investigation. The whole of the border seemed alive with roots, especially those that had been recently top-dressed or renewed with maiden loam. Attempting to remove this, it was found to be permeated in all directions with innumerable hair-like roots that reached up to within an inch of the surface, and in some cases actually ran along on it. We had been apprised that an enormous amount of root power and force were needful to produce and sustain such foliage and fruit, and careful investigation on the spot proved the information to be correct. Never have I seen Vine borders so full of active feeding roots as at Clovenfords. The high character and perfect finish of the wood almost follows as a matter of course from what has already been stated. For the same vital force needed to finish those enormous crops carry, as it were, the wood abreast with the fruit. Hence by the time the finishing touches are given to the latter the wood is as brown as a nut, and well nigh as hard as an elk's horn. Such at least was emphatically the case at Clovenfords; hence no one doubted that the marvellous crops of 1882 were mere duplicates of those of 1881, and that those of 1883 will in all probability equal or excel those of this year, thus confirming the axiom that "nothing succeeds like success;" so a full crop one season, if not overdone, is the best and surest security for equal or even greater fertility the next year. Hence, in answer to the question, Can such abnormal and perfect fertility last? the record of facts, as written in the yearly produce at Cloven-

fords, answers, That it will and can. In a word, it has lasted now for many years, so no one who has been to see can deny. Having so far merely noted appearances patent to every visitor, a few remarks as to the

Probable causes of this unique success can hardly fail to be of equal interest, and perhaps more use. Structurally, the houses are as nearly perfect as may be. Heating and ventilation are also well-nigh or quite faultless. Planting, pruning, setting, and, it may be added, thinning are all managed by the hand of a master in the art of perfect Grape growing. And these, it must be admitted, are important factors towards commanding success. Given all these, no doubt very many cultivators would grow far better Grapes than they do. But, singularly enough, Mr. Thomson does not attribute the present nor past high estate of his Vines, nor his enormous crops of Grapes, to any or all of these causes, and no doubt he is keenly alive to the advantages of them all; he points to none of them as the chief aids to his success. No; he attributes his success to frequent top-dressings and root liftings, the use of a manure of his own manufacture, and the employment of more fire heat than is generally given. When I first visited Clovenfords I congratulated Mr. Thomson on choosing a site specially suitable. It was warm and sheltered, and, best of all, the loam in the valley, though it looked light, seemed a mixture of all sorts and conditions of soil washed down from the surrounding hills. Mr. Thomson seemed then to be very much of the same opinion. Experience, however, proved that the soil soon lost its fibrous character, and degenerated into a poor sandy character, lacking sufficient stamina to provide the enormous supply of food that his heavy crops demanded. Hence the beginning of his operations of searching and applying fresh loam, and lifting the roots tentatively, so as to enable them the sooner and the more entirely to feed on it. Partly no doubt stimulated thereto by the enormous difficulty of purchasing loam, though surrounded by thousands of acres of suitable soil, he turns his attention to the manufacture of a manure that would sustain the productive force of his Vines either with or without loam. This applied liberally at the rate of over a ton to each of the made borders of his large house, spreading it over the surface and forking it in to the border to a depth of from 3 in. to 6 in. The results have more than exceeded his most sanguine expectations. To any who may be sceptical of the beneficial results of this manure, it may suffice to invite them to grow just such Grapes as may yet be seen in any quantity at Clovenfords without it. One thing more was rendered most clear to many observers, that the roots of Vines have a wonderful liking for this manure. Wherever it was discovered in the soil—and it is easy to see it—the roots seemed to have full possession. They were not only contiguous, they had hold of it and seemed so loath to let it go, that in lifting a mass of fibrous roots many particles of the manure were lifted with it. Mr. Thomson gave it as his emphatic opinion that such crops in continuity would be impossible without the aid of this manure, or some other equally powerful stimulant or feeder, and no Grape grower on the spot, with the enormous weight of Grapes in all directions, felt at all disposed to challenge his opinion, so strongly fortified by so many telling facts in rod, leaf, berry, and bunch.

A liberal use of fire-heat is the last reason Mr. Thomson assigns for his success. At the time of my visit in September, though the day was fine, there was considerable warmth in the three rows of 4-inch pipes that skirted each side of the large houses in which Gros Colmar, Lady Downes, &c., were ripening. The temperature was also high, but the air being in motion, little sense of heat was experienced. All the vineries are liberally supplied with pipe, and there is no hesitation in using it, night nor day, at any time when it is required; in fact, I understood Mr. Thomson to say that the vinery fires are seldom out, night or day, throughout the season, from the time the Vines are started till the fruit is cut. To show how well the heat

agrees with them in almost all his houses, the finest bunches of Grapes were at the base of the rods immediately over—almost touching—the pipes. The temperature is never allowed to sink below 60°, even in the morning, and is allowed a latitude of at least 20° more on sunny days, sinking down to 70° towards evening, and receding towards 60° in the early morning. What is called the cool treatment of Grapes is not known at Clovenfords, and those who advocate it with so much energy and force might be fairly invited to show equally successful results before contending so vigorously that it is folly and waste to treat a semi-tropical plant like our best varieties of Grape Vine to that amount of warmth that is needful to enable it to do its best and its most. An early start and a semi-tropical medium all the way through to the finish are obviously some of the more potent means used to obtain the marvellous results that have obtained and deserved the world-wide fame achieved in the vineries at Clovenfords.

D. T. FISH.

TOP-DRESSING STRAWBERRIES.

FEW cultural operations are more timely needful or important than the top-dressing of Strawberries at this season of the year. After trying various methods, the following has been found to be the best and most successful. It combines four important operations—surface scarifying, pest slaying or prevention, protection, and manuring. The first is probably not the least important. It consists in forking up the surface between Strawberry rows to a depth varying from 1 inch to 3 or more inches. This of itself affords considerable protection to the roots of the Strawberry plants, inasmuch as loose soil is so much less pervious to the passage of heat than close, firm soil. There is no more effective recipe for conveying the cold with its utmost intensity to the roots of Strawberry plants than the leaving the surface hard and sour after heavy autumnal rains. Break the surface up, and the conductive power of the earth is lessened in the ratio of the disintegration and consequent looseness of surface. Of course surface loosening or scarification has other advantages, such as the sweetening and enrichment of the earth, and the stimulating effect of these and the partial root disturbance that the process involves. But the chief point of vantage in relation to the top-dressing of Strawberries in winter is the power of a loose surface as conserving the heat of the earth and shutting out the cold of the air. So potent is its influence in these directions, that could top-dressing operations be carried no further, it would be advisable and most serviceable to loosen the surface between the rows and plants. The next step in the process is to apply a

Pest-killing or preventive mixture.—After trying various substances, such as minute sprinklings of salt, gas lime, carbonate of lime, dressings of sea-weed, Barley chaff or awns, very coarse sand, Cocoa-fibre refuse, a sprinkling of soot and lime, a mixture of the two latter in the proportion of two parts quicklime to one of soot, has been found to be the best. The plan has been tried of mixing the soot with the lime before it was slaked, and also of mixing immediately it has slaked while yet warm. While both of these modes probably succeeded in intermixing the two more intimately together, yet the heat of the lime seemed to waste a large portion of the ammonia of the soot; so it is better to mix them as soon as the lime is cool, and apply the mixture at once, for the moist air speedily destroys the caustic character of the lime, and the soot also appears to lose strength if the mixture lies long in bulk before use. Apply this immediately after forking up, and work it well among the crowns and under the leaves of the plants, as well as give a good sprinkling between the rows. If given as early as possible in the autumn it will kill any stray late snails and slugs that may be about. The stinging pungency of rain water after passing through this dressing seems to make short work with the larvae of such pests, as well as gets rid of any superabundance of worms that not seldom

prove troublesome pests among Strawberries as well as amongst other things.

Strawberry top dressing is more specially protective; though Strawberries are assumed to be hardy, it is nevertheless a fact well known to horticulturists that they are often severely crippled and not seldom destroyed in a wholesale manner by winters of abnormal severity. Few of our modern varieties can be looked upon as zero proof; not a few varieties, most or all having any British Queen blood, are very severely tried by 15° of frost. Hence the prudence or absolute necessity of some direct protection for the crowns and roots of Strawberries in cold localities. The first and best protection for the crown is the old leaves. Under high cultivation these alone form a good covering; but they may be supplemented by the addition of several inches of rough stable litter fresh from the stables, laid between the rows with the long straws spreading finely among rather than over the crowns. These, with the old leaves of the plants themselves, will carry most of our cultivated Strawberries safely through our severest winters. Fresh litter of this sort proves as durable as it is efficient. It should be left as loose and rough as possible on the surface; the more so the more efficient; and so important is looseness of surface and substance to its protective efficiency, that should a heavy snow-storm fall soon after its application it is very desirable to go over the litter with a fork, and toss it up afresh, so that the surface may be again left rough. Of course, too much litter should not be used, nor must the crowns be wholly or heavily covered with it. Sometimes, however, a little wisp of the longest litter or an old hay or straw band has been loosely twisted round each plant under the leaves, and the latter allowed to drop over it. Plants so protected may be pronounced frost-proof up to any amount of cold that is likely to be experienced in our climate. A thickness from 3 inches to 4 inches will suffice between the rows. Some seem to think any protection of the roots of Strawberries unnecessary. Not a few of those who reason thus, however, unconsciously protect them by scarifying the surface more or less deeply. The change in the mode of Strawberry culture almost involves the necessity of affording some protection to the roots of Strawberry plants. Cultivated in masses in beds, the plants kept each other's roots warm. Even the old-fashioned exploded and barbarous practice of cutting off their leaves after fruiting assisted in affording extra protection to tops and roots alike. The second crop of leaves was not seldom more ample than the first, and having much shorter stems, they bent down over or closer to the crowns.

The bed culture and closer planting of Strawberries even when grown in rows presented but little or no bare ground for the frost to penetrate to their roots. The practice then so common of strawing the beds and ground over to keep the fruit clean and of leaving the straw on till the following spring afforded very efficient protection to their roots. Be all that as it may, the wisdom of such a winter top-dressing as is here recommended has been abundantly proved by successful results. Applied in sufficient time, of proper thickness, and the right material chosen, it not only keeps the roots warm and the tops safe in winter, but becomes a clean and anti-mud-splash bed for the ripe fruit in summer; and thus our winter dressing supercedes the need of summer mulching, or, by forming such a suitable base for it, renders a very thin one of spent tan, dried Grass, long Cocoa fibre refuse or straw amply sufficient. The litter, after serving all these useful purposes, is finally converted into an excellent manure. The whole process of the top-dressing is manual or enriching. Surface-stirring, decoctions for insects, the protecting mulch throughout—all add something to or evolve strength out of the Strawberry root-runs. The air that enters on the heels of the fork brings its quota of nitrogen and ammonia with it. It also assists in decomposing and setting free much of the manurial wealth held fast in virtue of the exclusion of the air by compression or an excess of water. Lime acts in a similar

manner as a decomposer of old and creator of new manures; possibly a portion of it is also absorbed by the Strawberries, that are so greedy of lime as to be classed as lime plants. They might almost with equal propriety be termed soot plants, for no manure seems so grateful nor useful to them as soot. It brings to them plentiful supplies of ammonia and nitrogen in such form as can be readily absorbed. And while no stimulant can be more repugnant to slugs or other pests that prey on Strawberries, none can add so much to the depth of colour, size, and vigour of their foliage, nor to the quality and flavour of their fruit. Tried against guano, soot has been proved the better manure again and again. And then there is the stable or rough farmyard manure. This raw or rotten is the stimulant *par excellence* for Strawberries, bush fruits, or vegetables. It seems a combination or concentration of all manures that are quickly available for the wants of plants, and speedily convertible into flowers, fruits, or vegetables as desired. On very poor soils from which very fine Strawberries are expected, an addition might be made to this

Winter top-dressing.—Interpose a 2-inch coating of rich, well-rotted farmyard manure between the loose soil and the upper dressing or mulching, as in such cases it ought to be more correctly called; but in ordinary cases the loose surface, the heavy sprinklings of lime and soot mixture, and the layer of fresh litter will prove sufficient. Should a dry time set in before flowering, repeat the soot and lime, and wash it in with a deluging of clean water or sewage, and gather the Strawberries in due season of finest size, of the highest quality, and in any quantity.

F. T. D.

WHEN TO PLANT VINES.

THIS is a matter of some importance, and I am glad to see it discussed. I agree with "Vine Grower" so far as to consider spring the best season to perform this operation. Without, however, considering that the Grape Vine is in possession of any faculty by which it is enabled to store up surplus food more than any other fruit tree, I have invariably found that Vines planted in spring appeared to succeed better than those planted in autumn. The probable cause of this is as follows, viz., that the roots, if any, made during the autumn in which the Vines were planted were not unlikely to get injured or even to perish during the winter which followed; and if so, the plants would necessarily be in a worse position when spring returned than those just planted, which of course would be in active growth, when the reparation of any slight injury or check sustained during the operation of planting would at once take place. When spring planting is practised, the usual and no doubt the best method is to start the plants into growth in gentle warmth and to transfer them from their pots into the prepared border with as little delay as possible. A slight check is, however, inevitable, as the roots must necessarily be shaken from the soil, uncoiled, and carefully spread out in the border, but this must be done in autumn as well as in spring. In all cases where Vines for planting have to be purchased or obtained from a nursery, they must necessarily be had in pots, and must be planted out in the manner just referred to either during autumn or spring. But where plump, well ripened eyes or buds can be obtained of the desired varieties, it is decidedly best not to pot at all; on the contrary, the eyes should be struck in pieces of turf, which, together with the rooted plants growing upon them, should be carefully transferred to the prepared border. Many years ago I had occasion to plant two house with Vines; one house was intended to be planted with various kinds, the other, exclusively with Black Hamburgh. The plants for the purpose of furnishing the former were obtained from a nursery in the form of tolerably strong canes in pots some 8 inches in diameter. The canes were cut down to nearly their base, and the pots were placed in a cold pit during the remainder of the winter. Early in the following March they were placed in

gentle warmth where they broke strongly, and towards the end of April they were planted out in a border which had been duly prepared for their reception during the winter; the roots were carefully uncoiled and spread out, and the border being outside had its surface as far as the roots extended mulched with stable litter. As regards the other structure intended for Black Hamburg, it so happened that well-ripened eyes of that variety were at hand; they were therefore inserted each in a small portion of silver sand placed in little hollows formed in the centres of pieces of turf some 6 inches square. These were placed in the front of a cool house, and towards the end of January the eyes were inserted, and slightly watered through a fine rose, so as to settle the sand around them. They remained in this situation until the beginning of March, when the turves containing the buds were placed on a gentle bottom heat and in an atmospheric temperature of 65°; the buds or eyes, being already callused, soon emitted roots into the turves and grew away freely. They were finally planted out a week or two later than the one-year-old plants from pots, but they were nevertheless the first to reach the top of the house, which all did during the first season. They were again cut back, and all produced strong fruiting rods during the second season. But the Black Hamburgs which had been raised on pieces of turf were, as long as I knew them, considered to be the most satisfactory.—P. G.

— I will not say that Vines planted "now" at this date will make many roots, but I apprehended "A. D." simply meant autumn planting, and I certainly do agree with him that timely planted in autumn the Vines do get a very decided start of spring-planted ones. This I have proved by planting alternate Vines at both seasons. It is not so much a necessity that the Vine should make fresh visible roots in autumn as that the disturbed roots get settled in the soil and their injured points healed over; nor is there the least doubt that Vines planted, in say August or September, out of pots with their leaves on do make new roots. Why should they not? For my own part I prefer to plant newly-struck plants in May to any other plan, because it saves raising or buying one-year-old plants, and such Vines will grow 30 feet if wanted the same year, and be as strong as those from one-year-old plants; but next to this season I prefer early autumn, and to plant ripened canes with the green leaves still on them.—J. S.

GLANDLESS PEACHES.

IN the following remarks my object is, if possible, to prevent intending planters from purchasing glandless varieties of Peaches, for, as far as my experience goes, they are a complete nuisance to those who have the management of them, being all more or less subject to mildew, a sure sign of delicacy of constitution. Like others, I naturally scan the catalogues to see what novelties are brought out, and as a rule invest accordingly, very frequently only to be sadly disappointed, but in the case of Peach trees we have the one safeguard, that if we only give our orders or walk round the nursery before the leaf falls, we can guard ourselves against purchasing glandless or badly-constituted varieties. Growers will naturally recommend new or improved (?) varieties to intending purchasers, and not having proved them they cannot be responsible if they do not correctly answer the description given of them; but if glandless, do not be tempted. "Better a rogue you know than one you do not know;" and if you are disposed to buy or try a glandless Peach, do not go beyond the old, but fickle outdoor Royal George. This is undoubtedly the best constituted of all glandless varieties that I have met with, but now that we have such varieties as Hale's Early, Stirling Castle, and others possessing glands, I would discard even that old favourite for outdoor planting and substitute one of the foregoing. Two years ago I purchased amongst others a variety named Albatross, spoken of in catalogues as a large and highly desirable late Peach. It was planted with every

care, and I was rewarded with a luxuriant growth the following season, and of course I watched the progress of the tree during the past summer rather narrowly only to find what I had overlooked—that it was glandless. It was therefore infested throughout the summer with mildew. It carried three fruits as coarse as Turnips, and consequently I have thrown the tree away, thoroughly disappointed. Surely we have sufficient varieties with glands to carry us through any English season without these delicate varieties being included in any nurseryman's catalogue, and I would suggest that for the little extra trouble it would entail, they should add an extra column of description saying whether they are reniforme, globose, or glandless. When this is done, there will be no excuse for planters if they purchase glandless varieties, which, however, will then soon cease to be propagated, and we shall thus get rid of one more pest, for what can be more annoying than to look over one's Peach wall and see here and there a tree dusted continually with sulphur? To me it is hateful in the extreme, and for that reason I wish to warn others.

Croome, Worcestershire. WALTER CHILD.

Autumn planting.—This is a vague term; the months should be named. There is conclusive evidence that September and October are better for root-pruning and transplanting than spring. Let anyone sceptical as to this matter try the two priors and note the result. The first week in October two years ago I root-pruned and transplanted wall Pear trees varying in extent of branches from 36 feet downwards. We cut all the roots we could find within 4 feet of the stems of the largest trees. The same year I moved a Peach tree in the last week in August from a house and planted it against a wall; it covered a space 15 ft. by 9 ft. It required looking after, but eight others moved in the middle of September had no such attention. They made good roots, and were all replaced in the new houses before Christmas, and bore what was considered to be a full crop the following year. I conclude, therefore, that as soon as there are visible signs of leaf-shedding we cannot be far wrong in disturbing the roots of deciduous trees in any way we may desire.—W. P. R.

Spring r. autumn planting.—By way of reply to Mr. Crane (p. 407), I may say that I acknowledge the fact that plants will continue making roots as long as they retain their leaves, but whenever they fall all root action ceases so far as formation is concerned. Although some plants may succeed under the treatment advocated by your correspondent, I will cite an instance which proved a failure. Early in the autumn of 1872 all the Peach trees in two Peach cases were lifted and replanted when in full leaf with the object (I was told) of checking rampant growth and inducing the formation of wood of a less robust and fruitful character. Instead of attaining the desired results, the trees did no good the following year, but got into a cankered state, and ultimately had to be taken out, and others planted in their places. Also in the autumn of 1878 the trees which covered a wall facing the south-east were root-pruned (when not in leaf), and the result was most unsatisfactory, as many of them died, and others have not regained sufficient strength to be of any service in producing fruit. Last year we transplanted some hundreds of young trees and shrubs in autumn and spring, and those planted in spring succeeded the best. I am thoroughly convinced that early spring is the proper time for root-pruning and transplanting, but the many things requiring immediate attention at that period of the year induce cultivators to avail themselves of the time at their disposal in autumn for all such operations.—F. F. W. W.

What next?—Successful Grape growing has been attributed to a good many causes, but the following, which I extract from a contemporary a week back, beats all I have ever read: "The Vines are planted in the inner portion of the border, close to the pipes, over which they are bent close

down to the eave, and then turned sharp up the rafters. So near are the stems to the pipes, that in each case a bit of wood about an inch thick is put to keep the bent stem from absolutely touching the inner row. The roasting (mark the word) which the stems here get immediately above the pipes, with nothing to shield them from the heat in any way, has the effect of hardening and maturing the wood, and inducing fertility to an extent unattainable, &c." Now, it has occurred to me that an improvement on this plan would be to heat our graperies on the high-pressure system adopted in our dwelling-houses, take the 1-inch hot-water pipes up the rafters for a trellis, and tie the Vines on to them when they were hot.—AQUA-CALIDA.

Alnwick Seedling Grape.—We want further particulars before we can decide about the cause of this Grape's erratic habit in setting. I have now fruited two full rods of it for three years with this result: The first year it set badly; last year it set to perfection, not an imperfect bunch being upon either of the Vines, which are grafted on a Black Alicante. The bunches were so fine, shapely, and well finished, that I risked a pair of them in open competition among black Grapes, and won the first prize with them against Hamburgs and others. The Vine also made fine wood and showed equally well this year, but not a bunch on either of the rods set fit to be seen, and some did not set a berry perfectly. It has, in short, been a complete failure, and I have decided to reduce it to one rod only. In none of these instances was the pollen of other varieties used to fertilise it. My opinion is that the flowers are abortive under some circumstances, and cannot be fertilised with their own pollen or the pollen of other varieties.—J. S. W.

Gumming in fruit trees.—Is it not odd that gumming should be confined to stone fruits? In itself it may not be a disease, but rather the product of a disease. Has any analysis been made of the gum? and if so, has that thrown any light upon the causes of its production? We know that it differs little from the gums of commerce, that it is a gelatinous substance, very adhesive, and in that sense useful in many ways. Still, that has little to do with its origin and purpose in plant life. Should it in the course of nature have been assimilated by the fruit, of which it would have formed an important component part? would Nature have made stone, shell of it, or pulp, or what? These are problems difficult to solve, but all the more do we wish to learn something about them. On the other hand, do certain stone fruits possess the peculiar properties of the Sugar Maple, the India-rubber tree, or of the Caoutchouc? all of which can produce and reject for important beneficial uses substances that are well known and valuable to humanity. In vegetable physiology we see much of effects, but we know far too little of their causes. This gumming in fruit trees is just one of the things we would like to see clearly explained—why peculiar to stone trees, how and why do trees produce it, and why exude it. It is not always the case that it emanates from wounds and bruises only, for it will find its way through firm, solid bark.—A. D.

SHORT NOTES.—FRUIT.

Figs.—Will someone kindly say if the Figs of various sizes now standing on Fig trees remain on through the winter and ripen next summer? or is it a good plan to rub them all off now, to strengthen the tree for next year?—M.

Vine border.—What is the best soil for a Vine border? I am making one 28 feet long by 12 feet wide. What are the best Vines for it, and the best time to plant them? Will some of your correspondents kindly answer these questions? The bottom is concreted and 3 feet deep.—T. B.

Mulberry.—What age must a Mulberry tree be before it fruits? I have seen one grow for twelve years and yet not fruit. I should like to plant one, and if I put plenty of rabbit manure around it, would that induce it to grow faster? What is the best time to plant one?—F. S., *Tranbridge Wells*.

Fruit on Vine shoots from old wood.

—With reference to the closing sentence of the second paragraph of "J. S. W.'s" remarks (p. 388) on "Pruning to the best bud," in which he says that "fruit from an adventitious shoot, that is a shoot from the old wood. . . . we never saw, and cannot well believe in its existence." I send you the following extract from my notebook, under date May 17, 1881: "Perhaps, as a rule, Vine shoots springing from old wood are unfruitful; but to-day I have observed two of such shoots on separate Vines of the *Esperione* kind exhibiting unmistakable signs of fruit." These were in the open air.—J. M.

NOTES AND READINGS.

ORCHARD HOUSES.—Doubtful opinion has more than once been expressed regarding the utility of pot plant orchard houses, and they have been defended on general grounds by their advocates; among others by one well-known and successful cultivator, who the other week wrote as follows in one of your contemporaries: "The fact is, if you are to be successful in the cultivation of orchard house trees you must be *intensely earnest*, and take a personal interest in each individual specimen. The trees require a very great deal of attention during the summer months, and if they are neglected at that time the fruit will only be second or third rate in quality." And the writer goes on to tell how this "intense" earnestness is to be concentrated on the roots and tops in due proportion. This, from one who knows all about it, is encouraging. We never believed in the pot culture of orchard trees where they could be planted out in a sensible manner, regarding it as a mere waste of time and material, and the general reader will probably agree that any practice which requires such a powerful concentration of earnestness to succeed in it is hardly worth following. Orchard houses, according to their founder, were invented for simple people, who were only moderately in earnest, not very skilled either, but they have now quite out-grown the originator's intention, and become expensive structures, heated "by four rows of 4-inch pipes;" and after all, in order to succeed fairly, the cultivator is to be "intensely in earnest, and take a personal interest in each individual specimen." What a serious matter it must be!

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THE FAULT OF THE MODERN ORCHARD HOUSE is the heating of it, which defeats its purpose. Orchard house trees were not intended originally to be forced into flower and growth by a glass roof and fire heat, but only to be protected when they did flower at the natural season, but in the majority of cases we find the trees flowering before their time—a month or more perhaps—and after that the fire has to be kept constantly in, and all the artificial attentions of the forcing house bestowed on the inmates, resulting in weak blossom, weak growth, and failure, partial or complete. All orchard houses for such things as Apples, Pears, and Peaches, &c., should never be heated and never closed from November till the trees come into flower the following season of their own accord, by which period scarcely any fire heat will be needed to keep out frost. Under such conditions the trees are hardier, more ventilation can be afforded under the rising temperature, and the whole business becomes a less anxious affair altogether. By putting a thoroughly heated orchard house in the gardener's hand you tempt him to use it for other purposes than the legitimate one, which is in the end lost sight of with the result described. The pipes are warmed every night to protect the greenhouse subjects it may perhaps contain, or bedding plants, &c., and the high temperature soon tells on the fruit trees, which begin to move prematurely and fail in their crops.

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DOUBLE LILIES.—Mr. Barr has done so much for the Lilies and true gardening, that one almost

feels disappointed, reading of the pleasure he felt when he first beheld Mr. Higg's abortion figured in THE GARDEN of October 21. The *Lilium auratum* is one of the grandest single flowers in existence, and it is difficult to see how such a noble flower is going to be improved by having its grand cup hidden by a row or rows of petals inside of it. Such abortions will come, no doubt, now and then, as in the animal kingdom.

*

ESTIMATES OF FLOWERS.—We have been reading a glowing account of the Australian Orchids—*Dendrobiums* in particular—*D. bigibbum* being particularly mentioned. The same variety is also lauded in another notable work on Orchids in a way to make the grower believe that his collection will never be complete without it. The truth is, the whole of the Australian *Dendrobiums* might be blotted out of the list without being in the least missed. *D. bigibbum* has a rather dull, purplish red colour, unusual among the family, and flowers freely, but it cannot enter the lists against a common Sweet Pea for splendour and usefulness, which it is not unlike, save for the habit of the plant and its flowers. Speaking to a gentleman lately of the false estimate entertained of many flowers by cultivators, he remarked, *apropos* of the subject, that in a late journey of the Queen to Balmoral a vase or two of fine Orchids and other flowers were displayed at one of the stations on the route, but that one of the most striking and attractive objects in the vases was a beautiful and vividly coloured single *Dahlia* "which was the first floral object that attracted attention on entering the room." Discrimination should be the order of the day in these days of certificated worthless species and varieties.

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POMPONE DAHLIAS.—These button Dahlias indicate a curious change of taste among the *Dahlia* fraternity. Lately, cultivators could not get the flowers large enough; now it appears to be how to have them smallest. This is not a healthy sign, as it indicates wholly unsettled convictions on the part of the florists. Still, we would rather have a Pomponé than a big *Dahlia*, for one can make something of the one and nothing of the other. It surprises one to learn, as Mr. R. Dean states, that these Pomponés "are far ahead of the single varieties" for freedom of bloom. It is an uncommon thing for a double-flowering plant of any kind to equal a single-flowering variety of the same kind, let alone surpass it, and it seems to us as if the single Dahlias could not be surpassed in this respect. Their profusion of flower is one of the most remarkable features of both seedlings and plants from cuttings.

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FRUITFUL PEACH TREES.—Practical Mr. Iggulden records in another paper a wonderful example of Peach and Nectarine culture "on the extension system pure and simple" at Wilton House, Salisbury. A number of maiden trees, by far the best to begin with, and in this case trees with only one shoot, we apprehend, were planted in 1880, produced a crop in 1881, and in the present year an "average crop of eight dozen fine fruit to each tree." Knight discussed the possibility of a maiden tree fruiting the year following. What would the great experimenter have said of a result like this? Several houses, it seems, have been trained in this way, and a number of trees planted so that one can guess at the profits of the system. The paltry arguments urged against this system of training, that the trees get bare at the bottom, dwindle into nothing in the face of a fact like this, even if the argument was true, which it is not.

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THE FLOWERING OF *EUPHARIS AMAZONICA*.—This fine stove plant is generally in perfection about this season, and is in much demand in private gardens and for market purposes. The plant flowers all the year round more or less, but autumn is its natural season of blooming. How to grow the plant successfully is a much debated question among gardeners, one side maintaining that it

should be grown in a stove heat all the year round, and the other that it should be rested in a cold house in order to induce flowering. The last plan can hardly be the right one with a plant from the Tropics, that rushes up its growth in the moist season and flowers immediately after; besides, neither bulbs nor shoots can be matured and made fruitful by cold, or a fortnight's or three weeks' subjection to an abnormally low temperature. If they flower after such treatment they would have flowered without it. We know of some collections of the plant that have never been rested in a cool temperature for years, never been out of a stove, but which bloom more or less throughout the season, and always freely in autumn. Plants treated on the cool method are often sickly-looking, the foliage becoming yellow from cold. It may be mentioned incidentally that "rest" and coolness are supposed also to cause Pines to fruit—an error probably, as in the case of the *Eucharis*, as the Pine in its native country grows and fruits right ahead. Those fourteen grand examples of smooth Cayennes shown not long since at South Kensington by Mr. Wilson, of Castle Hill, averaging between 7 lbs. and 8 lbs. apiece, were grown on the no-rest principle, and were never equalled as a collection, while there were some sixty fruits of similar proportions behind them where they came from.

PEREGRINE.

ORCHIDS.

CATLEYA LABIATA PERCIVALIANA.

It will doubtless be gratifying to Orchid growers or at least such as possess this new *Cattleya*, to learn that there is now every possibility of its maintaining to the letter all that has been stated respecting it by its introducer, notwithstanding the adverse criticism to which it has been subjected. As regards the beauty of its blossoms, there appears to be now but little doubt, since the first living flowers which were seen of it in June last in this country revealed the fact that they equal in splendour those of any of its gorgeous congeners. The doubtful point seems to have been as to whether it is an autumn flowerer, like *C. labiata*, or rather the true autumn flowering *C. labiata*, as it is now usually called, and this matter bids fair to be soon cleared up, inasmuch as there are in Mr. Southgate's collection at Selborne, Leigham Court Road, Streatham, at least a dozen fine plants of it, each of which bears from three to six flowering bulbs. The incipient spikes are so far advanced as to be distinctly seen through the membranous sheaths; in one or two plants there are no enveloping sheaths, the spikes are nearly an inch above the bulbs, and the rudimentary blossoms may be counted. In about six or eight weeks, if no accident occurs, there will be a glorious display of bloom of this *Cattleya* at Selborne, such as has never been seen before at Christmas time—convincing proof that the variety is a true autumnal flowerer, for here the whole collection is in bloom; whereas the plant that flowered in June last was quite a solitary instance out of the hundreds of masses that were sold in the beginning of the year by the introducer, Mr. F. Sander, of St. Albans. Most probably next year this *Cattleya* will flower earlier in the autumn—contemporary, perhaps, with the old *C. labiata*, but this is not to be desired, as its great value will be in its flowering about December, before the varieties of *Trianae* come in, and if it eventually turns out to be a December flowerer, it will carry the *Cattleya* season over the whole year. There is no doubt that the plant is trying to regain its natural flowering season after the vicissitudes it had necessarily undergone; the fact that an isolated plant flowered in June indicates that the natural flowering season had been arrested. Such a magnificent *Cattleya* as this in blossom in November and December is one of the greatest gains we have had for years, and it will doubtless be as much sought after by connoisseurs as the old autumnal *C. labiata*, which is unhappily becoming too scarce. Mr. Salter's success with Percival's *Cattleya* is no doubt attributable to his particular line of treatment. The plants, about a score in

number, were for the most part bought at Mr. Sander's first sale, and were all selected pieces. Since the beginning of the year they have been growing in a span-roofed house having a southerly aspect, and consequently admitting abundance of light, while a tolerably warm temperature is maintained. It is a remarkable and singular fact that these Selborne specimens of this *Cattleya* should be the only ones that, as far as we are aware, are showing signs of flowering at this season, though doubtless we shall hear of more later on. W. G.

CATTELYAS UPSIDE-DOWN.

A FEW days ago I visited Miss North's gallery in Kew Gardens, and was charmed with the beautiful and artistic paintings which that lady has given to the nation. To see exotics depicted as they are in their native habitats was to me a real pleasure. All of us have, doubtless, occasionally felt a strong desire to see vegetation in the Tropics, but the means of doing this are given to but few. I hope, however, that one of our collectors will some day, not far distant, write a book about "Orchids at Home." Such a work would be exceedingly useful. With none of the pictures in Miss North's gallery was I more forcibly struck than with those representing *Cattleyas* and *Lælias*, growing to all appearance upside-down, and so luxuriant. We know this position is correct so far as regards *Cattleya citrina*, and why should it not be so in the case of the rest of this genus? Orchids play such pranks—blooming underneath the plants, as *Stanhopea*; over the edges of pots, as *Masdevallia Chimera*; on the mossy surfaces, as *Pleiones*; or growing downwards, as *C. citrina*, that one need not be surprised at any attitude they may assume. I certainly suggest, therefore, that the matter be made one of experiment. We frequently hear complaints of bloom-sheaths damping off, an evil for which all sorts of causes are assigned. The true one, however, is condensed moisture lodging in the axils of the leaves, caused (1) by the plant having been inverted from its natural position, (2) by potting it and almost forcing its roots to avoid the light instead of fixing them on a block in a natural way. In potting epiphytal Orchids we must not forget that their roots are very different from those of other plants, being provided with stomata, and that they perform in a measure the offices of leaves. We are too apt to treat them as terrestrial by encouraging them to burrow amongst Sphagnum and broken crocks in search of that moisture which should be provided in the atmosphere. Referring to the damping off of the bloom, I call to mind walking with one of our largest importers of *Cattleyas* through his houses, and he at the time remarked upon the vast number of *C. Mossiæ* blooms which had damped off. This may or may not have been the result of the upright position of the plants, but I now think it was. The new growth of *Cattleyas* is generally in a forward direction as they are now treated, but we will suppose them to be established on blocks, leaves downward. The new growth would then be in an upward direction, the plant thus climbing the block, as it does naturally, judging from Miss North's pictures. I therefore submit that what at first sight may appear unreasonable is in reality the rationale of *Cattleya* growing, if we are to study Nature and try to imitate her.

Horsforth, near Leeds.

R. A. H. G.

NOVEMBER FLOWERING ORCHIDS.

AMONG the best of these are the following of which we took note in Mr. Southgate's collection at Selborne, Streatham. The true old autumn *Cattleya labiata* is beautifully in bloom, and as regards beauty yields the palm to no other kind. *Miltonia atrorubens* is one of the finest forms of *M. Morelana* we have yet seen, the flowers being large and of a rich violet-plum colour. Of *Lycaste Skinneri*, there are several fine varieties, all good, but a few superior to others in size or richness of colour. *Maxillaria Lehmanni* is one of the finest

of the genus. It is like *M. grandiflora*, but there are two deep blotches under the labellum, and the flower is flushed with crimson. It is a beautiful intermediate house Orchid, and one of tolerably easy growth. The dwarf *Lælias*, such as *L. Dayana*, *marginata*, *prestans*, make a beautiful display associated with a large number of plants of *Oncidium Forbesi*, *Odontoglossum crispum*, *Oncidium Lanceanum* (of which there is a fine plant in bloom), and the lovely *Vanda corulea*, which last is represented by as fine a variety as regards form of flower and colour as we have ever seen. The sepals are so wide that they overlap, and the tint is very deep. *Odontoglossum Insleyi leopardinum* is an extremely fine variety of a rather washy coloured species; the tip of this variety is especially fine, being of the richest yellow, copiously spotted with red. It should always be preferred to the type, and it is quite as easy to grow. It thrives well in company with the popular old *O. grande*, which is likewise in beautiful form here. Among the *Dendrobies* we noticed some early blooms of *D. Wardianum*, not so fine, however, as they will be later in the season. *D. chrysanthum microphalum* is a distinct variety now in flower, but does not possess much to recommend it, although desirable at this season when so few other yellow *Dendrobies* are in bloom. The flowers are small and of an orange-yellow colour. The deliciously-scented *D. heterocarpum*, though not one of the showiest, is one of the most admired of all *Dendrobies*. Here its early flowers are particularly fine, and they diffuse their perfume freely throughout the house. Among the *Masdevallias*, there are in bloom of the *Chimæroid* section the ever-flowering *M. bella* and *Chimara*, the latter represented by a variety having a yellowish ground colour. Of the chastely beautiful *M. tovarensis* there is a fine specimen carrying some scores of flowers, as many as five being on one stem, a number somewhat uncommon. Among the *Coelogynes*, the finest is *C. ocellata maxima*, with racemes of large white flowers conspicuously blotched with yellow and orange, and altogether an extremely fine Orchid. W. G.

***Cattleya aurea*.**—It is not often one has the opportunity to see this magnificent Orchid in flower, but it may be seen in Messrs. Veitch's and also in Mr. Bull's nursery in King's Road, Chelsea. That in the Royal Exotic Nursery bears three fine large flowers from one sheath. This *Cattleya* was beautifully illustrated in colour in THE GARDEN in the beginning of this year.

***Promenæa citrina*.**—This is quite a gem among little-known Orchids. It is of small growth, and from the base of its tiny bulbs it produces on slender stalks about 2 in. long blossoms about 1 in. across, with the petals and sepals of a delicate primrose-yellow the lip is chequered at its base with almost black upon a light ground. It is now in bloom in Messrs. Shuttleworth, Carder & Co.'s nursery, Park Road, Clapham, where it is grown in an intermediate house in suspended shallow pans.

***Cypripedium selligerum majus*.**—This large and fine form of *C. selligerum* is now in flower in Messrs. Veitch & Sons' Nursery, Chelsea. Its flower is richer in colour and considerably larger than that of the type itself, one of the largest of hybrid *Cypripeds*. The parents of *C. selligerum* are *C. barbatum* and *C. lævigatum*, two species which, as may be imagined, would yield a handsome cross. At the same nursery there are also in flower the rare *C. purpuratum*, the true Hong-Kong variety, remarkable for its handsome blossoms, with striped dorsal sepal, and *C. calurum*, a hybrid of the *Sedeni* stamp.

Three good *Oncidiums*.—Among Orchids now in bloom at Messrs. Shuttleworth, Carder & Co.'s nursery, Park Road, Clapham, we selected the following three as being well worthy of general culture. These are *O. Forbesi*, *O. crispum*, and *O. cheiroporum*. The first is a very handsome species, having large branched spikes of blossoms from 1½ inches to 2 inches in diameter. The colour

is a bright chocolate-brown, margined at the edges of the sepals and labellum with rich golden yellow. This is an Orchid that can be easily grown in an intermediate house, and never fails to flower freely during the three last months of the year. In this nursery many plants of this *Oncidium* are in bloom, and among them some uncommonly fine forms; one in particular has the flowers fully a third larger than those of the rest, and of a richer colour. *O. crispum*, much in the same way as the preceding, is another handsome species, but scarcely so desirable, as the flowers are duller, there being no yellow to enliven the chocolate-brown colour, but it develops large and more widely branched spikes. The third species, *O. cheiroporum*, is an extremely neat and elegant little plant, one that may be called an almost perpetual flowerer. It is of small growth, and even small plants of it produce numerous slender flower-spikes, crowded with small, clear yellow blossoms of wax-like texture; consequently they remain a long time in perfection. It is also an intermediate house Orchid, and is of easy culture.—W. G.

***Vanda Hookeriana*.**—I notice in THE GARDEN (p. 408) that the writer of the Orchid Calendar states that this plant, which has been grown in the East Indian house, should be now removed to the Mexican, and from the middle of November until the end of February should be kept dry. I would ask whether, under such treatment, the plant has ever been flowered. I will briefly state my experience of two plants of this *Vanda* that came to us from Messrs. Veitch about this time last year, and which for a few weeks were placed in the *Phalænopsis* house pending necessary arrangements for their removal to what we considered a more suitable place for them, viz., a hip-roofed pit with a south aspect. The plants were trained close to the glass, and not a particle of shading was given; consequently during bright sunshine the temperature ranged very high, plenty of air being at all times admitted. The Teak block upon which the stems were fixed was covered with Sphagnum, and inserted a few inches in a pot, which was filled with crocks and Sphagnum, plenty of moisture being given by a free application of the syringe several times daily. One plant produced a flower-spike in July which attained half an inch in length, but failed to get any further. A few weeks later a spike appeared upon the second plant, which grew away rapidly, and developed two flowers which were accurately described in THE GARDEN (p. 239), and exhibited at the September meeting of the Royal Horticultural Society. After flowering, the plant was allowed to rest for a time, but it has now started into active growth again, and is freely supplied with moisture, which will be continued with a stove temperature through that period. Mr. Douglas recommends it to be kept dry with a Mexican house temperature. He may be right, but I may mention that we intend sticking to the bridge that has carried us safely over in the matter of flowering this grand Orchid for at least another year to come.—E. HILL, *Tring Park*.

***Eucharis candida*.**—The fine form of this species, whose introduction we owe to Messrs. Shuttleworth, Carder & Co., is likely to prove a rival to the more popular *E. amazonica*. Some fine vigorous specimens of it are now producing strong spikes of large, pure white flowers, possessing much more substance than those of *E. amazonica* in the nursery of the firm just named, and I venture to predict a great demand for it when once its merits become known. Another species of *Eucharis* has recently reached this country, and I am told will shortly be in flower at Kew. It is named *E. astephana*, from the suppression of the corona in the flower, so very conspicuous in the other kinds. This species is said to be a very handsome one, and a free bloomer. Messrs. Sander & Co. are, I believe, the holders of the stock of this plant. Some one has already noted in the pages of THE GARDEN that *Calliophrya* is often sold—unintentionally, most likely—for *E. candida*, *Calliophrya*, though a near relative to *E. candida*,

is far inferior to it as a flowering plant. It is often extremely difficult to distinguish between some *Calliphurias* and some *Eucharis*.—B.

PLANTS IN FLOWER.

*** The "Editor's Table" has been merged in this department, so that all our correspondents and readers may have the opportunity of recording in it (at the time of their flowering) any good plants not generally known or grown. We shall be obliged by our readers sending a few words when they have or see any good thing in flower, either under glass or out-of-doors. The back volumes of THE GARDEN contain records week by week of the plants in flower at the time, which help those who have to produce their best effects at particular seasons. But the record should go on for the sake of the new plants if for no other reason, and we hope all will contribute to it.

TWO GOOD LATE BEGONIAS are found by Mr. Kingsmill to be Empress of India, a kind with handsome foliage and large clear yellow blossoms, and Exquisite, a very free flowerer and strong grower, the colour being a bright vermillion. Both belong to the tuberous class.

STOBÆA PURPUREA ALBA.—The normal or rather usual form of this Thistle-like Composite has large pale purple-blue flower-heads, but Mr. Stevens brings us flowers of a variety, the pure white blossoms of which are handsome and preferable even to those of the type. It is the first time we have seen the white *Stobæa*. Another albino from Mr. Stevens is that of *Polygala Chamæbuxus*. The flowers in this case are not entirely white, inasmuch as the lower petals are tipped with yellow.

EXOGENIUM PURGA.—From his Norfolk garden "Norman" sends us flowers of this, the Jalap plant mentioned in his notes last week. It is a beautiful twining plant, the flowers of which resemble those of *Convolvulus major* in size and form, and are of a glowing magenta tint. "Norman" also sends some fine blooms of *Tropæolum tuberosum*, which, he says, is "glorious" on the east side of his house; and among other flowers are the handsome *Jasminum revolutum*, one of the finest of yellow *Jasmines* for covering a wall.

BOUVARDIA DAZZLER.—A finely-bloomed specimen of this bright new *Bouvardia* has been sent to us by Messrs. Low & Co., Clapton, who consider it to be "a first-class variety," which it really is. Its colour, a deep carmine-rose, is more intense than that of any other variety with which we are acquainted, and the plant is of good habit and extremely floriferous. Messrs. Low are growing it in quantity, a sufficient proof of its excellence. It was raised by Mr. Balchin, of Hassock's Gate Nursery, Brighton, who has exhibited it, and obtained several first-class certificates for it.

LATE GLOXINIAS.—Some uncommonly fine blooms of *Gloxinias* have been sent to us by Mr. Relf, gardener to Mr. Christy, Malvern House, Sydenham. They are mostly of the erect-flowering section, large, and highly coloured. Mr. Relf says that "The plants from which these blooms were gathered are flowering for the second time this year, having bloomed in the early part of May last. After they had matured their growth they were rested, and started again the last week in August, and now they are flowering quite freely. Is it usual to bloom *Gloxinias* twice in a season in this way?"

FINE VARIETIES OF LAPAGERIA ROSEA.—An exceptionally fine variety of *Lapageria*, bearing the name of *splendens*, comes from Nash Court, Faversham. It is aptly named, for it is indeed a splendid form, the finest we have seen. The blossoms measure just over 4 inches in length, and the colour is a beautiful crimson, much brighter than usual. A spray of the white variety is also sent from the same garden, which makes a charming

contrast with the variety called *splendens*. Another correspondent from Wester Moffat, Airdrie, also sends a fine form of *L. rosea* called *superba*, but the flowers in this case are an inch shorter than those of *splendens*, though the colour is nearly as fine and the form is more bell-shaped.

A NEW BOMAREA IN FLOWER.—In the Cactus house at Kew where the collection of *Bomareas* is grown there is a fine specimen of the new *B. conferta* bearing a large pendulous cluster of flowers at the apex of one of its long stout stems. The cluster bears about a score of blossoms, each about 2 inches long, of a reddish carmine colour spotted with a deeper shade, a colour distinct from that of any of the other *Bomareas* in cultivation. This new species proves itself to be a beautiful addition to garden plants, and one that will be found valuable for embellishing the roofs of greenhouses. *B. conferta* is one of the new species recently introduced from South America by Messrs. Shuttleworth, Carder & Co., who, we understand, have lately introduced another new species, *B. Williamsia*, which promises to be also a beautiful garden plant. A coloured plate of *B. conferta* will shortly appear in THE GARDEN.

NOVEMBER OUTDOOR FLOWERS.—Some fine flowers of the Crown Daisy (*Chrysanthemum coronarium*) come from Mr. Kingsmill, who finds it invaluable for cutting from throughout the summer and autumn. It is an annual *Marguerite*, with large Ox-eye Daisy-like blossoms of a soft lemon-yellow surrounding a pure white centre. Mr. Kingsmill also says that in his garden at Eastcott, near Pinner, he has still flowers of *Clematis Jackmani* on plants, not even against a wall, and *Eurotia taraxacifolia* still in beauty. Single Dahlias, he says, were good to the very last after blooming profusely for four months. He only grows White and Yellow Queen, Paragon, and Coccinea. Holes were prepared for them early in June in very strong soil, and by the end of the month the plants were in flower, and with occasional doses of liquid manure the blooms kept their full size to the end.

CHRYSANthemum LADY SELBORNE. Last week we made a note of this beautiful new variety, but since then we have seen it in fine flowering condition both in the garden in which it originated and in the nursery from whence it has been distributed. Too much can scarcely be said in its praise, as it is without doubt the best of the white Japanese varieties in cultivation. Mr. Salter, with whom it originated, has a large group of finely flowered specimens in a conservatory arranged with an equally fine mass of the sort called James Salter, from which Lady Selborne is a sport. The flowers of the former consist of globular masses of long strap-shaped florets of a delicate rose, while in Lady Selborne they are of snowy whiteness. In Mr. James' nursery, Lower Norwood, from which it is distributed, there is a fine display of it in flower arranged in one mass, the effect of which is excellent, the purity of the flowers not being marred by other colours near it.

SALVIA PITCHERI.—One of the most beautiful plants in flower at Kew just now is this North American *Salvia*, of which there are some specimens in the greenhouse (No. 4) larger, better grown, and more freely flowered than any we have before seen. They are lovely indeed, the blue being very bright and clear, and the flowers borne abundantly in long, erect spikes on stems some 3 feet or 4 feet high. When this beautiful *Salvia* was figured in THE GARDEN last year, we then said that it would eventually prove a valuable garden plant, and so it has. A more beautiful or useful plant for embellishing a greenhouse or conservatory in November, or indeed throughout the winter, than this *Salvia* could scarcely be named. The closely allied *S. angustifolia*, which is harder, is not so fine a plant as grown out-of-doors, but we cannot speak of its value under glass. *S. azurea* is another near relative of *S. Pitcheri*, and but poor comparatively, though Mr. Stevens brings us some excellent flowers of it from an outdoor plant. They are clear blue, as in *Pitcheri*, but not pro-

duced so plentifully. A trio of *Salvias* indispensable for the winter adornment of the conservatory are *S. Pitcheri*, *S. Bruanti*, a fine variety of *S. splendens*, with vermillion flowers and bracts, and *S. Bethelli*, a very fine form of *S. involu-crata*, with large clusters of bright, rosy purple blossoms.

LAYIA ELEGANS.—I have grown this summer this Californian Composite, allied to the *Callichroa platyglossa* and *Oxyura chrysanthemoides* so long cultivated, and which are themselves now placed in the genus *Layia*. I have a few late sown plants in flower, and so am just able to send you some quite second-rate flowers—I might say third-rate. They are somewhat like *Oxyura*, but are larger, i.e., 2 inches across, and the plant itself is more branching and floriferous. A bed of the *Layia* is very showy, and it is apparently as hardy as its allies.—W. T. [Very bright and pretty yellow Daisy-like flowers, especially welcome at this dull season. In midsummer the blooms are of course much finer. It is an annual that should be in every collection.]

POLYGONUM VACCINIFOLIUM.—Some flowers of this elegant little trailing Knotweed came from Mr. Stevens, Byfleet, who still has it in perfection in his rock garden. It has long, slender, trailing branches furnished with small leaves, and bears at intervals along its whole length dense spikes of tiny rose-pink blossoms varying from half an inch to 6 inches in length. It is a neat little, rock garden plant, and one that gives but little trouble, being not at all fastidious as to soil; it delights in a dry place where its slender shoots may fall over the ledge of a rock, but it can also be grown easily in an ordinary border. Of quite a different character is another species of *Polygonum* brought by Mr. Stevens; it is *P. cuspidatum*, a kind which apparently thrives uncommonly well at Byfleet, for we have a part of a stem the entire length of which is 10 feet 9 inches, and its diameter nearly 2 inches. This plant, now past its best, was during the autumn very effective.

LATE AUTUMNAL FLOWERS from Mr. Stevens' outdoor garden include some really fine spikes of *Delphiniums*, particularly of a variety called *ranunculoides*. These late flowers of *Larkspurs* are of great value in November when other flowers are scarce, and they should be encouraged. Mr. Stevens obtains his late blooms by cutting down the plants that flower early; these immediately throw up second crop of shoots, which invariably produce good blooms late in the year. It ought to be mentioned, however, that the plants receive copious supplies of liquid manure during the time when they are developing their second crop of bloom. Among other open-air flowers which Mr. Stevens brings us are *Gaura Lindheimeri*, a slender white-flowered plant allied to the Evening Primrose; *Althæa cannabina* and *A. taurinensis*, both with showy pink flowers; *Aster Reevesi*, with small white flowers, and one of the latest of the *Michaelmas Daisies*; *Erodium hyemnodens*, *Achillea ægyptiaca*, and double Meadow Saffrons (*Colchicum autumnale*), including the beautiful white variety.

Tecomas.—"B." writes that *Tecoma radicans* is the only *Tecoma* which can be recommended for out-door cultivation. In this country *T. grandiflora* is one of our most showy climbers, and its flowers are scarcely surpassed by those of any hardy plant we have. That which Mr. Alfred Parsons saw upon the fence in the rear of my house has been there many years, and has endured a cold of 10° below zero. Its flowers are a deep fawn, and are as large and abundant as those of an *Allamanda*. The flowers are produced in large spikes, and succeed each other through the months of August and September. It is very far superior to *T. radicans*, and most valuable. I may add that *Clematis graveolens* is here equally worthy of the recommendation given it in THE GARDEN. Its graceful silky seed-heads would alone make a bouquet, and are very effective for table decoration.—S. B. PARSONS, *Flushing, N.Y.*

TREES AND SHRUBS.

VARIETIES OF PORTUGAL LAUREL.

The Portugal Laurel (*Cerasus lusitanica*), when allowed to form a huge bush, is highly ornamental, especially when densely laden with lovely racemes of white flowers, which are succeeded by dark brownish coloured fruits, that ripen early in autumn. From the fact of many birds being fond of the berries, its beauty in this latter state is, however, often but short-lived. Solely as an evergreen shrub this Laurel is very ornamental when in a flourishing condition, and it does well in almost any soil, provided it is not too hot and dry. For gardens of limited extent, too, it is well adapted, as its growth is not very rapid, and being naturally of somewhat regular outline it can easily be kept in bounds without in any way destroying the natural character of the plant. During severe winters it is frequently more or less injured by frost; indeed it is among our southern counties that most huge specimens of it are to be met with. It is sometimes trained as pyramids and standards, but in this way the whole natural beauty of the plant is destroyed.

A very distinct variety of Portugal Laurel is that of which the annexed is an illustration, prepared from a specimen in Messrs. Veitch's nursery at Coombe Wood. It is there called *Cerasus azorica*, a name which occurs in some nurserymen's catalogues, but the plant appears to be little known. It is more open in character than the common Portugal Laurel; owing to the growth being more vigorous, the young shoots are of greater length; indeed, the whole aspect of the plant is much looser than that of the common kind. It surpasses the ordinary sort, too, in the profusion with which the blossoms are produced, and as it withstood the recent severe winters without injury at Coombe Wood, it is a very desirable shrub.



Flowering branch of *Cerasus azorica*.

A miniature form is the Myrtle-leaved kind (*C. lusitanica myrtifolia*), the foliage of which is very small, dark green in colour, and the habit of the plant close and upright, or rather pyramidal. It is very useful for purposes where small-growing shrubs are desirable, such as for winter bedding, and especially for growing in pots. There is also a variety with unusually thick leaves (coriacea), and one with variegated foliage.

The common Portugal Laurel is readily increased by seeds, and the varieties by cuttings. They do not, however, strike root so easily as the common Laurel (*Cerasus Laurocerasus*); indeed, they do better in a frame, although a good per-

centage is sometimes obtained even from the open ground.

ALPHA.

BRITISH ELMS.

The Wych Elm (*Ulmus montana*), like the common Elm, is rather a name for a group of tole-

the base. They thus resemble those of the Hazel and the tree used to be called the Wych Hazel. The type form, *U. montana genuina*, figured in "English Botany," plate 1887, and in Reichenbach's "Icones," plate 1332, has a smooth, thin bark, and does not throw out heavy horizontal

limbs, like the common Elm. It flowers rather earlier than the latter, and its samaras form conspicuous hop-like clusters in April before the leaves appear. The stems are often of no great height, but of large girth, and from their summits numerous twiggy branches waving pendulously by the side of some steep-banked lane, or standing isolated in a park, when partly clothed by the fruits or by the young leaf-buds, have a very pleasing effect. The wood of the Wych Elm is tough, straight in the grain, and flexible when steamed, so that it is in great request for boat-building. Among the chief varieties of this form are the Downton, Exeter, Chichester, and Canterbury Elms. The Downton Elm (*U. montana pendula*) is the variety commonly grown in our London squares and gardens, grafted on the ordinary Wych Elm, whose drooping boughs form many a pleasant arbour. It was raised from seed from a Nottinghamshire tree at Worcester in 1810, and grown at Downton Castle. Its leaves are dark in colour, large, and somewhat closely set, so that when large the tree has sometimes a rather sombre effect. I remember, however, a row of well-grown young trees by the river-

side in the churchyard of Newport Pagnell that were exceedingly beautiful.

The Exeter Elm (*U. montana exoniensis*), occasionally seen in nurseries, is simply a fastigate variety, having the leaves closely set round the erect

branches. It has all the effect of an abnormal or monstrous form without any redeeming beauty. The Chichester Elm (*U. montana vegeta*) was raised in 1746 by Wood, a nurseryman at Huntingdon, from seed collected in the neighbourhood. It is variously known as the Huntingdon, Scampston, or, unfortunately, as the American Elm, though, of course, quite distinct from *Ulmus americana*. It is remarkable for its rapid growth, often sending up shoots 6 feet or 10 feet long in a season, or 30 feet from the graft in ten years. It is valuable as a timber tree, and, according to Selby, there are many fine old specimens in the counties of Nottingham and Huntingdon. A variety with large leaves and rapid growth was raised from seed in the Canterbury Nursery, and issued under the name of *Ulmus montana major*, or the Giant Elm, a name likely to lead to confusion with the Dutch Elm, which is sometimes termed *U. major*. The Canterbury seedling is best known as *U. montana superba*, its name in Messrs. Loddiges' catalogues. It is of no value as a timber tree. A form of Wych Elm entitled to specific rank is

The Dutch Elm, the *Ulmus hollandica* of Miller, or *U. major* of Smith. It is inaccurately figured in "English Botany," plate 2542, but in Reichenbach's plate 1335 with greater correctness. This was introduced by William III. for clipped hedges on account of its rapid growth, which same rapidity of development renders it liable to star shape, and therefore less in demand for boat-building or other purposes. It has branches spreading almost as widely as those of the common Elm, the bark of which, at first smooth, becomes after-

ably distinct forms than a well-marked typical species. These forms all agree in producing no suckers; their branches are usually pendulous; the samara is more or less elliptical, with the seed cavity below the middle, and the seed is ripened, and will germinate even in Scotland. The Wych Elms occur at an elevation of 1300 feet above the sea in Yorkshire, and are far more common than *Ulmus campestris* to the north of the Trent. They do not reach quite so great a height as the latter, though equalling it in girth. The bark is corky in some forms, but not in others; the twigs are downy, and the leaves are usually large, coarsely and irregularly toothed and unequally rounded at

wards more corky than that of any other Elm, even *U. suberosa*. The leaves are large and coarse; the calyx of four lobes; the stamens four; and the samara, when fully formed, obovate, with the seed cavity below the middle, but seldom maturing seed. Many of the Elms near Kensington Palace belong to this form; but except for its handsomely furrowed bark and rapid growth it has not much to recommend it. Lastly, a smooth-leaved variety common in Essex, the *Ulmus glabra latifolia* of Lindley, or *U. nitida* of Syme, is shown by its fruit to belong to the Wych Elms. It forms fine trees with dark foliage, and without the drooping habit of *U. montana genuina*.

Elms at midsummer are dull in colour and heavy in outline. In spring and autumn they are most valuable in the landscape. It is important that the beauties presented by them and by other trees should be realised alike by the artist and by the landscape gardener. These beauties are well indicated in the following passage from Professor Church's "Manual of Colour": "Many an observant student of Nature must have noticed the triple combination of hues presented by an old Beech or Elm tree as seen against the sky or clouds in early spring. We have the yellowish grey-green of the Moss and Lichen-grown trunk and branches standing out relieved against the dull grey of the shifting and variable clouds beyond; and this tender green of the Moss and grey of the cloud are not flat or uniform, as they too often appear in our imitations of them, but fluctuating with a hundred variations of texture, quality, and tone. A few dead leaves perchance remain, suggesting, if not completing, by their brown or russet hues, the balance of colour, which just needed such idea of warmth and ruddiness as they convey. But let us regard a little more minutely this natural combination of hues; let us see whether it does not possess other elements of beauty than those which we have recorded. Yes; if we look a little closer we shall doubtless see some delicate portion of nearly pure primary or secondary colour, some stray fragment of brightness, perchance an early flower or insect. Just as the ancient Pines of the unbroken American forest have been described as bearded with hoary Lichens, yet touched with grace by the Violets at their feet, so, too, there will be observed in the outermost twigs of our tree that hopeful thickening by myriads of leaf-buds, neither purple-russet nor clove-brown, nor any colour which we can definitely fix, but very beautiful in themselves, and promising the verdure of summer. Deep hollows of shade, and the brightness of light will be seen too, yet sparingly, and so, like the simpler colours, made the more precious. From this example, of which nothing but the original work of a master in the art of painting could convey an adequate notion, most important deductions may be drawn. It will help us to realise, in a thoughtful, artistic way, the value of temperance in colour, as well as of balance and distribution. It will lead us to introduce among our blues and reds and yellows some of those rarer tints which we cannot exactly name, but which the watchful student of Nature may see trembling on the leaves of the Willow, or paving the autumnal paths of the forest, or shining at eventide from the cloudy, but splendid pavilions of the sun."

The tree planter has the immense advantage over the painter that his materials are already blended by Nature. Wych Elms are more effective in rows or isolated than in clumps, as the drooping boughs are then better seen in all their natural grace. One of the finest specimens I remember, remarkable alike on the score of age, is a single tree, said to date from the time of William Rufus, in Ashted Park, Surrey. The Downton and Huntingdon varieties are worth growing, the former especially in gardens, as also are the Dutch and smooth-leaved forms; but the ordinary form is the best for the park or forest glade.—*Journal of Forestry*.

Castanea chrysophylla in fruit.—From their nursery at Redbraes, Messrs. Dicksons & Co., Waterloo Place, Edinburgh, send us some branches

of this ornamental North American tree or shrub, bearing numerous prickly fruits similar to those of the common Chestnut (*C. vesca*), but smaller. The fact that the golden-leaved Chestnut fruits regularly at Edinburgh is sufficient proof that it is quite at home there, and Messrs. Dicksons assure us that the specimen from which the fruits were cut has been planted out in the open air many years, and does not receive the slightest protection; hence, we may conclude that it is quite hardy, notwithstanding the fact that at Kew and elsewhere about London it is grown against a wall for fear of its being injured by cold. These specimens from Edinburgh are extremely vigorous, particularly the leading shoots made this season, and the ornamental character of the shrub, which is the golden under surface of the leaves, is better than we have hitherto seen, and affords a strong contrast to the deep green of the upper surface. In this country this Chestnut does not appear to grow beyond the stature of a shrub, and usually forms a low dense bush. Being evergreen, it is desirable for the sake of variety, and it does not seem to be fastidious as to soil, though it evidently prefers a good loam. It is, moreover, always grateful for shelter, though, as has been stated, it is hardy enough to withstand the full vigour of an Edinburgh winter.—W. G.

INDOOR GARDEN.

GESNERAS AND THEIR CULTURE.

THERE are not many flowering stove plants more valuable than Gesneras, especially for winter flowering. The best varieties with which I am acquainted are *exoniensis* and *zebrina*; both are free in growth, and produce a good many flowers, but the first named is undoubtedly the best in habit, as with little care the leaves may be grown so as to cover the pot, and for table or room decoration this is a valuable characteristic. The plants for such purposes we place on an inverted pot early in the season, and by giving them plenty of room the leaves droop down gracefully. Equal parts of fibrous loam, leaf soil, and peat, with a rather liberal supply of coarse sand, make a very suitable compost. The loam should not be sifted, but beaten up on the potting bench with a spade, but all the fibrous matter should be preserved, as it will help to keep the compost open. The peat should be treated in the same way, except that any very coarse lumps should be picked out. The leaf soil is best if run through a rather coarse sieve, and then the whole should be well mixed together before being used. It should be rather dry than wet at potting time, which should be in the spring, and it is best to have all the ingredients under cover some time previous to their being required for use.

Starting the bulbs.—The time at which the tubers should be started into growth depends somewhat on the time they are wanted in flower. In a general way they are wanted to flower in the early winter months, and for all practical purposes this is the best time for them, as they can never be had in a better state than when they are grown under natural conditions; what I mean by this is they should be grown as much as possible without artificial heat. To accomplish this, the middle of the month of March is a good time to start them, and then that will give them a long season's growth through the summer months when artificial heat will not be required after the middle of June. If they are required later in the year than October and November, the bulbs must be kept dry until the end of April or even later, but, like some other plants, after they have had a suitable season of rest they will start into growth of their own accord at their own time. The only way known to me to keep them dormant is to place the bulbs on a shelf in a cool house without any soil or other covering until they are wanted. They do not suffer from being exposed to the air, as many other bulbs do.

Potting.—At the proper time the bulbs should be shaken out of the old soil and sorted into sizes, as the largest bulbs will make the strongest plants.

Some shallow pans are the best to start them in. The pans should be first crocked, and then filled to within 2 inches of the rim with some fine light sandy soil; on this the bulbs must be placed, the largest 2 inches apart each way, the smaller ones closer together, and then lightly covered over with the same kind of soil. The pans should then be placed in some warm house where the day temperature is not less than 60°; a very little water will suffice for them until they have made some good sized leaves.

Specimens.—Pans about 6 inches deep and from 12 inches to 16 inches across are suitable sizes in which to grow large specimens, and when we consider how valuable all flowering plants are at the time of year these are in bloom, any little extra attention that is necessary in the production of well-grown specimens is amply rewarded; at least I find it so in my own practice, for I find that from ten to sixteen bulbs placed in a pan, according to its size, will make thumping specimens, which really require but a very little trouble to manage; a neat stick placed to each, so as to bring the plant into form just as the flower stem is rising, and a few additional ties are all that is required to make presentable plants.

Single plants.—To get plants of a suitable size for the decoration of the dinner table, and for vases and baskets for the rooms of the mansion we use pots of two sizes—6 inches and 4½ inches across are our principal sizes; for the largest size we use the strongest plants; and here I may remark that when the plants get large enough in the pans in which they are first planted we transplant them into pans and pots; one large bulb will make a good sized plant for a 6-inch pot. The small bulbs may either be put singly in small pots or three together in a pot a size larger; whether grown in pots or pans the drainage must be liberal. I find they do just as well if they are put into the pots they are to flower in at first as they do when shifted on from small ones.

The summer quarters for the plants. After the middle of June there is no better place for them than an ordinary brick pit or a low span-roofed house. In any case they must be near the glass, and if there is no better convenience, they may be grown in a cold frame for the space of two months during the hottest part of the summer. Strong light and sunshine is very hurtful to the colouring of the leaves; a thin shade is therefore necessary, as is also a moderate degree of air. Careful watering is necessary in hot weather; when the plants are developing several large leaves they will bear a rather liberal supply, but it is better to err on the side of their being a little too dry than too wet. They must not be syringed, nor must they be exposed to drip; any lodgment of water on the leaves will disfigure them for the season. It is not safe to leave the plants in cold pits or frames after the end of August; of course, a good deal depends on the weather. If the nights are warm they will not take any harm for a week or two longer, but in a general way it is much the best plan to remove the plants at the time indicated to some structure where the temperature is not allowed to fall below 55° at night, paying the same attention to shading and watering as before. In this structure they may remain until they come into flower. During the time the plants are in flower they should be kept in a temperature of 55° to 60°. If they are exposed to a lower temperature than this, the flowers do not develop properly, and therefore cannot expand. After the middle of December the quantity of water must be gradually decreased—this treatment to extend for one month, when water must be withheld altogether, and the pots and pans stowed away on a shelf in a house where the average night temperature does not fall below 50°. In a week or two after this the stems may be cut off, and this will give the bulbs sufficient rest before they are wanted to start again.

J. C. C.

Cyclamen grubs.—Our *Cyclamens* (grown in a hot-house) have for two years been infested by a grub which buries itself beneath the plant and eats the roots. Will some *Cyclamen* grower kindly tell me how the plant should be treated?—J. F.

NELUMBiums AND THEIR CULTURE.

It is by no means creditable to us gardeners of to-day that forty years ago our predecessors had the yellow *Nelumbium* blooming freely and growing luxuriantly in the old-fashioned houses of those days, and yet we with all our modern improvements are absolutely unable to grow the plant, no one, so far as I am aware—and many have tried—having succeeded lately in establishing and blooming this “glory of the western waters” in England. “It started well but soon died,” is the almost invariable tale one hears from would-be possessors of this finespecies. There is the giant blue Water Lily of Australia, too, also too much for our skill, as well as other species of *Nymphaea* which do fairly well in perhaps one or two isolated cases, but generally the result is a failure. Some one said to me that the old-fashioned flue-heated houses were at the bottom of our forefathers’ success with plants which are failures now-a-days; but, whatever the cause may be, certain it is that some things were done better a generation or two back than they are now. I am somewhat interested in *Nelumbiums*, and am always willing to say what I can to help in making them better known and more extensively cultivated. Mr. Miles is looking up the various forms of *Nelumbiums*, and I wish him success. A plant like *N. speciosum*, which occurs so plentifully in tropical Asia, Persia, Hindostan, and on to China and Japan, the Philippine Islands and Australia, must show great variety, and it does; so much so, in fact, that some botanists have divided it into several species—*N. nuciferum*, *N. caspicum*, *N. Leichardti*, *N. album*, *N. aspericaule*, and *N. roseum*, having all been looked upon as distinct from *N. speciosum*, but which are still but forms of it. *N. caspicum* is a very beautiful variety, having large flowers, the petals of which are pure white, tipped with rose. Then there are the pure white one, another deep red-rose variety from China, another pale pink, and indeed every shade almost between pure white and purple. *N. luteum* also varies in size of flower and shade of colour. Recently I saw a fine dried flower which was almost twice the size of that figured in the *Botanical Magazine*, and which was named *N. jamaicense*. Of course it is but a form of *N. luteum*. This plant thrives in Jamaica, growing freely, I believe, in the lakes and streams in the cooler parts of that island. Have any of the Jamaica plants been tried here? Possibly some of these might succeed where those from North America do not. Will some enterprising collector send over a few barrels of tubers for sale at Stevens? They would pay no doubt as well as some Orchids that are sent now-a-days. It is worth trying. With regard to

The cultivation of *Nelumbiums*. Mr. Miles’ tubs do not cost much, and they will stand in any corner out of the way, under the stage even, if a little of the stage can be removed to allow the leaves and flowers to come through. With strong tubers, *Nelumbiums* are as easily managed as Cannas—*N. luteum* excepted. What they like is a mixture of loam and cow manure with a flooding of water every day, and a light warm position in a moist stove; under such conditions *N. speciosum* will thrive well. *Nelumbiums* do not require any water during the winter months, and may be rested in a temperature not below 45°. Reverting to *N. luteum*, I am not aware that the very interesting note which accompanies the figure of this in the *Botanical Magazine* has been made known to readers of THE GARDEN. It is as follows: “The flowering of *N. luteum* I believe to have been the consequence of an accidental circumstance. I had hitherto treated it like the red or eastern species, from an impression that it was confined to the warmest portions of N. America, the pots of both being plunged in a cistern of water kept at a heat of about 85°, and as the plants grew very vigorously and appeared to be in health, I did not try any other situation. They had never shown any disposition to bloom until the present season, when, in consequence of the gardener having left less draught than usual on the flue which passes under the cistern, and which is entirely closed in winter, the water

remained at about 70° to 75°, and the house was altogether cooler than in previous summers. Under these circumstances, while the red species threw up a number of flower-buds which never came to maturity, two out of the three plants of the yellow species flowered, and are ripening seeds. I have no doubt that, like many of the aquatic plants of North America which grow in a shallow pot in this garden, the *Nelumbium* will be found sufficiently hardy to bear our winters if the roots be plunged in water deep enough to protect them from the frost, and raised near to the surface during the summer; but I am not very sanguine in hoping that it will be brought to flower in the open air or in water warmed only by the sun, as those plants which are above the water, such as *Pontederia cordata*, *Hibiscus palustris*, &c., appear to require a greater degree of heat for this purpose than our summer affords.” Mr. Miles is not very successful with

***Nymphaea flava*.** With me it thrives most satisfactorily, and I have no doubt that by adopting my plan, Mr. Miles will find this species free enough. I hope to be able to say a word or two on this and *N. gigantea* in a future issue, and therefore content myself by saying now that it requires to be kept growing all winter, as from its not possessing the thick tubers of the other species it will not bear drying off. Has Mr. Miles got the true *N. cœrulea*? it appears to be rare. B.

TYDEAS FOR WINTER FLOWERING.

THESE pretty Gesneraceous plants are very accommodating in their season of flowering. They can



Tydea Madame Heine.

be had in bloom at almost any time of the year, according to the treatment given them. It is, however, during the autumn and winter months that they are especially valuable in this respect, their bright and cheerful-coloured blossoms being so effective at a little distance off, and so delicately marked on close inspection that from whatever point they may be viewed their beauty is very evident. For winter flowering I keep the plants growing slowly in a cool temperature from the time they start in spring till the end of summer, and then they are introduced into a warmer house, when they soon commence flowering, and continue for a long time. In starting, say, with half-a-dozen sorts (quite a sufficient number) they will be, if obtained during the winter from the nursery, in the shape of caterpillar-like rhizomes. They should then be kept in pots of sand in an intermediate temperature till growth commences in spring. Keep the sand just moist during that time, otherwise a kind of dry rot affects the roots, and they crumble away into powder if the sand remains dry for any length of time. As soon as they show symptoms of starting into growth they should be potted in small pots in light, sandy soil, consisting, say, of equal parts of loam and leaf-mould, with a liberal admixture of sand, or even two-thirds of leaf-mould to one of loam, according to the quality and consistency of

both. Do not bury the roots too deeply; if thoroughly covered, that will be found to be sufficient.

After potting place them in a light position near the glass, still keeping them in the same temperature until they are established; then harden them off by degrees, and keep them during the summer in a frame out of doors, shading, of course, from bright sunshine, but by giving plenty of air encouraging stout growth. If doing well they will be ready by midsummer to shift into 5-inch pots, in which they should be flowered, as they do not require much pot room, unless large specimens are needed, and as a rule for general purposes small plants are the most useful. The soil used should be the same as that just recommended, with the addition of a little dry cow manure, and it should be pressed rather firmer than for the first potting, but on no account make it too solid. After potting they should be kept somewhat closer until established; indeed, during hot weather it benefits them greatly to have a sprinkling overhead, and be shut up early. In this way the plants will make free, but sturdy growth, and by September they should be introduced into an intermediate house or the cool end of a stove, when the flower buds will advance rapidly, and when in this stage a little weak manure water will be of benefit to them.

After flowering give them a slight rest, but on no account allow them to become too dry; then in spring start them again into growth. For summer flowering *Tydeas* are well adapted: they can be had in bloom easily at that time, all that is necessary being to start them earlier and grow them on quicker. A few good sorts are: *Madame Heine*, *Lady Caroline Kerrison*, *Robert le Diable*, *Madame Halphen*, *Tricolor*, *Cratère*, *Gigantea*, and *Pluton*. A near ally and one needing the same cultural requirements is *Isoloma hirsuta*, a plant of recent introduction, and one which produces orange-vermilion coloured flowers covered, as well as the whole plant, with brown silky hairs. H. P.

POT CULTURE OF FERNS.

SUCCESS in the cultivation of Ferns, as in all other matters relating to culture, is only to be attained by carefully studying the wants of the plants and their individual peculiarities. Although some thrive best in shade and with abundant moisture, others prefer the brightest light, and flourish only on dry walls and chalky rocks, while a third class delight and grow luxuriantly for months, and even years, in the close confinement of a Fern case. Ferns can be grown with equal success in pots or planted in the outdoor fernery. In all cases, however, the nearer the conditions under which they grow naturally can be followed the better. For pot culture the most effective plants are the *Adiantums*, some of the *Aspleniums*, *Blechnums*, *Cyrtomiums*, *Davallias*, *Lastreas*, *Lomarias*, *Microlepias*, *Nephrodiums*, *Nephrolepis*, *Onychium*, *Polypodiums*, *Polystichums*, *Pteris*, and *Woodwardias*. As regards soil there must be many exceptions to any general rule, but the majority of Ferns like a compost formed of fibrous peat, good loam, and sharp coarse sand in equal parts, the whole chopped or broken according to the size of the pots used, but in no case should it be passed through a sieve. Though not absolutely necessary, if good leaf mould is procurable, an equal portion added to the others will prove of great benefit to the plants, especially if rapid growth be the object in view. The pots should be well drained, for although Ferns are fond of moisture, nothing is more injurious to them than stagnant water. Dry, clean pots only should be used. If new, they should be well soaked and dried before the plants are put in them. If wet or dirty, it will be found impossible when next the plants are repotted to remove them without breaking a quantity of the roots, through the soil adhering to the sides. Whatever the sizes of the plants may be, care must be taken not to put them in too large pots. Even in the case of plants intended for specimens it is better to pot them often than to put a small plant into a large pot; such a course often ends in failure. Ferns,

although requiring to be potted firmly, dislike hard potting. I have seen the soil filled up level with the rim of the pot, but that is a bad plan; the top of the ball should always be placed sufficiently low, to allow room for a good supply of water. For instance, in a 4½-inch pot leave half an inch of space for water, and increase it slightly, according to the dimensions of the pots used. In order to grow Ferns quickly, small plants require repotting several times during the season, but for larger ones a shift once a year will be found to be sufficient. The best time for that operation is towards the middle of February, when starting into growth, after which time the sooner it is done the better, as the partly developed fronds would suffer from root disturbance. Sufficient water to saturate the ball and the new soil should be given gently when the plants are put in their new pots, and they should not be watered again until they require it. Many make a serious mistake in watering a little every day, as by so doing, the surface of the soil is kept damp, while below it is dry, and the roots being principally at the bottom, the fronds begin to shrivel, and die one after another—the cultivator little suspecting drought to be the cause of the evil. **PELLEA.**

Pteris scaberula.—This pretty little New Zealand species should find a place in every collection of Ferns. It has a light and graceful appearance, and when liberally and carefully grown, supplies a number of useful fronds for cutting, a purpose for which so few Ferns are suitable. It thrives in well-drained pots, but also grows with the greatest vigour in shallow pans. They should be filled almost to the rim with lumpy Peat and fibrous loam in equal proportions, mixing therewith some small crocks or lumps of charcoal, as this Fern requires perfect drainage, and never grows with any vigour where that is at all defective. It is also suitable for planting out in a fernery under glass, and has, when growing freely, a very pleasing appearance. When it has to remain in the same position for some time pieces of sandstone or something similar should be embedded here and there in the soil, so as to prevent it from becoming sour. Ferns are never so happy as when their roots can occasionally touch some such substance around which they cling, finding there apparently the conditions best suited to their well-being.—**J. C. B.**

Gymnogramma schizophylla.—This ranks high amongst Ferns of recent introduction, owing to its graceful habit, its delicately cut foliage, and the readiness with which it may be increased. Being a native of the West Indies, it requires the temperature of a stove, and the most suitable situation therein seems to be suspended from the roof in a pot or basket. Thus circumstanced, the gracefully arching fronds show themselves off to much greater advantage than when on a stage; moreover, owing to the free circulation of air in such a position, the fronds are not so liable to become discoloured as when standing among other plants. It is of a medium habit of growth, the fronds being from 1 ft. to 2 ft. long, very elegantly divided, and remarkable from the fact of their being forked near the point, from which a young plant springs, and all that is necessary is to peg it down in a small pot, into which it will soon root, and may then be detached. Another point of difference between it and most of the *Gymnogrammas* is the entire absence of any mealy substance, the colour being a pleasing shade of pale green. Not only may it be propagated from plantlets produced from the apex of the fronds, but in profusion by means of spores, which germinate freely and grow rapidly.—**H. P.**

Carnations all the year round.—Carnations may be had all the year round. There is no month or day of the month in which they may not be had if the right sorts are grown and if they receive the treatment which they require. "Delta" ought to know that we get our autumn Roses from the perpetual-blooming sorts, and our autumn and winter-blooming Carnations are also obtained from the perpetual-flowering sorts. "Delta's" friend,

who gave eleven months' work for three weeks' bloom, must have had a very poor collection, and must have managed that badly.—**J. DOUGLAS.**

A SELECTION OF HYACINTHS FOR POTS.

HYACINTHS may be potted up to the end of November, and I have known fine spikes of flower to be had from plants grown from bulbs not potted until the middle of December. But then these bulbs had been taken care of, and we cannot always say that of bulbs exposed for sale in shop windows. I have often thought that there is an advantage in keeping Hyacinths for a time before they are put into water or potted, in order that the embryo roots may plump up a little, and thus show that the time has come for their commencing to be active.

The following selection of varieties includes only those with single flowers, because there are but few really good double varieties, and they are not superior to those with single flowers. Of the red, rose, and blush-coloured varieties, the following are well worthy of cultivation: Jeannie Deans, extra dark crimson; Lina, rich crimson, fine in colour; Macaulay, deep rose with bright carmine stripes; Solfaterre, bright orange-scarlet, distinct and fine; Von Schiller, magenta with crimson stripes, extra fine; Cosmos, bright rosy carmine, fine; Fabiola or Florence Nightingale, very fine shaded rose, very pleasing in colour; Grand Vainqueur, beautiful waxy pink, extra fine; La Joyeuse, delicate rosy pink; and La Fiancée Royale, bright carmine, extra fine. Of white varieties: Alba maxima, pure white, splendid spike; Baroness Van Tuyl, pure white, very fine; Belle Blanchisseuse, pure white, extra fine; Grandeur à Merville, rose tinged white, very compact; La Franchise, creamy white, very fine; Madame Van der Hoop, large pure white bells, extra fine; Mont Blanc, snow white, very fine; and Snowball, very large and finely formed bells, grand spike. Of blue Hyacinths use the following: Blondin, silver pale blue, very fine; Charles Dickens, blue, shaded with purple, fine and distinct; Grande Lilas, beautiful pale porcelain blue, very fine; Leonidas, dark porcelain blue, distinct and fine; Lord Derby, dark porcelain blue, fine spike; Baron Van Tuyl, fine dark blue; Feruck Khan, dark purple, very fine; General Havelock, blackish purple, extra fine; Sir John Lawrence, dark blue, large compact truss; Haydn, lilac-mauve striped, extra fine; and Jescho, bright lilac-mauve, distinct and very pleasing. Of yellow flowered varieties, select the following: Duke of Malakoff, nankeen and buff, distinct and fine; Ida, pure yellow, extra fine; and La Citronnière, bright citron-yellow, fine spike. Here, then, are something like three dozen Hyacinths of an inexpensive character, as none of them would exceed 1s. 6d. each, and not a few would cost only half that sum. They are all of good quality, and will be found as valuable for exhibition as for decorative purposes. There is no necessity for over-potting Hyacinths. 5-inch or 6-inch pots for the largest bulbs will suit them admirably, but they must have a rich soil. Once get the bulbs to root freely into this, and then with ordinary care success is certain. **R. D.**

An effective autumn bouquet.—Two dozen spikes of *Schizostylis coccinea*, cut with long stems and placed loosely in an old Italian blue majolica jar along with a few large white blooms of *Pyrethrum serotinum*, and surrounded by some pendulous leaves of a dwarf *Carex*, have made as simple and effective a bouquet as could be desired. As the *Schizostylis* continues to open its bloom in water, and the *Pyrethrum* is also a good lasting flower, they are well suited for combination.—**J. T. Poë, Riverston.**

The decaying leaves of the Japanese Maples are very beautiful at this season, possessing every variety of tint from deep crimsons to bright yellows and greens. They are valuable for intermixing with flowers in vases and bouquets, with which they associate admirably. Mr. Kingsmill sends from his garden at Eastcott some leaves of various forms of *Acer polymorphum*, one of the most variable of Maples.

GARDEN FLORA.

PLATE CCCLXII.

EXACUM MACRANTHUM.

THIS is one of the handsomest of Gentian-worts. It is about thirty years since this species first made its appearance in this country, Kew, and also Glasnevin, being the first to succeed in growing and flowering it. An excellent figure of it was published in the *Botanical Magazine*, taken from the Glasnevin plant. It might have been expected that once the introduction of so handsome and easily cultivated a plant had been accomplished, it would not be likely to disappear from collections, but would become as general a favourite as, indeed, this plant so well deserves to be. *Exacum macranthum* is a native of the Ceylon hills, where growing in moist places it forms large patches of ultramarine blue, such as would delight the eye of the disciples of the Ruskin school. In the Nilgherries, too, where several other species, quite as beautiful as *E. macranthum*, are found, the large areas of deep blue *Exacums* so frequently met with among the hills are much admired by Europeans.

As the seeds of *Exacum* are freely produced, and travel well, we hope that, by shortly describing some of the most beautiful, we may soon become acquainted with them through the assistance of travellers or residents in the districts where these plants are so abundant. Seeds gathered and placed where they will soon dry, and then put into an envelope and despatched to England, are sure to germinate, and as the plants grow freely, they would soon be seen in flower.

E. MACRANTHUM.—The annexed figure is sufficient to satisfy anyone of the merits of this handsome stove plant. It is supposed to be biennial, but, so far as I am able to judge, I should call it perennial; so at least it has proved at Kew, the plant from which the drawing was made being about three years old, and it is still flowering freely. It grows about 2 ft. high, and bears its large, deep blue flowers in axillary and terminal corymbs all through the summer months. The beauty of the flowers is increased by the contrast of colour afforded by the anthers, which are large, prominent, and bright orange-yellow. As has been stated, it is found in abundance in Ceylon, from whence comes a second species, already known in some gardens, viz. :—

E. ZEYLANICUM.—There is a general resemblance between this and the above species, but it differs in being an annual, and in the flowers being a trifle paler and smaller. Glasnevin possessed plants of it in 1848, and it has been seen at Kew now and then. Being an annual, it is not so easily kept as the perennial kinds, as seeds do not seem to be produced by cultivated plants. Still, it is a beautiful and desirable plant if well managed, yielding an abundance of flowers.

E. PEROTTEI is perhaps the grandest of the genus. Although a common plant in the Nilgherries, it does not appear to have found its way to this country. It is a sturdy species, with large, leathery leaves and a stout stem, growing to a height of 2 ft., and bearing an abundance of deep

Growers or introducers of new plants will oblige us much by early intimation of the flowering of new or rare species, with a view to their representation in our "Garden Flora," the aim of which is the illustration in colour, and in all cases where possible life size, of distinct plants of high value for our gardens.



blue flowers, which are almost 3 in. across. The flowers are in axillary whorls on the upper part of the stem. Judging from herbarium specimens and descriptions, it is a plant of the most gorgeous beauty.

E. TETRAGONUM is not unlike the last mentioned, but instead of the blossoms being arranged in whorls, they are borne in a dense head of from thirty to fifty flowers. The stem is four-angled, stout, about 2 ft. high, and bears thick, leathery leaves, which are about 5 in. long. This species inhabits the Khasya Hills at an altitude of 4000 ft., so that it is not unlikely to prove an excellent greenhouse plant.

E. BICOLOR and *E. ATROPURPUREUM* are other large flowering perennial kinds, and are both natives of the Nilgherry Hills.

E. TRAVANCORICUM is a dwarf-growing species, not more than 8 in. high, with tongue-shaped leaves and large light blue flowers. A native of the Travancore hills at about 5000 ft. altitude.

Besides the above there are other beautiful kinds known only in herbaria here, but amply deserving of cultivation in the most select collections. The seeds of *Exacums* are small, and therefore require a little care when sowing. The treatment usually given to *Gloxinia* or *Begonia* seeds will suit the *Exacum* seeds, and so also will the soil generally used for these plants. As the young *Exacums* grow stronger they may be placed in a stove or intermediate temperature, where there is a moist atmosphere and not too much sun. A little manure water may be given as the flowers develop. Cuttings strike freely, and make fine, free-flowering plants in about a year. The flowers last for several days on the plants, and therefore they are likely to be useful in a cut state.

B.

LEAVES FROM THE SOUTHERN ALPS.

I AM not going to describe the plan of my New Zealand garden at Dunedin, because it has no very definite shape. It has been going on changing its surface configuration for the last eight years, and will probably go on changing as long as it remains in my possession. My purpose is rather to give some account of the operations and changes that fill the cycle of the antipodean year. My garden is about an acre in extent, more or less. Some time ago, when Captain Cargill brought his pioneer shipment to these shores, it probably waved and rustled with *Flax* bushes and *Mannka* scrub (*Leptospermum scoparium*). Even now I lift in some spots spadefuls of almost pure *Flax* humus, but in most places the surface soil is a loose friable, loamy clay with excellent mechanical properties, but not much staying power. Part of it has been carefully trenched with my own hands; about half of it by men working under my direction. It is on the whole a hungry soil. The amount of manure that garden has devoured has been the admiration of those people who have carted the supply. Even that part of it which was maiden soil, turned up on what had been originally a Grass paddock, would grow nothing without heavy manuring. Yet, on the whole, there is nothing my visitors more frequently compliment me on than my soil. Ladies particularly are very knowing in the matter of soils. "What beautiful large Pansies! What a delicious soil you must have, Mr. P.!" If I have any plant or batch of plants on (which I particularly pride myself, such as a *Rose* (though I fear the day when I would grow *Roses* is past) or a finely swollen incurved *Chrysanthemum*, or a well grown bush of *Dahlia*, or a rich clump of *Lily of the Valley*, it is invariably that insatiable soil that gets the credit. The most vindictive feeling in my heart towards those innocents who thus wrongly adjudicate their praise is a wish that they may enter the conservatory some morning when I

am syringing my *Cinerarias*. The surface of the garden is undulating, about two-thirds of the ground wending with a gentle slope in the best of all directions—to the north-east, and the other third inclining to the south-east, thus receiving the sun's rays less directly, though in the most open situation. The larger slope catches the very first rays of the morning sun, and retains the sunshine until late in the afternoon. The southern slope does not catch the earliest sun, nor are the rays so powerful when they do strike it; and hence this part of the garden is more severely touched by the frost than any other. As it is under orchard the yield of fruit may thus be very sensibly affected by the late spring frost. It is an ancient prerogative of the Briton that when the fountains of conversation are frozen he may stimulate liquescence with a few common places about

The weather. To the owners of gardens, however, as to sailors and farmers, the weather comes to be *per se* a subject of real interest. It is not simply that they are disgusted if it rains and delighted if the sun shines, or *vice versa*, as it may suit their interests; the variations of weather, according to zone and season, have for them a living interest, and the gauge by which they measure such variations is plant life. The weather is really part of their stock-in-trade. By the antipodean rule of contraries the month of July is with us the middle winter month, and properly begins the year. July and August are the months in which grumbling at the weather becomes fast and furious. Not that our climate, at least in districts near sea level, at all corresponds in rigour with that of even the south of England, for it seldom approaches in severity the most moderate English winter. Occasional frosts crusting over the roads, and, except in shady hollows, vanishing before noon, and rare falls of snow, seldom lying for a day, make up the rigour of our winter. In exceptionally severe seasons, however, as in that of 1878, very respectable snow-storms have occurred, the snow lying sometimes for ten days. This mildness is, of course, true only of low levels, say from sea-level to some 500 feet above it. Of course "up country," towards the alpine region, every degree of cold may be found till one reaches the snow line and enters the glacier region of the Southern Alps. This winter has been mild so far, even towards the alpine districts. In the sea-board districts the weather has been particularly open. As proof of the mildness of the season I may adduce the fact that on the 4th of this month, July, corresponding with the 4th of January in Britain, I cut exceedingly fine blooms of *Cineraria* grown in the open air, and that, too, not in a sheltered spot. Both blooms and foliage were quite unharmed by frost, and even now on the 21st vigorous plants are growing in the garden, giving large promise of flower, with not a leaf scathed. Probably, however, the plants will be cut off before they have a chance of developing flowers. It is really extraordinary that plants so sensitive to frost as *Cinerarias* are should have been able to withstand several nights of pretty severe frost which we had between the 6th and 17th of the month. This is probably to be ascribed to the gradual approach of the cold weather, and to their being in some measure hardened, and so enabled to resist the frost. Another reason may be found in the fact that they are in a position shaded from sunshine, which, coming upon plants after a stiff frost, seems to have the effect of parboiling. Those grown under glass, although they look strong and healthy enough, would probably have succumbed to the same degree of cold. In an unheated greenhouse a hard frost does occasionally injure the plants, but ample protection is afforded the *Cineraria* even against the most severe weather we ever experience by simply spreading a piece of dry paper over the plants—an easy and cheap way of giving shelter. From 2° to 3° further north, in the province of Canterbury, where we should expect the climate to be milder in proportion to the difference in latitude, we find the very reverse to be the case. In Christchurch the tender plants in nurseries and elsewhere look much cut up by the winter's frost, and this, too,

though the Christchurch plain is really on a well drained warm bottom. Possibly it may be the nearness of the snow-covered alpine chain that causes the keener and more frequent frosts in the lower latitude. I remember in the year 1878 at midsummer, when there had been a fall of snow on the mountains, the wind blew quite snell and almost frosty over the Canterbury plain. A plant which is perhaps as good an indicator of weather mildness as the *Cineraria* is the *Canary Creeper* (*Tropeolum canariense*). It very readily, as a rule, succumbs to frost, but this season it has lingered through the greater part of the winter, and at last seems to have gone off more through damp than frost. Curiously, the effect which a touch of frost has upon this pretty climber—when it does not actually kill it—is to make the stems extremely brittle, so that sprays which look fresh and blooming break off like thin glass almost at a touch. In a dry climate, with so little frost as we have, the flowers of autumn would go on blooming through the winter; but in the moist climate of New Zealand the bloom sooner or later succumbs to the damp, and moisture performs the effect of cold.

Peel Forest.—It is good for anyone fond of his garden occasionally to leave it for a few days, just to lose sight of the fence that shuts in the precincts, so as to come back after a little change of air and scene with freshened interest in his own plot. With the double intention of taking this recuperative outing, and at the same time securing a few desirable additions to my fernery and alpine borders. I got off at the South Rangitata Station, in the province of Canterbury, with my usual *vade mecum* on my back—a pretty capacious square cornered vasculum, made to hold as many plants as a man of ordinary strength could conveniently carry for any distance. A coach runs for some fourteen or fifteen miles across the Canterbury plain in the direction of the alpine range, two outposts of which, the greater and lesser Mount Peel, are the most conspicuous objects seen from that part of the plain. Peel Forest was the destination of the coach and of myself. It lies at the foot of the lesser peak, running, as such wooded tracts usually do, about one-third part up the mountain. On the outskirts of the forest lies a small and somewhat primitive settlement, supported chiefly by what it can get from the forest itself. The settlers are mostly wood-cutters, or provide directly or indirectly for the wants of wood-cutters. So little forward is the district, that there is not even a school within nine miles; and in the neat little English church regular service is held once a month by a clergyman from a distant parish. There being no hotel accommodation within five miles of Peel Forest, I luckily found homely, but comfortable quarters with the postmaster and blacksmith of the settlement, close on the outskirts of the area to be investigated, so that I was able to begin botanising at the very door. The district afforded two days' good work—the one to scale the mountain (3500 feet), and the other to examine the character of the forest vegetation and animal life. The weather turned out all that could be expected at that season—hard, crisp frost underneath, bright blue sky overhead. The mountain to which I made my first day's expedition was crowned with snow—not densely, but still sufficiently so to make botanising not so easy a matter as it would have been in summer. Behind the lesser peak lay the greater (5000 feet) and I should have much liked to reach its top, which it would have taken—from the top of the smaller mountain—but little additional time and labour to do. The day was short, however, and I have had some experience of the unpleasantness of being benighted, an unpleasant situation at any time, but doubly unpleasant when the season is midwinter. Besides, except the pleasure of reaching a point which you see above you and having a more extended view, there was nothing to induce me to go forward, for the snow laid so thick on the higher crest that nothing could be seen of the alpine plants which grew on this peak. In a long summer's day a climb to the top of the larger Mount Peel over the summit of the lesser would not only be delightful as a mere exercise in hill-climbing, but would offer a particularly rich field

for the collection of interesting alpine. In my ascent to the lower crest I collected a number of plants to me new and interesting. I do not intend to enter at present into any detailed description of them, because I have as yet been able only to guess at their identity, no flowering specimens being to be had at this season. It was no easy matter in some instances to get tolerable plants out of the hard frozen earth, the more especially as some of the roots went down to a considerable depth and necessitated regular operations of sapping and mining before they surrendered themselves. My flask having been left behind, the last steep spell before reaching the summit over rugged and slippery rocks was a very thirsty and tiring bit of work, so that had it not been for a wholesome fear of my own opinion, I am afraid I should have been ignoble enough to have stopped short of the top. I was rewarded on reaching the summit of the peak with a magnificent view and with that feeling of self-complacency which is the natural fruit of all hill-climbing. Not that I was very pleasantly impressed with the enormous stretch of tussocky plain that spread out till it was lost in a distant haze where I knew lay the Pacific. Two rapid rivers—the Rangitara and the Orari—rolling their icy-green floods of melted snow towards the ocean, looked, as they divided and joined and re-divided again to join, like huge nets with silver meshes. But there was a want of definition somehow or other about the scene; it was too vast and too vague, and one willingly turned the back upon it to see billow upon billow of snowy ridges stretch far to the north and west where the dazzling rounding of the hills looked like the rise and fall of a gigantic silken web flung carelessly down in a thousand swellings and depressions. In looking at a scene like this what fills the mind with such quiet pleasure is that sense of eternal repose which, in the words of Ruskin, "as it is expressed in material things, is an appearance of permanence or quietness, as in the massy forms of a mountain or rock accompanied by the lulling effect of all mighty sight and sound which all feel and none define, which would be less sacred if more explicable." The descent of a hill is, though shorter work, always more trying than the ascent, the joints not having the same support to work against, and the body coming down in forcible jerks by its own weight. I had avoided the besetting temptation to a botanist of gathering too many plants and heavily loading the vasculum on the ascent, but in coming down I filled it to its utmost capacity with magnificent specimens of alpine—many of them with fine balls of earth, and therefore pretty heavy. Among the most conspicuous of the

Mount Peel alpine are the *Celmisias*, beautiful plants which would certainly charm anyone who grows and admires mountain flowers. They form a truly magnificent genus of plants peculiar to the alpine districts of Australia, Tasmania, and New Zealand. Hooker ("New Zealand Flora") enumerates twenty-four species, and says that they are very closely allied to a very characteristic genus of New Zealand shrubs—the *Olearias*, containing twenty-three species. The *Celmisias* are distinguished by the rosette form of the foliage, the leaf—according to the species—varying from a linear grass-like blade to a broadly oblong strap. What constitutes their great beauty is the silky tomentose appearance of the leaf, particularly on the underside, which is like a bit of pearl-grey satin. The *Celmisias* belong to the Composite family. The flower-scape rises boldly from the rosette of leaves and carries a single conspicuous Daisy-like bloom, with a large yellow disk. Mount Peel is literally starred with these beautiful alpine, and in the flowering season the whole mountain side must be white with their blossoms. I am not aware whether *Celmisias* have found their way into English alpine gardens, but as the seed does not seem to fill very readily, it is probable that they are not common. I brought home with me at least four species, but as some of the species are difficult to distinguish even when in flower, it is possible there may be a greater number of forms

on Mount Peel. The *Celmisia* when full grown has a very thick root-stock, and is a difficult plant to secure in good root condition. However, by patient work with the clasp-knife I secured specimens with good roots, and I am in hopes that they will establish themselves readily in the garden. From its generally tomentose appearance the settlers call this the "Cotton plant." Several other dwarf pine acquisitions were secured, but much of the vegetation was the same as that I have already described as characteristic of Maungatua, in Otago, and included such plants as *Drapetes*, *Pentachondra pumila*, *Rock Gentian*, and so on.

Trees.—The second day's expedition (to the forest) offered as marked a contrast to the ascent of the mountain as could well be conceived. Instead of stepping over the rough and free mountain side I had to walk under gigantic trees, through Ferns and thick undergrowth. The forest is composed chiefly of three valuable timber trees, the Totara (*Podocarpus Totara*), the Black Pine (*Podocarpus spicata*), and the White Pine (*P. dactyloides*), with which are associated many varieties of trees not valuable for their timber, and a very abundant Cryptogamous flora. The monarch of the forest, as indeed of all forests in the middle island of which it forms a part, is the Totara Pine. To anyone with an eye for what is beautiful and characteristic in trees, the first sight of this gigantic Pine is an experience which he does not readily forget. The top of the tree is seldom in a perfectly sound condition, but presents a fantastically irregular outline, its dense Yew-like masses of foliage being crossed here and there by huge dead arms which have been scathed by the lightning or worn out by years of battling with the storm. This head of foliage is supported by a gigantic and noble buttressed column, which generally rises about one-third of its height before it begins to send out branches. The bark is of a greyish colour, so strong and stringy in its texture, that the natives sometimes use it for roofing their wharves. The *Podocarpus* is one of the slowest growers of all the Pines—so that a tree of fair dimensions may be presumed to be of great age, a specimen 3 feet in diameter being estimated at about 500 years. The wood is amongst the most durable of New Zealand timbers. The other members of this group growing in Peel Forest—*Podocarpus spicata* and *P. dactyloides*—are also handsome trees, affording, like the Totara, large supplies of edible drupes, which form to a large extent the food supply of the birds. The white Pine in particular is very heavily laden with its scarlet and purple berries, attracting large numbers of the native wood pigeon to feed on its resinous sweets. The forest is particularly rich in

Ferns, and the residents seem perfectly aware of it, and assume that any stranger who visits it does so in quest of Ferns. I was shown very creditable collections made in the forest, both of herbarium specimens and of living plants grown under glass or in the open fernery. The owner of a saw-mill that has been set up on the edge of the forest (alas, for its conservation!) showed me a very pretty circular fernery arranged under a huge Pine in the corner of his garden, containing many large and very flourishing plants of *Todea* (or more correctly *Leptopteris*) *superba* and several fairly-sized Tree Ferns (*Dicksonia squarrosa*). It seemed designed to be a last refuge for those exquisite *Todeas*, their natural home in the forest being ruthlessly wasted by the encroachments of the saw-mill and the incursions of wandering bullocks. By and by it will be difficult to find in the open forest a specimen of this beautiful *Leptopteris*. Though there was a rich variety of Ferns, I met with nothing new except one tall Fern, about 3 feet high, with a creeping root, which I take to be *Hypolepis tenuifolia*, but as I have not a seeded form it is difficult to decide. I was told that it was a very common Fern in the district, but I fell in with only one clump, every root of which I brought home with me. There is not the variety of filmy Ferns that might be expected in so moist a locality. Certain kinds, however, chiefly *Hymenophyllum demissum* and *H. scabrum*, were very abundant in the wet gullies,

and *Trichomanes venosum* grew plentifully on the tree Fern trunks. Tree Ferns were very numerous, the most common varieties being *Hemitelia Smithii*, some specimens of which were very tall and luxuriant, and *Dicksonia squarrosa*, which, though not so high in the trunk as the other, bears a fine parachute of coriaceous fronds. The most interesting sight in the forest to a lover of Ferns is undoubtedly the luxuriant beds of *Gleichenia Cunninghamii*, a Fern which it is extremely difficult to transplant successfully from its native habitat to the fernery. This is because the creeping root usually attaches itself to some other growth, such as the root of a growing tree; in fact, it is generally a most provoking surface-rooter. I have found it growing in different localities from the province of Auckland to Otago, but though I have seen it taller and more luxuriant than in Peel Forest, I have never seen it growing in a state so fit for removal. There it spreads on the ground under the shadow of the Pines, sending its rhizome in and out amongst the tree roots that fill the surface soil. The fronds rise to a moderate height and are supported on a firm, healthy stipes well proportioned to the little dome of green which it has to support. This colony of *Gleichenia* being near my headquarters, I made a special expedition, armed with a tomahawk, to procure a supply. After selecting a promising healthy clump, containing some ten or twelve firm, moderate-sized fronds, I proceeded carefully to cut a trench round it with the tomahawk, severing any tree roots that came in the way. In this manner I was able to take clump after clump up with fine balls of soil, and now I have them planted in pans as well as free in the covered fernery and in the open air, and if all of them fail, then it is a very difficult Fern to manage, for I am afraid I shall never be able to get a finer lot of plants or plants in better condition for removal.

Birds.—As interesting as the plants of Peel Forest are its birds. Over the length and breadth of the forest there is an uninterrupted symphony of bird music as long as day lasts. Indeed, so unintermittent is the chorus, that the ear, sooner or later, becomes tired of listening to it, and would willingly enjoy a short lull of silence. Perhaps, the best vantage ground from which to hear it is from the side of Mount Peel—about half way up the ascent, when you have the whole forest, with its wealth of green at your feet, and when the numberless notes from innumerable throats come up, softened and mellowed by the distance. Then you may see the charming mid-air antics of the Tuis, or parson birds (*Prothemadera Novæ-Zelandiæ*) as they wheel in chase of each other, and again suddenly dip into the green depths from which they have risen. If, instead of being high above the forest you are in the heart of it, under the great Pines, you can never tire of admiring the beauty of this masquerading parson, with his coat of lustrous green metallic black, and the pure white tufts that hang like bands from his throat, perched in the tree above you, observant of you all the time; he utters a succession of fluty notes, and then suddenly, as if making game of you, interjects a low croaking, guttural sound, ludicrously in contrast with the sweet mellowness of his ordinary note, all the while moving from side to side, and peering down as if looking over the edge of his pulpit. This little bit of play seldom lasts any time before another parson from some neighbouring pulpit swoops down upon him in sport, and drives him from his perch. But the great volume of the music is made by the thousands of bell birds (*Anthornis melanura*), whose note, even to the interjected guttural, is hardly to be distinguished from that of the parson bird. The bell bird is clad in a sober livery of olive-green, and feeds on the honey which it extracts from the native flowers. Whilst you are, perhaps, bending down examining a tuft of Moss or filmy Fern, you are startled by a rustling at your side, and on turning find, looking impudently and inquisitively at you, a brownish bird about the size of a common fowl. Make a sudden movement, and it runs away with the agility of a spider. This is the Weka or Masri hen (*Ocydromus*

australis), a bird which, for calm, unblushing impudence, has probably not its peer in creation. It is an incurable thief, having been known to steal things which it could hardly put to any use profitable to itself, such as a meerschau pipe, spoons, pannikins, boxes of matches, or even a watch. Fortunately, it does not conceal its plunder. The weird and somewhat sad note of this bird may be often heard in the silence of the night, and, the settlers say, most frequently before rain. I am afraid I have given the Weka a very bad character, but for all that it is a very pretty creature.

The chief bird friend and companion of the wanderer in the New Zealand bush is the wood robin (*Petræca albifrons*). As its name implies, it takes the place with us of the red-breasted ruddock, which we have not been fortunate enough as yet to introduce into this country. However, the wood robin is a good substitute. In size and shape, attitude and expression, he exactly resembles the redbreast, only the colour is different, being a dull blackish grey on the back and a yellowish white on the breast and abdomen. This little bird is quite as fearless as his home namesake, and comes hopping after you in the forest, delighted, if you root out a clump of Fern or Moss, to have a chance of picking up a worm in the exposed soil. He will sit on a twig, with head on one side and an eye beaming with intelligence, watching your operations with the knowing interest of a connoisseur. Sometimes a retinue of three or four will follow, but they are rather quarrelsome amongst themselves, bickering and sparring with each other, and altogether showing the unamiable side of their character. So fearless are these little fellows, that I have seen two of them quarrel over the insects in an old nest that I have held in my hand; but this degree of confidence in man exists only in those robins which inhabit the little frequented parts of the New Zealand bush. Occasionally the general harmony of the forest orchestra is disturbed by the not unpleasant discord of the harsh scream of the kaka or brown parrot (*Nestor meridionalis*), which flies about in rather clamorous companies, feeding on the larvæ of insects or the berries of the Pines or the honey of the Rata flowers, according to the kind of food plentiful at the time. Green parrakeets, too (*Platycercus Novæ-Zelandiæ* and *P. auriceps*) fly across the forest with their cheery twitter, and please the eye by the brilliancy of their colour if they do not add much to the general melody. Many other birds, native as well as British, make Peel Forest interesting to the ornithologist; indeed, I have never seen any district in which the same wealth of birds could be found within an equal area. The one unpleasant feeling in connection with a forest expedition of this kind is the consciousness that the country is being rapidly and steadily and wastefully denuded of its magnificence, and that between the hand of the woodcutter, who wastes more than he uses, and the hand of the sportsman, who, from a mere wanton love of exercising the power of death, destroys the birds that inhabit the forest and give it life and sound; the day may even now be foreseen when many spots which flourish like a garden will be as dreary and desolate as a Patagonian desert.

PAKEHA.

A Belgian's opinion of Covent Garden Market.—Our readers will remember that a party of Belgian horticulturists visited this country in June last. Much of what they saw in some of the largest nurseries, market gardens, and private establishments in the vicinity of London both surprised and delighted them. Covent Garden Market also surprised them, as will be seen by the following from the pen of M. Rodigas, professor to the State School of Horticulture at Ghent, and co-editor of the *Bulletin d'Arboriculture*. "Early in the morning we visited Covent Garden, which receives such quantities of fruit and flowers every day, and from which much was expected. Heavens! what a deception! Notwithstanding the weather being so favourable as to predispose us to make

the most of everything, we are obliged to state that this market, of which the *débris* overflows even to the Strand, is everywhere dirty and disorderly, and quite unworthy of a city like London. We have seen the Halle of Paris and the markets of Vienna, which are palaces compared with Covent Garden. For the indescribable confusion and noisy burly-burly, the disorder and absence of cleanliness, there can be no other excuse than the frightful rapidity with which all business, even the most considerable, is conducted, and the imperative need there is of no delay in providing food for about 4,000,000 closely packed inhabitants." The writer evidently expected to find a market capable of exhibiting to advantage the really marvellous examples of cultural skill which he had previously seen in some of our large market gardens.

KITCHEN GARDEN.

THE ROCAMBOLE.

It is probable that many of your readers are not acquainted with this esculent, as it appears to have almost entirely dropped out of cultivation, and although I have looked through many seed catalogues, I cannot find either seed or roots offered of



The Rocambole (*Allium Scorodoprasum*).

it. We have, however, evidence that it was generally grown in times gone past, as mention is almost invariably made of it in old gardening works. For the information of those who do not know what Rocambole is, I may mention that it is a mild form of Garlic, a fact which will probably not tend to popularise it, for we English are not a Garlic-loving people. There can, however, be no valid objection to our using it in a moderate and proper manner, as its judicious application will impart additional piquancy to the salad bowl. It should be treated similar to the Onion, but it is not nearly so difficult to please as regards soil. Seed of it may be sown in March in rich and well-stirred soil, eventually thinning the young plants out to 3 inches or 4 inches apart. Keep them clean during the growing season, and in the autumn they may be harvested and stored like Onions. Some of the roots should be planted out the following March, as these will give a supply of green tops before seedling plants are large enough. In French gardens Rocambole generally finds a place, and the Parisian market gardeners also grow it to a limited extent, as although the demand for it is constant, it is not very great. It is true that the working classes in France are very partial both to Rocambole and its near ally, Garlic, and use both somewhat freely, but in a general way both these esculents are employed with much discrimination, and I should advise anyone who may be inclined to make a trial of Rocambole to be very cautious as to the quantity used. A single sprig will be found sufficient for a salad.

J. C. B.

SALSAFY AND SCORZONERA.

THOSE fond of using pet names often call one or the other of these the "oyster plant" or "vegetable oyster," but it is the Salsafy which has most claim to this term, as when boiled in milk or fried in butter it has a peculiar resemblance to oysters in flavour. In many small gardens, however, neither of these roots are cultivated, a great omission, as they are choice and well flavoured and useful in the autumn and throughout the winter. From now onwards few have so many vegetables to choose from as they had in summer, but changes are still as desirable; therefore, all should study to grow as great a variety as possible for winter supplies. With this object in view Salsafy and Scorzonera can be strongly recommended for culture; and although the present is not a time to begin it, the seed order for next year should not be sent away without putting a few ounces down against these names. Roots of these plants which have been growing throughout the summer will now be matured, and they will bear being treated in various ways to keep them on throughout the winter. As a rule we never lift the whole of our roots in autumn, but so long as the weather remains open they are left in the ground, and we lift a dish as they are wanted. On the appearance of frost setting in a quantity is lifted, taken into a shed, and covered over with leaf soil or sand to prevent them from shrivelling. The remainder are left in the ground, and we have found them to keep well there until spring, although exposed to a good deal of frost and all kinds of weather. Should circumstances cause us to lift the whole at present we would store them all with the Carrots and Beet in sand or ashes in a cool, dry shed, but they would require to be looked over once a month or so, as they are rather inclined to sprout out again. With ordinary attention a continuous supply of good roots may be had from now until Easter, and then a fresh supply must be thought of. There is no kind of root crop more inclined to throw out side roots and fork from the main one than Salsafy and Scorzonera, and in stiff shallow soil this may spoil the crop altogether. For this reason the

Land for the cultivation of these roots should be chosen with care; an open deep, rich soil is the kind to reserve for them. This may be looked to during the winter, and if deficient in any respect let the deficiency be made up. Trenching, digging, or manuring may be wanted, but this may all be done some time before sowing time, especially the putting in of manure, as rough material of this kind also causes the roots to fork. Early sowing should not be practised, as of all vegetables none are more liable to run to seed prematurely. There is no objection, however, to the making of two sowings, one about the middle of April and the other halfway in May. In some seasons and soils both may do well, but in others the first may all "bolt." Early in May is also a good time to sow, and as the ground will have been previously prepared, advantage should be taken of a fine day to get the seed in. It is best to sow in rows. These should be about 15 inches apart and 2 inches deep when opened for the seed. Thin sowing should be the rule. Ultimately the plants should stand about 1 foot apart in the rows, and if two or three seeds are put in at every foot apart the plants will come up in little clusters and can be thinned out, leaving only one for the crop. This mode of sowing takes less seed than when put in throughout the whole row. After covering the seed, care must be taken that mice do not destroy it, as they are wonderfully fond of it. When the plants can be seen above ground, however, they are quite safe, as other vermin do not appear to do them much injury.

Thinning out the plants as they become large enough, and hoeing between the rows to kill the weeds in summer constitute the whole of the attention which they require when growing, and this should not be neglected, as it is on securing large fleshy roots that their value depends. As these two vegetables are so much alike in their cultural requirements, I have not thought it worth

while to make a distinction between them, but those who do not care to grow both will find Salsafy the most useful. J. MUIR.

Golden Gem Onion.—Under this name Messrs. Carter & Co., High Holborn, have sent us a few bulbs of a very handsome little Onion introduced by them last year. It is a very excellent variety for pickling, and amongst other good qualities is said to possess good keeping properties. It is very clear in the skin, about 3 inches in circumference, and firm in texture.

Autumn and spring planted Potatoes.

—Mr. James Howard, M.F., furnishes the following results of his latest experiments in the autumn and spring planting of Potatoes. Of each sort 28 pounds were planted in November, 1881, and 28 pounds at the end of March, 1882, side by side, and at equal distances between the rows—32 inches in the case of strong-growing sorts, and 28 inches in those of Ashleaf varieties:—

Variety.	Spring planted.	Autumn planted.	Date of lifting.
Improved Ashleaf	147 lb.	191 lb.	July 21
Woodstock Kidney	322 lb.	185 lb.	July 26
Fillbasket	432 lb.	339 lb.	July 25
Reading Hero	375 lb.	370 lb.	Aug. 16
Reading Abbey	482 lb.	370 lb.	Aug. 16
Early Hammersmith (Ashleaf)	458 lb.	483 lb.	July 21
Magnum Bonum	594 lb.	509 lb.	Sep. 9
Scotch Champion	552 lb.	634 lb.	Sep. 9

The Champions have yielded best each year. Magnum Bonum, Reading Hero, and Reading Abbey were free from disease in the order named; Scotch Champion and Woodstock Kidney next.

FLOWER GARDEN.

SALPIGLOSSIS SINUATA.

THE garden varieties of *Salpiglossis* rank amongst the finest of all half-hardy annuals. Their colours, which are very varied, include creamy white, clear yellow, slaty blue, fiery orange-scarlet, velvety plum colour, and a variety of others, some even indescribable. Then there is a wonderful venation in many which gives the flowers an entirely exceptional appearance. In the Cambridge Botanic Garden, *Salpiglossis sinuata* is bedded out for the sake of affording variety, as it is found that such plants and others rarely used for that purpose are infinitely more interesting and attractive than ordinary bedding plants. For the purpose just mentioned it answered well; the only thing that could be desired is that it would bloom a little earlier and last a little longer, but among a number of other beds a partial blank in early summer is scarcely noticed, and by the time it ceases blooming all other plants have got past their best. It has the advantage of being easily raised from seeds and of requiring fewer weeks of attention than the majority of bedding plants. The seeds should be sown about the end of March in a warm house, and the seedlings pricked out into shallow boxes. As soon as the seeds have well germinated, the pot or pan should be brought into a warm greenhouse and the seedlings pricked out. Here they get established in their boxes, and make sturdy plants near the glass. We harden them off in cold frames, and, according to the weather, plant them out about the end of May. The roots are rather delicate, and require care in manipulation. It is very important also to have the plants ready at the right moment, and for this reason it is desirable to make two sowings. The second sowing, early in April, should be made thinly, so that the plants may remain until pricked into the open ground. If too forward, they may be checked, or the roots may be injured by removal, when the plants are liable to go off. The object should be to plant out sturdy and thrifty specimens which will soon send their roots deep into the soil. If the roots are broken they seem

to ramify near the surface, and the plants suffer from drought in consequence. This year we found the second sowing to be the most successful, though the plants were small when put out. The kind of soil used for Asters and Stocks answers perfectly for the plants while young, and ordinary garden soils suit them when planted out, though it would appear that a soil moderately retentive is better than a light one. It must not be forgotten that the different kinds of *Salpiglossis* make extremely good pot plants; the flowers are scarcely so large as those produced out of doors, but very



Salpiglossis sinuata.

handsome specimens may be produced in pots. For indoor decoration the cut flowers are most effective, and they last in perfection about two days. R. I. L.

WEATHER-PROOF FLOWERS.

FOREMOST among such plants as bear without injury the heavy rains incidental to our autumnal climate are the Marigolds. Until quite late in October, and even early in November, they continue to flower with brightness and freedom. The French Marigolds appear to be increasing in favour, and one can scarcely say too much in their behalf, as not only are they amongst the most effective of summer bloomers, but they exhibit a power of adapting themselves to circumstances which few tender plants possess. One of your correspondents writing about the last week in October states that at that time Marigolds above all summer flowering tender subjects were effective, and really the contrast which these annuals afford in late autumn to Geraniums, Petunias, Verbenas, &c., is very striking. No one who has once proved the worth of Marigolds for autumn display would, I am sure, wish to be without them; and as they are so easily raised from seed in spring, and thrive well in towns, they should be patronised by the owners of small gardens and by those who live in thickly populated districts. Some of the varieties of florists' Fuchsias are very rain-proof, and where they remain in the ground all through the year they afford a very

pleasing display in late autumn. For blooming in October Madame Cornelissen is one of the very best, as it is naturally late, and the flowers are of great substance. Violas may also be depended on for an autumn display, especially those which come nearest to the old cornuta, such as Bluebell, which blooms persistently from spring to November, and even produces some stray blooms all through that month when the weather is mild. Paris Daisies can be relied on up to the middle of October, as may also the annual Chrysanthemums, which resist a lot of bad weather without injury, and the flowers of these are also very useful for cutting. The white, small-flowered Paris Daisy has a very nice appearance in autumn, the leaves being finely cut and glaucous; indeed, I think this plant worth growing for its foliage alone, as, independent of the pleasing effect which large specimens have in the open, entire shoots may be employed with good effect in decorations of an informal character, the much-divided leaves presenting as light and graceful an appearance as many Ferns.

Few plants are more rain-proof than the well-known *Saponaria calabrica*, which is really one of the most useful of garden flowers, as it may be had in bloom from early spring till almost winter. Even after the storms and extraordinary rainfall of the last week in October, I notice large plants of it in excellent preservation, almost as bright and full of bloom as if favoured by bright spring weather. To obtain this late autumn display the seed should not be sown before the latter end of May. What renders this *Saponaria* so valuable for late autumn flowering is that the frosts, which often come severely enough in the middle of October to destroy flowers generally, have not the power to mar its beauty. But if there is one plant more valuable than another in a weather point and continuous flowering point of view it is the old Cigar plant (*Cuphea platycentra*). This blooms as freely as the Paris Daisies, but beats them hollow in the matter of wet and stormy weather. I never saw a flowering plant that seems to enjoy rain so much; the greater the downpour the more glossy and deep coloured does the foliage become, and even the blossoms seem to revel in it, assuming of the two a brighter tint. No amount of rain seems to dull the energies of this plant in the least, and it flourishes in the sun and flowers well in the shade. Where shall we find anything more useful than this old, but now neglected, plant? But its utility does not end with the summer, as if taken up before frosts come, the same plants which have been blooming all the season in the open air will do duty again in the conservatory until mid-December, making a quantity of fibrous roots. Large specimens may be lifted without losing a leaf if kept rather close for a few days in a cold frame. It is a pity that this *Cuphea* is not taken in hand by some skilful hybridiser, as it would possibly break away into forms having larger flowers with some brilliancy in them, and these would prove extremely valuable.

The above is not by any means an exhaustive list of flowers which will resist a large amount of inclement weather, but I will conclude by mentioning the tuberous Begonias, which grown well are the most useful of summer flowers, and they preserve their good looks till late in autumn. Wherever these have not done well the fault must lie somewhere in the culture. Depend upon it they have a long and bright career before them, and will be more and more appreciated as they become better known. J. C. B.

Carnations for exhibition.—Will Mr. Douglas or any other grower of the Carnation and Picotee favour us with a few hints respecting their cultivation for exhibition, naming the amount of disbudding they require, and in what state it is safe to use liquid manure?—BEGINNER. [I never give Carnations and Picotees manure water. Their cultural requirements may be summed up in a few words. The first week in October is a good time to pot up the layers, putting one in a small 3-inch pot, or two in a large one. Use good loam, to

which has been added a fourth of leaf-mould, and a very little rotted stable manure. Keep them in frames where they can have plenty of air. They ought to be re-potted about the end of February or early in March; 7-inch, 8-inch, and 9-inch pots are the sizes in which we bloom them. For strong-growing sorts the largest sized pots are used. The potting material should have a larger proportion of manure in it, and sand ought to be used in all casts if necessary. I leave two, three, or four flowers on each stem, and the buds are removed as soon as the fingers can get hold of them. Green-fly is a troublesome pest, and this and thrips must be destroyed. When the flower-buds show colour, I move the plants under glass. One good grower with whom I am acquainted plants his Carnations in a border, and there covers them with frame lights as they come into bloom.—J. DOUGLAS.]

SPRING-FLOWERING PLANTS.

NOTWITHSTANDING the great quantity of rain which fell during October, the weather has, on the whole, been favourable for the carrying on of work in the flower garden, inasmuch as it has admitted of a sufficient number of Pelargoniums and other plants being taken in the morning to be potted up and stored away in boxes during the day, a much more convenient plan, and better for the plants themselves than when circumstances necessitate the taking up of large quantities in one day. The beds thus vacated can be filled with winter and spring-flowering plants, the only preparation required before the latter are planted in them being levelling with a rake, as the beds had all been manured for their summer occupants. The plants—Wallflowers, *Myosotis dissitiflora*, Daisies, *Aubrietia purpurea*, Violas, *Saxifraga umbrosa* (London Pride), *Arabis alba*, &c.—which had been taken up and planted with balls of earth adhering to their roots, are now well established in the beds, and on this account they are not so likely to sustain injury from the effects of frost as those more recently planted. However, I may remark that it is not yet too late in the season to make preparations for a floral display in the flower garden in spring, and whether the number of beds to be filled be few or many, there are plenty of come-at-able spring-flowering plants wherewith to render the lookout from the mansion or villa a bright and cheerful one and the air more pleasant to breathe during the dull months of February, March, and April than it otherwise would be. To say nothing of the numerous varieties of bulbs which render such a good account of themselves out of doors in spring, there are, besides the plants just enumerated, many other spring flowerers, such as the yellow Primrose, Violets, *Anemone apennina*, and Hepaticas, which come within the reach of most people, and if planted in masses, these old-fashioned flowers—flowers with which most of us have been familiar from childhood—will in due time make such a display as will amply compensate for any loss of time involved in the collecting and planting of the roots.

Longford Castle.

H. W. WARD.

PACKING FLOWERS.

I AGREE with what "A. D." says (p. 410) in regard to this matter. According to my experience flowers are best packed by themselves, *i.e.*, with fronds or other greenery. As it is my lot to have to send cut flowers some 200 or 300 miles by sea and rail weekly, and as I am told by the receiver that they arrive as fresh as if just packed, I will briefly record my practice for the benefit of your readers. Every morning when they have to be sent off I sally forth with basket in hand and a keen-edged knife and commence cutting at one end of a bed or border, selecting only those which I consider will stand the transit best. A little experience and judgment in selection aids success materially. When I think sufficient have been gathered, I return to the packing bench, whereon I arrange all carefully, in all cases taking especial care to place all of one sort together, *i.e.*, Roses with Roses, &c. Then I take my box, which is some 4 inches deep—a little less or more matters not

for a "mixed box." The first thing I do is to sprinkle the bottom with water, and then commence the "packing" by placing a good thick layer of Fern fronds in the bottom. This answers a two-fold purpose, viz., that of keeping the fronds flat, and serving as a cushion for the flowers. Even in packing Ferns a little thoughtfulness is of some moment, inasmuch as Maiden-hair fronds—the most important perhaps of all the greenery—will not of themselves retain any bedewing; in this case I place them between those which do, an arrangement which serves to keep them fresh, and before putting in flowers I again sprinkle a little with water. In packing the first layer, I never lay any white flower or any of a delicate colour on the damp fronds, but some others that are not so easily tainted, and as far as possible I keep the firmest ones, or those which I consider the least easily bruised at the bottom. I then put in my second layer, which is the last except in the case of such as *Eucharis* flowers, which I stick amongst the others in hollow places purposely left for them when we have them to send. Such flowers as *Marguerites* and single Dahlias should be packed with their faces against the sides, in order, if possible, to keep them in their natural shape. After every hollow is well filled up, over such flowers as *Eucharis* or *Camellias*, which latter ought to have a box to themselves, I put a piece of tissue paper and then a layer of cotton wool. I never use the latter except in such cases, and over all I place a layer of fronds or leaves to keep all cool. When finished, the contents are considerably higher than the sides of the box; the lid is laid gently on, and sufficient pressure is given to bring it down close on the sides. I consider that much of the success in transit depends upon the pressure, of which just enough should be given to keep the flowers firmly together, and yet not to bruise them. Screw the lid firmly down—the more air-tight the box is the better—and the contents will be found to be motionless, let the box be turned in whatever way it may. It must needs be so, otherwise the flowers will not be of much use when they arrive at the end of their journey, for they have to stand a good deal of rough handling on the way. There are, however, certain

Preliminaries to be carried out which I might just mention. Amongst these the most important is that of gumming, which ought to be done the night before the packing takes place, in order to let the gum set. The most expeditious method I have yet found is using a small oil-can, such as is employed for sewing machines, and florist's gum, a bottle of which will last a long time. By the use of this little oil-can, a handy person can in a very short time get over a few dozen trusses of Pelargoniums, this class of flowers requiring such treatment; one drop of gum in the eye of each pip of the zonal section, and two or three in the case of the large flowering class, will be sufficient. When carefully done no trace of the liquid is visible, and in the morning all will be as firm as possible. Another preliminary matter is that of wiring, an operation which I do not commend, except in the case of a button-hole *Camellia* or *Rose*; such work should always be carried out the evening before, at least in the case of *Camellias*, as by the morning any that may be too much bruised for sending off can be at once detected.

Some flowers are much easier packed than others. There are none which I dislike more than the *Camellia*, and none which I like more than the *Rose*. To fold a few blooms of the golden *Maréchal Niel* or the pure white *Niphetos* in tissue paper early in spring, accompanied by a few dozen sweet-smelling Violets, in a small tin box for post is a real pleasure. Much more might be said in reference to this subject, and I therefore hope that some of your correspondents will favour us with their experience regarding it.

S. K. T.

Golden Gem and Blue Perfection Violas.—These two excellent free-flowering varieties should have a place in every flower

garden. We have several beds of them in fine flower at the present time, a circumstance which proves them to be first-rate wet-weather flowers. We treat them as follows: When the plants are taken up in June to admit of the beds (a few at a time) being manured and dug, they are divided and replanted in small patches, the blue between *Bijou*, and the yellow between *Mangles' Pelargonium*, and then watered to settle the soil about the roots, and subsequently, if the character of the weather should render its application necessary until the roots have pushed into the soil. Beds thus planted are very effective, the masses of blue and crimson flowers, together with the green and silvery foliage of the plants, being very striking, and although the amalgamation of yellow, pink, green, and white does not make such a good contrast as the former combination of colours, the effect thus produced is a pleasing, though quiet one. In order to attain success in the cultivation of these and other Violas, it will be necessary to thin out the shoots a few times during the summer months to prevent them making spindly growth, which would result in a meagre display of small flowers. Moreover, to the overcrowding of the shoots in nine cases out of ten may also be ascribed the presence of mildew. In autumn the Pelargoniums are taken up carefully (if required for future use) by the assistance of a four-pronged fork without causing the slightest injury to the Violets.—H. W. WARD, *Longford Castle*.

Hardiness of Dahlia White Queen.

—Here Dahlias have already (November 6) been cut down by frosts—double and single kinds alike, with one exception, viz., the new single white variety called *White Queen*. My main stock of two dozen kinds, mostly singles, are under a west wall, but otherwise fully exposed, soil stiffish loam. The *White Queen* stands exposed with the exception of a low fence on the south side, which still supports various kinds of *Lathyrus*. It is planted in ashes and stable manure, having very little loam in it. The plant is not hurt yet by frost, though it has been broken by the wind. It is still full of buds and flowers. Many of the latter have measured $4\frac{1}{2}$ inches to 5 inches across, but none of its present flowers are so large. It would, therefore, seem either that a little shade from the midday sun, or the material in which it is planted, or both combined, forms a better mode of treatment than that usually followed, and it may be a useful practice where the natural soil is stiff. Can it be that this variety is of a more hardy character than other kinds? If so, the fact of its flowers opening after others have been killed proves its superiority as a garden flower; indeed it is one of the few things left really presentable at present. It is possible that it may stand being hardened off and planted out a week or two earlier than most sorts, its present hardiness pointing in that direction. If it should prove capable of such treatment, its blooms would be welcome at a correspondingly earlier date. I may add that I tried two of the strongest plants in pots; they had careful and liberal treatment, but they proved a complete failure.—J. WOOD, *Kirkstall*.

SHORT NOTES.—FLOWER.

Weeds on lawns.—Our lawn has been this year overrun to a most unusual extent by Plantains, Daisies, and Celandine. Can anyone tell me what is the best dressing for enabling the Grass to get the better of the weeds?—R. C.

***Arabis corulea*.** Can any grower of alpine plants tell me whether there are any special difficulties attending the cultivation of this plant in this climate? It is not, I think, offered by any of the best known hardy plant nurserymen.—J. C. L.

The Loasa family.—Referring to Mr. Gumbleton's interesting paper on this subject (p. 393), I may say that I yesterday, November 3, gathered outside a large bunch of the curious brick-red flowers of *Loasa lateritia* quite untouched by cold weather, although it is usually supposed to be a tender plant.—R. MILNE REDHEAD, *Holden Clough, Clitheroe*.

Viola pedata bicolor.—It should have been mentioned in the account of this Viola (p. 378) that the plant from which the coloured plate was taken was given me by Colonel Stuart Wortley. With the experience of the terrible winters of 1879 and 1880, I had not the courage to expose my plants to the chances of such severity, but during the spring, summer, and thus far in the autumn, their growth has been unchecked, and one or the other has always shown blooms.—W. INGRAM, *Belvoir*.

Gaillardia picta Lorenziana.—Though several complaints have been made about this new German introduction, I think when the past unfavourable season is taken into consideration that it is rather soon to condemn it. I am certain, from observations made both at home and abroad, that many such double flowers require a warm and dry summer like that of the Continent generally to develop fully the closely-packed centre florets. Let us, therefore, withhold our decision for the present, and give it another trial, hoping for a better season.—J. T. Poë, *Riverston*.

SEASONABLE WORK.

FLORAL DECORATIONS.

J. HUDSON, GUNNERSBURY HOUSE.

AMONGST cut flowers the different varieties of *Epiphyllum truncatum* will now be found useful. We arrange them chiefly in specimen glasses for the dinner table, removing the blooms with one growth attached thereto. If cut as soon as they are properly open, they will last nearly or quite a week with a change of water. Sprays of *Libonia floribunda* are also pretty when used in a similar way, either by themselves or in association with a small blue *Salvia*; failing the latter, an early spike or two of the white Roman *Hyacinth* would be a good substitute. Though only lasting in beauty one day, the lovely colour of *Ipomæa Horsfalliae* will always recommend it. Two or three of its blossoms and a spray of Maiden-hair Fern arranged in a small glass or white china vase will be appreciated either in the boudoir or drawing-room. Another lovely flower of which stray specimens still open occasionally is the major variety of *Franciscea calycina*; this could be used in a similar way. Of white flowers for this season, *Jasminum gracillimum* is one of the best, and when better known it will be grown extensively for the purposes just named, as well as for bouquets and coat flowers. The seldom-seen *Urceolina aurea* is another useful subject at this time of year. Its singular pendent flowers are always attractive; a spike or two of them would associate well with the Paper-white *Narcissus* in a small vase. The thing to be regretted is that it is still so seldom met with in any quantity.

Of plants, the following are suitable for indoor decoration at this season, especially in dark positions and likewise where large fires may be kept up or a considerable amount of gas consumed, viz., *Ficus elastica* and *Aspidistra lurida* and its variegated variety—three of the best. *Aralia Sieboldi*, with palmate foliage, is another useful indoor plant. The *Rhopalas* are likewise useful subjects that will stand a good deal of bad usage. *R. corcovadense* and *De Jonghei* are two of the best of them. *Cyperus alternifolius* from seed makes an excellent table plant; raised in this manner a greater quantity of small growth is obtained than in any other way. Amongst *Dracenas* the best of the coloured section is *D. terminalis*, and amongst green-leaved sorts *D. congesta* and *rubra*. For rather large vases *D. australis* and *indivisa* are the best. The *Lomatias* and *Grevillea robusta* furnish us with a class of Fern-like plants that are most useful in a small state. The *Grevillea*, being easily raised from seed, ought not to be overlooked. Of Ferns, *Asplenium bulbiferum* and *falcidum* are two of the hardiest. *Cyrtomium falcatum*, with fronds of a dark, glossy green, is an excellent Fern for keeping in a room the year round. *Davallia canariensis* is the best of its genus as an indoor plant. *Nipholobolus Lingua* is another Fern

that will thrive long under adverse circumstances; so will *Pteris tremula*, which, in a half specimen size, is a handsome subject for a large basket or vase. *Nephrolepis pectinata* is likewise a good kind, not too robust or straggling in growth. *Platyserium alcorni*, when well established, will be found to withstand a large amount of rough treatment, lasting long in good condition even where there is but little light. Of Palms, the hardiest, and therefore the most valuable during the next few months, are *Phoenix reclinata* and *tenuis*, *Chamærops humilis* and *Fortunei*, *Corypha australis*, *Lantania borbonica*, and *Seaforthia elegans*, together with the invaluable varieties of the comparatively new kinds of *Kentia*. In order to ensure success and to enable the plants to withstand a considerable amount of adverse treatment, they should be well established before being brought forward for any kind of decorative work. Where the time can be spared, an occasional sponging of the foliage in the case of such as can be operated on without injury to the leaves will be found to be beneficial. Close attention must also be paid to watering; the happy medium should be hit upon, neither allowing them to become too dry nor too wet. Care should also be taken not to allow them to absorb stagnant water drained from them into the receptacle in which they have been placed.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

General work.—Daily gales of wind and treble the usual amount of rainfall have quite upset our calculations and intentions in the matter of flower garden operations, but such conditions as to weather cannot surely last much longer, and as soon as there is a cessation of such storms, every exertion should be made to advance works that ought to have been done weeks ago, and which have been alluded to in former notes, the more important being the transplanting of trees, shrubs, and Roses, which as a rule do best when planted in autumn, for although in open weather planting may with safety be done all through the winter, a comparison of results would soon determine the undecided in favour of autumn planting. If an exception to this rule were made, it ought only to be in those cases where the plastic nature of the soil renders it all but impossible to plant at any season earlier than the middle of February. Pending the advent of suitable weather for transplanting, other heavy jobs should be undertaken, such as gravel digging, draining, road and walk making and mending, the cutting of verges, laying of turf, trimming hedges, and the burning up of the cuttings, together with the summer's accumulation of the rubbish heap, the ashes from which are of great manurial value for almost any crop. Stress of weather will also doubtless have hindered the completion of the planting of the parterre beds for winter and spring effect, and, as a matter of course, in the interest of neatness they must have immediate attention as soon as the weather becomes favourable. Bulbs in particular will not much longer bear postponement of planting, at least not without deteriorating effects. The marvellous reaction that has of late years taken place in favour of hardy flowers has to a large extent done away with the reproach once so common in gardens, viz., that of having bare beds for six months or more out of the twelve. Where these undesirable conditions still hold sway, there will be a certain amount of satisfaction obtained in the way of neatness and of profit to the land if the beds be at once deeply trenched, neatly edged, and the soil levelled down with a rake. The baldness and grave-like appearance of the beds may be relieved at the price of a few hours' labour only by dotting over them a few trimmed, tree-like branches of evergreen shrubs, a recommendation that is made not because it is a desirable way to furnish the beds, but simply as being preferable to the depressing sight that such beds present at the dullest season of the year, when to make amends for gloominess we ought to strive the more to impart brightness into our gardens.

Bedding plants.—*Dahlias*, *Gladioli*, and all other tuberous plants having been lifted and partially dried, ought now to be planted thickly in boxes, or on the floor of a cool cellar or shed; sifted leaf-soil and *Coccol fibre* refuse are the best materials with which to surround them. *Lobelias* of the cardinalis section, *Verbena venosa*, and *Salvia patens* winter best in daylight, and therefore these should be afforded the shelter of a cold pit, but may be heeled in quite as thickly and with similar material as the preceding. *Pelargoniums* must be kept on the dry side as to moisture at the root, whilst the atmosphere should be as dry as possible. Where there are houses specially constructed for wintering and growing such plants, there is no difficulty as to wintering the plants well, but oftener than not one has to put up with makeshift contrivances, or else to make use of vineries, Peach houses, &c., when the first study must, of course, be the trees, and therefore bedding plants have to take their chance, but with careful watering and timely removal of decaying leaves they can generally be wintered with a fair amount of success. It is necessary to keep the tender section in strong heat—shelves in Pine and plant stoves are the best positions, and the plants at this season must be but sparingly watered. The hardier material in cold frames, such as *Verbenas*, *Calceolarias*, and *Violas*, should be fully exposed in fine weather, and the surface of the soil loosened with a pointed stick to prevent the growth of Moss and fungus, either of which, if allowed to extend, would cause the plants to rot off.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Ixoras.—Where not already done, large plants of these should be sufficiently cut in, and the weak shoots removed altogether, otherwise, where treated so as to induce free growth, they get unwieldy, with quantities of small branches that produce small heads of flower. This holds good with most of the varieties now in cultivation, as well as with the different species, including *I. coccinea*, the best of the whole family when so managed as to bring out its true character.

Dipladenias.—Pot specimens of these that have had a short rest under dry treatment may now be freely cut back, shortening them in to a few eyes beyond where they were headed back to last season, turning them at once out of the pots, removing most of the old soil, and repotting in the best fibrous peat, to which a liberal amount of sand has been added. This treatment is advisable for plants that are wanted to bloom early in the spring, say to commence opening their flowers about the middle of May, and where a sufficient amount of heat can be kept up through the winter; otherwise it is better to defer the cutting back and repotting for several months yet. In all cases, plants so managed should have a thorough cleansing from insects.

Clerodendron Balfourii.—This plant at one time was looked upon as a spring and summer bloomer, but when treated suitably, with a sufficient number to be brought on in succession, it may be had in flower during each month in the year, for growth that has been made under conditions to give enough solidity to the wood seldom fails to bloom when placed in a growing temperature after being fairly rested. Few things are more effective than its pure white bracts, but in their case, as with many other things, where required for cutting they must be grown in a manner that will impart to them a hardy character. In no way is this better attained than by training the shoots up the rafters of an ordinary stove. Examples that flowered in the spring, and afterwards made growth early and had the soil allowed to become dry so as to stop further extension and ripen up the foliage, will now have lost most of their leaves, and should have such portion of the extremities of the shoots as are at all soft cut away so as to induce them to break back; all the side growths produced after being so treated will, where the plants have been properly matured, show flower

by the time they have extended a foot or so. If very full of roots the plants should have more room given them, not attempting to shake them out or disturb the roots, as this would most likely interfere with their blooming. In all cases whether thus given more room or sustained by the help of manure water, which they well require after breaking into growth, the dry balls ought to be moistened by soaking for several hours in tepid water. It is not well to hurry them at this season; a night temperature of 60° or 65° with a proportionate rise in the day will cause them to move slowly for a time. Plants of this *Clerodendron* that bloomed late in the summer and have since made sufficient growth may at once be put to rest, withholding water until the foliage flags freely, after which give a little, but not nearly so much as to fully moisten the soil, which would have the effect of again starting them into growth where the warmth is enough to induce this; when they again flag for want of water apply a little more. This alternate flagging and partial revival of the leaves is the best method that I have found with this and a few other plants to mature the wood, so as to insure a full amount of flower subsequently, as if the leaves are allowed to die off suddenly through water being entirely withheld, the shoots are deficient in solidity to produce growth that will bloom freely. It is much more conducive to the well-being of this *Clerodendron* and its subsequent flowering to stop growth in the way recommended than to do so by submitting to a lower temperature, as if kept for any length of time much below 60°, the plants are liable to perish unless they have been subjected to very cool treatment through the summer.

Bougainvilleas.—When grown in a warm stove, treatment similar to that advised for the *Clerodendron* answers well for *B. glabra*, which is so manageable that, with the aid of two or three good-sized pot specimens, it may be had in flower for the greater portion of the year, ranging from April to the end of October. It likewise succeeds well when planted out in a low, intermediate heat, little above that of a greenhouse, flowering as a matter of course later in the summer, but when thus subjected to cool treatment it differs much from most other things in rarely blooming anything worth notice if the roots are confined to a pot, keeping on growing through the summer without much disposition to flower. *B. spectabilis* at one time was supposed to be a very difficult plant to flower, only succeeding in a high temperature, where, in addition, its roots could be almost baked with heat when at rest; yet it grows and blooms freely either planted out or accommodated with a large box or tub in a warm greenhouse or conservatory, usually coming in about May or June, and sometimes again in the autumn. Its intensely deep bright pinkish mauve bracts are finer coloured than those of *B. glabra*, but as this plant blooms from the ripe wood the knife must be little used, except after the spring flowering, when the shoots should be so far reduced as to keep it within the requisite bounds. It is a strong grower, covering a large space when it has plenty of root and also head room. It should now be gradually dried off for the winter, giving very little water for a considerable time.

Allamandas.—Anyone possessing a plant of *A. Chelsoni*, *A. Hendersoni*, or the old *A. cathartica* sufficiently vigorous, with enough heat at command, may keep them in flower up to the end of the year, but in most cases it would be better practice to rest them for a time by gradually withholding water until most of the leaves are off, by which means they will push more vigorously and flower stronger in the spring.

Tuberous-rooted summer-flowering stove plants.—Such things as *Gloxinias*, *Achimenes*, herbaceous *Gesneras*, and *Gloriosas*, although bearing in many cases a lower temperature through the winter than might be supposed from the warm countries from which they originate, will not do to be kept too cool, as many to their cost yearly discover when it is too late, through the tubers going off in a damp, mouldy

condition. In most cases, as I have before mentioned, the roots keep best in the pots in which they were grown, the soil having been allowed to get quite dry; yet pots with apparently nothing in them beyond the soil which they contain are not slightly objects in plant houses, and it often happens that there is no other place where they can be kept at a suitable temperature. This being so, it is best to put them in paper bags with a good body of dry sand round them, the object of which is to keep the air to a great extent from them; otherwise, if the atmosphere is too dry, they not unusually shrivel up. In a temperature of 55°, or a few degrees above that, they are not likely to take any harm.

Caladiums should be similarly treated. The small *C. argyrites* is now by many grown in quantity for the use of the leaves to mix with cut flowers, as well as for general decoration in small pots. Where the stock of it happens to be limited, it will best be increased by now turning the plants out of the soil and repotting, keeping them growing instead of allowing them to remain in a dormant state through the winter. Moderate sized tubers that have been in a state of semi-rest, if now placed in a brisk heat, will at once commence to grow, and as soon as the young crowns have got two or three leaves, and attained a height of 3 inches or 4 inches, they may be taken off from the parent tuber and placed singly in small pots, keeping them well up to the light. The latter is essential with any plant of a like character to this which has to be so used, for, unless the leaves are of a stocky, robust character, they are useless in the lower temperature to which they will ultimately be subjected.

ORCHIDS.

J. DOUGLAS, LOXFORD HALL.

East India house.—There seems to be a tendency amongst writers on Orchid culture to recommend low temperatures for nearly all classes of Orchids. And we are not seldom informed of this class of Orchids doing admirably in an ordinary stove. Well, the question arises, What is an ordinary stove? If the temperature is kept up to from 60° to 65° at night during the winter, that is all that is wanted. The treatment suitable for other stove plants is that best adapted to the wants of East India Orchids. Given the above temperatures, anyone having such a house need have no fear about growing Orchids well. By far the most desirable of these heat-loving Orchids are the *Phalænopsis*, and they are not at all particular as to the style of house they are grown in. The finest collections that I know of at present near London are to be seen in the nurseries of Messrs. Veitch at Chelsea, and Messrs. Low, at Clapton. At Messrs. Veitch's the house is an ordinary lean-to facing the north. Messrs. Low's house is a span-roofed one; the roof has very little pitch, nor does it lie well to the sun. Indeed, so far as I can see, the *Phalænopsis* like the shady side of the house always; but they must have heat. I would like to see a collection after having been subjected to a minimum winter temperature of from 50° to 55°. It is possible that East Indian Orchids will succeed in a Cattleya house temperature for a time, but they will not do all the year round. Some time ago I was shown plants of *Angræcum sesquipedale* growing in the Cattleya house, and the cultivator was quite delighted with their fine, healthy growth in comparison with those in a warmer house. On visiting the same place about twelve months after I saw all the *Angræcums* back in the warmest house. I said nothing, but did not fail to draw an inference. Such Orchids may succeed in the Cattleya house during the summer months, but the winter and early spring try them severely. It is very desirable to get in a stock of peat and Sphagnum now, so that the Sphagnum may be cleaned and dried, and the peat also laid up in a dry place to be ready for use. One cannot lay down any rule as to watering or damping the house and paths at this season; but care is necessary, as it is not difficult to err on the side of over-dryness as well as on that of giving

too much moisture in the atmosphere or allowing the roots to become too dry.

Mexican house.—Just a word about fresh imported Cattleyas and *Lælias*. I have seen good growers pot them at once in the usual compost after washing well with soapy water, of course. Here we never use any potting material until fresh roots are formed. The pots are merely filled up with clean potsherds. During the last season or two the imported plants have come to hand in capital condition, the leaves green and pseudo-bulbs quite plump. I am not sure whether they are so very much the better for this; we had some *Lælia elegans* and *L. purpurata* which seemed all right, but they have not made such a growth as I would like. The new growths are weak and watery-looking, and none of them are showing flowering sheaths. It may be our bad management, but as we have had the same Orchids succeed well with identical treatment years ago, one feels inclined to ask whether it is not the way of bringing them over that is to blame. The *Pleiones* are now going out of bloom, and as soon as the decaying flowers have been removed they may be repotted; indeed the sooner this is done after flowering is over the better. It is not necessary to repot them every year; if they are done every alternate season it would be enough. They give a greater mass of bloom the year following that on which they have not been divided. Where there is a good stock of plants it is the best plan to repot a half each year. As a rule each strong bulb will produce two. The *Pleiones* succeed well in shallow pans, suspended from the roof or placed on shelves near the glass. Pot in good turfy peat and Sphagnum, with some broken charcoal and potsherds to keep the compost open. Any Orchids starting into growth should be encouraged by being watered with warmish water. Any *Dendrobes* that may be starting to grow from the base come under this treatment. *Dendrochilum glumaceum* may be removed from this house into the East India house, and be watered freely; this species may not be so delicately beautiful as its near relative, *D. filiforme*, but it flowers at a different season of the year, and is so distinct amongst Orchids that one cannot fail to admire it. See that all Orchids in this section that are not making their growth are kept only moderately moist; those growing or making roots should receive more.

Cool house.—Since writing the last cool house calendar the weather has been rather mild, temperature out-of-doors 40° to 45° at night, and when that is the case we do not trouble about artificial heat. Except a few specimens that seemed to require repotting, most of the collection will have to stand over until after Christmas. At this season Disas may be potted. This is a genus of Orchids that some really good Orchid growers fail to manage. Whether it is the climate or the houses I am not prepared to say. Perhaps the finest lot I ever saw was with Mr. Speed at Chatsworth. They were grown in an ordinary greenhouse with ventilators open, as for Heaths, and why should one wonder that Disas should grow well in a house where Cape Heaths thrive? They both come from the same country. At the York Nurseries there is a vigorous group in a very cool, shady house, where the atmosphere and plants are kept very moist. Usually the best place for them is the cool Orchid house. The plants in the York Nurseries are potted in peat and Sphagnum and lumps of the limestone rock, so much used in this nursery for mixing in the compost for alpine. The Disas succeed well in shallow pans or in pots if these are rather more than half full of drainage. Keep the plants free from insect pests, green fly, and thrips. They should also be kept near the glass at this season, and where they get air freely without being exposed to draughts. They seem to succeed best with ordinary Moss on the surface of the compost in preference to Sphagnum. That very desirable cool house Orchid, *Lycaste Skinneri*, and its numerous beautiful varieties are now showing for bloom. Although this Orchid was the first subjected to cool house culture, and

might be said to be the originator of the system in the hands of the late Mr. Skinner, it does not like so cool a temperature as the *Odontoglossums*; a mean of 5° higher suits it better. There has been numerous importations of this species lately, and they have established themselves speedily and well. The pure white form is one of the most valued and beautiful of cool Orchids. The best time to repot them is when they start into growth in the spring.

KITCHEN GARDEN.

R. GILBERT, BURGHLEY.

Two days of glorious sunshine have once more put us on our legs after the truly miserable rain which we have had. Earthing Celery forms at present the greater part of our work. Whenever the weather is dry get it well banked up; a sharp frost coming before the final earthing is most detrimental to its well-being. Continue to lift Carrots, Turnips, and Beet, stacking them outside in small round pits; a cartload in each is plenty; cover up first with dry straw, then put on the soil about 6 inches thick. Our earliest sowing of Peas we make about the middle of the month. I find Laxton's William I. to be a hardy and good standard variety. A good site for Peas is a warm south border; we sow them in drills about 4 feet apart, and if the following advice is adhered to, a good crop will be the result. As soon as the plants show themselves above the ground cover them over 1 inch thick with coal ashes; this wards off their enemy, the slug; and placing four strings of white worsted along the rows, elevated about 6 inches above the ground, in a great measure keeps off the birds. When the Peas show through the ashes, they should be earthed and rodded immediately. Nothing is so bad for Peas as sharp cutting surface winds in spring, but by adding a few Spruce branches along each side all will be satisfactory. Broad Beans (Old Green Windsor is still my favourite) should also be planted; these brave the winter winds better than Peas; still, if earliness is a consideration, protect them, and they will pay for it.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Vines.—With the earth and atmosphere saturated with moisture, the present month, at all times unfavourable to the keeping of Grapes, will be found unusually trying; but when all the leaves are off the Vines, steady attention to cleanliness, gentle warmth, and ventilation will carry all the late keeping kinds on to Christmas, when they may be cut, bottled, and the Vines pruned and rested. If not already done, the internal borders in the Lady Downes house may be well covered with loose, dry Bracken for the twofold purpose of keeping down dust and absorbing moisture. Outside borders may also be covered with shutters, to throw off cold rain and snow, from the time the leaves fall until the Grapes are cut, when exposure will again be preferable to getting the roots too dry. In this garden there is little danger to be apprehended from this cause, as our Vine borders and boilers have been partially submerged; but we do not anticipate much mischief, as they are well drained, and the area allotted to the roots is not entirely filled with compost. Where late Muscats are wanted to keep as long as possible the houses will require very careful management during the fall of the leaf. Let the temperature decline to 50° in mild weather, and give no more fire heat than is requisite to the maintenance of a dry, cool atmosphere and safety from frost. Remove all plants and evaporating pans, cover the floor with Fern, and dry out or cover up water cisterns to prevent the absorption of moisture by the atmosphere, which must now be dry and buoyant. As thoroughly ripened Muscats are easily caught by the sun, it is a good plan to strain a piece of Nottingham netting or thin canvas across the roof of modern houses to protect the shoulders, and to secure an equable temperature through the night. If any late

Hamburgs are still hanging on the Vines in houses which were retarded in the spring, they will now keep better in the Lady Downes house or Grape room, and in order to thoroughly ripen up the wood, the house may be subjected to a period of sharp dry firing with plenty of air on fine days.

Early vineries from which the first crop of fruit is to be gathered in May may be closed at once. If fermenting material is applied to the internal borders, a temperature ranging from 45° to 55° may be maintained without the aid of much fire heat, but in the event of the weather becoming very cold the pipes must be warmed every morning, and the swelling of the buds aided by frequent syringing with warm water. The best material for producing gentle warmth is fresh Oak leaves and short stable manure, thoroughly worked and fermented before it is taken into the house. The outside borders, hitherto exposed to the elements, may be protected with litter or shutters, but no artificial warmth must be applied to them until the buds begin to swell. After the house has been closed for a week or two the temperature may range about 55° with a rise of 5° to 10° on sunny days. Examine the borders and if the repeated waterings, little and often, previously recommended, have not thoroughly penetrated to and through the drainage, give a thorough soaking with water at a temperature of 90° and cover up immediately with the fermenting material. If the Vines are young they may be slung in a horizontal position, as more time and attention will be needed to secure an even break, while old ones will break equally well if tied up to the wires as soon as they are pruned and dressed and exposed to a few degrees more heat by day; but in all cases from the beginning to the end a low or resting night temperature will be found one of the main features of success in the cultivation of Grapes.

Peaches.—To have May Peaches the house should be ready for closing by the end of this month. If the roots of the trees have the range of internal and external borders it will be necessary to see that the soil is in a nice growing state quite down to the drainage, while those running outwards will require some kind of covering to protect them from the chilling influence of cold rain and snow. It is not, however, at all imperative that the roots have an external border, as the finest fruit may be grown for a great number of years where the internal space is extremely limited, provided the borders are frequently renovated with fresh maiden loam, top-dressed with good rotted manure, and well fed with a liberal hand throughout the growing season. If the weather is mild no fire-heat will be needed at first, as the trees are easily excited; but a soft, genial atmosphere may be secured by the introduction of fermenting Oak or Beech leaves, to which may be added one-third of fresh stable manure. This will require turning occasionally to liberate moisture, and the trees must be syringed twice a day when fine, care being taken that the second syringing is performed early in the afternoon, as it is not well to have the buds loaded with moisture at nightfall. Let the temperature at the outset range from 40° to 45° at night, and 10° higher by day. Open the top and bottom ventilators when the weather is bright and warm, and the bottom ones only when keen, cutting winds will produce a draught. Continue this treatment until the buds show unmistakable signs of swelling freely, and the first danger, that of dropping, has been overcome. Then coax them along by warming the pipes every morning to increase the day temperature, and shut off the heat when a night temperature of 45° can be maintained without it.

Figs.—Assuming that the early pot trees are now in position, and ripe Figs are wanted early in May, the third week in this month will be quite early enough to close the house for forcing. In former papers I have stated that I place my pots on firm pedestals and pack them round with fresh maiden turf before forcing is commenced; but instead of starting with fire heat, a good body of fermenting material is introduced, the moist warmth from which soon penetrates the pots and

stimulates the trees into action, and by the time the fruit requires assistance the new turf is a mat of roots, capable of absorbing an unlimited quantity of liquid of the best quality. When treated in this way it rarely happens that any of the fruit drops; and all the roots being fresh and active, Figs of the first size and quality may always be secured from the beginning to the end of the season. If the balls have become very dry it will be necessary to give repeated supplies of tepid water to bring the soil into a growing state, and to syringe the stems and shoots two or three times a day. When the house has been closed ten days or a fortnight, and the stimulating moisture from the bed is beginning to tell upon the buds, gentle fire heat must be applied to maintain a temperature of 50° to 55° at night and 60° to 65° by day, when a little air may be given to sweeten the atmosphere.

Late houses from which all the perfect fruit has been gathered may be steadily fired until the leaves are off the trees and the points of the shoots look firm and ripe. They may then be untied from the trellis and drawn down from the glass for safety from frost in severe weather. In wall cases and houses where no fire heat can be applied the shoots may be tied together in small bundles and slightly protected with dry Fern or straw, as it is no unusual thing to see Fig trees in cold structures seriously injured where this precaution is neglected.

NOTES OF THE WEEK.

APPOINTMENTS FOR THE WEEK.

- Nov. 13 and 14.—Stoke Newington Chrysanthemum Show.
14 and 15.—Southampton Chrysanthemum Show
14.—South Kensington: Meeting of Fruit and Floral Committees.
14.—Putney Chrysanthemum Show.
15 and 16.—Royal Aquarium, Westminster: Borough of Hackney Chrysanthemum Show.
15 and 16.—Bristol Chrysanthemum Show.
16.—Worcester Chrysanthemum Show.
16 and 17.—Kingston and Surbiton Chrysanthemum Show.
17 and 18.—Croydon Chrysanthemum Show.

LINNEAN SOCIETY.—At the meeting of this society, to be held on the 16th inst. at 8 p.m., the following papers will be read: "Flora of Madagascar," by Mr. J. G. Baker, and "Passiflora from Ecuador and New Granada," by Dr. Maxwell Masters.

THE ROYAL BOTANICAL SOCIETY OF MANCHESTER will hold its exhibitions next year as follows: At the Town Hall, March 20 and April 24; National Exhibition at the Gardens, May 11; Rose Show at the Gardens, July 21; Cottagers' Show at the Gardens, September 8; Chrysanthemum Show at the Town Hall, November 20.

RED-BERRIED IVY.—Among novelties in store for us is a red-berried Ivy, which M. E. André, who saw it growing in a nursery at Nice, describes as differing from the Ivies ordinarily cultivated in foliage, but more particularly in the colour of the berries, which are as red as those of the *Pyra-cantha*. If so, it will be a very ornamental addition to winter evergreens.

NEW HYBRID BEGONIA.—I send a spray of a hybrid Begonia raised here, a cross between *B. parvifolia* and *B. palmata*. It has deeply cut foliage like that of the latter, with the soft green colour of the other. The flowers, of course, are white, as with both parents. It is a free grower.—J. M., *Charmouth, Dorset*. [The spray sent had lost its flowers, so that we cannot give an opinion respecting it.]

GARDENERS' COTTAGES.—It is gratifying to see attention directed towards the improvement of these, and that some of the cottages of this class recently built have been considered sufficiently important to be illustrated in the journals connected with building. Some time ago an illustration was given in the *Building News* of the

curator's house at the Cambridge Botanic Gardens, and in last week's *Architect* thereon is an illustration of the gardener's cottage Colonel Buller's estate at Downes, Devonshire. It is a roomy structure built of red brick and tile; the colour of which and the outline of the cottage give it a picturesque appearance seen through the beautiful old trees in one of the finest parks in Devonshire.

THE WARATAH.—Your admirable plate of last week will, I trust, call attention to this shrub concerning which I have long wished for some notes. In your remarks on culture it is treated entirely as a greenhouse plant. I am inclined to think it ought to be hardy, at any rate in favourable spots. Is there only one species? for I remember gathering it in Tasmania as well as in New South Wales, only my recollection is of a much deeper red, more like the colour of the crimson Trumpet Honeysuckle. I had a seed pod given me gathered from the top of the Ben Lomond Tier, in Tasmania, that is 4000 ft. above the sea, in latitude 41° 30' S. If it will flourish there at that height, surely it might prove hardy with us. Unfortunately, I had no garden of my own on my arrival in England, and the seed fell into injudicious hands and perished. Perhaps some of the many readers of *THE GARDEN* who are lovers of hardy flowers have tried it, and if so, I trust they will give us the benefit of their experience; if not, I hope your notice will induce some of them to try it, and personally I should be glad to learn where and at what price it can be obtained. My recollection of it is as growing in very sandy soil or the crevices of rock, and that its roots ran very deep. I may add, perhaps, that as far north as this (*i.e.*, middle of Essex) *Clianthus puniceus* has by the seaside survived out of doors the late severe winters, grown strongly, and flowered well this summer.—**GUITH.**

CHRYSANTHEMUMS AT THE TEMPLE.—These, which we annually look for about this time of year, are finer this season than usual, and the display is more extensive than we have hitherto seen it, particularly that in the Inner Temple Gardens, to which, as well as to that in the gardens belonging to the Middle Temple, the benchers allow the public free access during the time the flowers are in perfection. The Inner Temple display is in an improvised structure forming two sides of a square; consequently the collection is not seen to such advantage as when the house is in one straight line and the plants arranged in an unbroken mass. The collection consists of well-grown plants, particularly having regard to the fact that they have all been grown in the centre of London. As regards varieties, the collection is an extensive one, including the finest of the old varieties, besides upwards of a score of new sorts, chiefly of the Japanese type. Among the most noteworthy are, *Triomphe du Châtelet*, a kind possessing a peculiar soft cinnamon-brown tint, one of the most distinct; *Curiosity*, lemon florets tipped with brown; *Madame C. Andignier*, mauve-pink, shaded white in the centre; *Rose Mignonne*, delicate rose, striped with white; *Constance*, brilliant deep crimson, with golden tips on the centre petals; *La Charmeuse*, bright purple, tipped with white; *Mary Major*, a very beautiful white variety; *Marquis of Lorne*, reddish carmine spotted and tipped with yellow, reverse nankeen yellow; *Kämpfer*, bronzy yellow and red, a fine large flower; *Bouquet National*, white suffused with yellow; *Dr. Macary*, white, tinted with rose; *Comte de Germiny*, nankeen yellow, striped with crimson; *Rex rubrorum*, deep red, shaded with crimson, reverse of petals pale nankeen yellow; *Aurora*, light orange, flowers large and full; *Le Nègre*, deep maroon, tipped with red; *Lord Mayo*, a good white; *Réverie*, Indian red, florets reflexed; *Lord Beaconsfield*, brownish crimson, pale brown on reversed side of florets; *Golden Fair Maid* of Guernsey, a beautiful rich yellow form of a well-known Japanese variety. The Middle Temple display was not at its best at the date of our visit, being fully a week or ten days later than the other.

NOTES FROM FRANCE.

New race of Gladioli.—Although the *Gladiolus* ranks amongst our finest garden flowers, it has never become, in the true sense of the word, popular. There is an element of tenderness in the *gandavensis* hybrids which precludes them from being so largely grown as undoubtedly they would otherwise be. Here and there one hears of their doing well from year to year and giving but little trouble, but the generality of *Gladiolus* growers agree that its culture is an expensive pastime, as, what with disease and other ills to which it is heir, a considerable annual outlay for bulbs is indispensable. M. Lemoine, of Nancy, has, however, set to work in good earnest to furnish us with a race of *Gladioli* which shall combine hardiness with vigour and beauty; and as his skill and success in hybridising are well known, we may be assured that in good time we shall see something that will be a real gain to our gardens. It will be remembered that two of M. Lemoine's hybrids were figured in *THE GARDEN* some time ago. Since then others have been raised by him, some of which were exhibited last July at a meeting of the French National Horticultural Society. They are the result of crossing *G. purpureo-auratus* either with the named kinds already in commerce or with some of the *gandavensis* hybrids, and are declared to be perfectly hardy. They were awarded first-class certificates. Some three years ago M. Lemoine suggested the advisability of crossing *G. Saundersi* with the best hybrid *gandavensis*. This M. Max Leichtlin, of Baden-Baden, has done, and announces that he has obtained some magnificent varieties, the flowers of which in some instances measure 4 inches across. From this it will be seen that we now appear to be in a fair way to obtain a race of this fine flower which shall equal the show kinds in beauty and at the same time be sufficiently hardy to be at home in our English climate.

Paris Daisies as standards.—A trade grower in the north of France makes a speciality of these. The plants are run up to a height of from 3 feet to 4 feet before they are allowed to branch out. They are grown on from three to four years, and are then readily disposed of at about 10 francs apiece, which, considering how easily the *Marguerites* are grown, must pay well. I have never seen them grown on such high stems, but I used to employ half standards both for planting out and conservatory decoration. Grown on stems about 2 ft. high, with spreading heads, some 3 feet through, and kept in gentle warmth through the winter, they were covered with bloom in early spring, and formed conspicuous objects wherever employed. As I had a very lofty winter garden to furnish, I found these large specimens very useful. Nothing, too, can be better for the centre of a large bed in summer than one of these standards. Every one knows how effective standard *Chrysanthemums* are; *Paris Daisies* are equally so, but they have this advantage over their near relations—they last for years, requiring but little attention; whereas the *Chrysanthemums* must be produced annually.

New Aubrietias.—It is stated that M. Max Leichtlin, after ten years' selection from seed, has obtained a new strain of this spring flower, the blooms of which are carmine-red in colour. These new varieties will undoubtedly prove acquisitions, and will probably find much favour for spring gardening when they become known.

Agave Consideranti.—This is justly regarded as one of the most handsome succulents in cultivation. Unfortunately it is scarce, and if what is stated in the journal of the French National Horticultural Society be true, there is no probability of its becoming more plentiful. It appears that collectors have never found this plant in flower, and, strange to say, the winter some two years ago was so severe in the province of Monterey, in Mexico, of which it is a native, as to entirely destroy it in all known localities there, so that unless it should be discovered in some other region it will have entirely disappeared from its native haunts, a most curious circumstance, if correct, and is just as if a frost sufficiently

severe to kill off every Holly, Nut or any other indigenous tree were to occur in this country. M. Godefroy-Lebeuf remarks that in this instance the plant collector, instead of being, which is often the case, an exterminating agent, has been the means of preserving a plant which otherwise would have been quite lost. We should think it probable, however, that young plants will spring up as Nature takes care to provide all plants with the means of reproduction; and although the blooming of this *Agave* may not have been observed by those interested in the matter, we have no reason to doubt that it has occurred, but perhaps only at rare intervals, and in the case of aged specimens.

Asparagus plumosus in the open ground.—M. F. Jamin furnishes important testimony as to the hardiness of the dwarf variety of this *Asparagus*. With him it has passed several successive winters in the open air, including the severe one of 1880–81, although, it should be added, it was covered with snow during the hardest frost. As this plant is very useful for cutting from, the foliage being of a light and graceful character, the fact of its being so hardy will be welcome news to many. It is pretty certain that just covering the crowns with a thin mulch of covering material will suffice to guarantee it against our most severe winters. J. C. B.

NOTES FROM EASTNOR.

EASTNOR CASTLE, the princely seat of Earl Somers, is situated in one of the most picturesque parts of Herefordshire. The garden at Eastnor has long held a world-wide reputation for the excellence of its productions. Mr. Coleman has for years been well known as a foremost exhibitor of fruit, and to see Herefordshire fruit in perfection Eastnor must be visited. At the time when I saw it I could have made up fifty large first-class collections, and then late crops which are only now turning in would have been left intact.

Grapes.—It may be remarked at the outset that coarse, big-bunched kinds receive little attention or space here, but Muscats, Hamburgs, and other choice sorts are grown in large numbers and brought to the highest state of perfection. Scores of bunches of Hamburgs and Muscats, weighing 3 lbs. and 4 lbs. a-piece, were to be seen in several vineries, and these of the highest quality; those ripe were perfect as regards finish, and later ones were also satisfactory. The earliest Grapes are cut here in April from Vines thirty-five years of age, yet the fruit in this house this spring was as good as that produced by younger Vines, the bunches averaging 4 pounds, and perfect in form and colour. In the Muscat house *Madresfield Court* was unusually fine. The liability of this variety to crack and decay before it is quite ripe is well known, but to prevent it from doing this Mr. Coleman allows fresh shoots to be formed when it is ripening, and these draw much of the superfluous sap away from the berries. Judging from those grown at Eastnor under this system, no better plan could be practised. In the early house were some fine samples of Foster's White Seedling and white and Grizzly Frontignans, two deliciously flavoured Grapes now unfortunately too seldom seen. Their appearance is not in their favour, but their quality is of the very highest order. As showing how quality is valued here, there is one large house of Hamburgs grown to yield a supply during October and November. They are not ripened early to lose their colour before they are wanted, but treated as late Grapes to come in at the time named. Mrs. Pearson and Golden Queen are both valued here as useful late sorts, and Mr. Coleman has a very high opinion of them. In a late house 60 feet by 18 feet I saw fine examples of Lady Downes on Vines about twenty years old. Mrs. Pince, Gros Colmar, Black Alicante, and Alnwick Seedling may all be seen here in a high state of cultivation. Alnwick Seedling has given much satisfaction here; it grows freely, is prolific, colours and ripens well, hangs late, and is of good flavour. Another vinery, 50 feet by 18 feet, was chiefly filled with late Muscats. The large Vine noticed some time

ago in THE GARDEN deserves all that has been said in its favour. It is a very fine specimen. The house which it fills is a span-roofed one, 72 feet long and 28 feet wide. The main stem is trained under the ridge, from which numerous arms are thrown out on each side. It produces about 400 pounds of first-class fruit annually, and it does not show the slightest sign of being aged, the leaves and fruit being large and vigorously developed. In Grape-growing Mr. Coleman evidently believes in giving plenty of water at the roots, abundance of air and heat, and no artificial coddling in any way; under this system high-class Grapes are the result.

Pines come in for a full share of attention. There are fruiting, successional, and sucker houses, all full of healthy plants. Queens, Smooth Cayennes, Jamaicas, Rothschilds, and the new Lambton Castle variety are all grown in quantity. Few of the pots they were in exceeded 10 inches, and none over 12 inches. Fruit of the Queen would weigh at least 5 lb. each, Cayennes 7 lb., and the Lambton 9 lb. These weights, I need not say, show a very high state of cultivation.

Peaches.—These are grown extensively and well, and a long succession is aimed at and secured. The early house is 40 feet long, 12 feet wide, and 9 feet high at the back. It is a lean-to, with trees in front and on the back wall. The house which succeeds this is 60 feet long, but otherwise of the same dimensions. Some of the trees are twenty years old, and they have been grown on the "modern" extension principle all that time. Some of the Peach trees here are grown in substantial houses, others in mere glass sheds; yet all are alike good. Bellegarde, Grosse Mignonne, Noblesse, Diamond, Barrington, and Royal George are favourite Peaches at Eastnor. Bellegarde is Mr. Coleman's favourite, and Diamond is said to be high in colour and grand in flavour. Lord Napier, Elruge, Pine-apple, Albert Victor, Victoria, and Violette Hâtive are the chief Nectarines grown here. In one little case, measuring 20 feet in length by 18 feet in width, I saw one plant of Royal George bearing twenty dozen fruit. It was budded four years ago, and now fills the house. It is planted in the front, and trained over an arched trellis until it reaches the top. I never recollect seeing Peach borders appear so wet as they did here—a condition under which the trees seem to thrive remarkably well. The borders are well drained, the soil about 18 inches deep, and formed of pure calcareous loam. No manure is mixed with the soil, but in some instances a surfacing of short manure is used. In all cases every available space is filled with trees, and where this cannot be done Camellias and other useful flowering shrubs are planted out and growing luxuriantly.

Orchard houses consist of several structures, the largest one being a very lofty building 50 feet long and 20 feet wide, and it contained many fine fruit-bearing trees of large dimensions. They were mostly growing in pots and boxes, and the best kinds appeared to be, amongst Peaches, Sea Eagle, Warrington, Prince of Wales, and Royal George; and amongst Nectarines, Albert Victor, Lord Napier, Stanwick, and Elruge. Amongst Plums, Jefferson's, Kirke's, and Transparent Gage were bearing wonderfully fine crops, and so did many of the choicest varieties of Pears.

Figs are better cultivated here than in any place I ever saw them. The health of the trees and the weight of the crops were astonishing. In some instances there are special houses devoted to them, and in other cases a tree has been introduced into a house, the main crop of which consisted of something else. The varieties are chiefly Brown Turkey, Osborn's Prolific, and Negro Largo. They are grown on the system so well told by Mr. Coleman in his notes on fruit in THE GARDEN. One Fig tree in particular arrested attention. At first it had been planted at the back of a house to be trained against a 4-foot wall before reaching the glass and trellis, but the branches which were against the wall had emitted roots until they were one complete mass, almost a foot in thickness, and it is these, though with-

out soil, which now support the large fruitful branches; they are, however, frequently deluged with manure water throughout the growing season, a plan which answers admirably; the tree is in the best condition, both as regards health and fruitfulness.

Melons.—These are extensively grown; they are got in as early in the season as possible and kept on until now. This is the birthplace of that unique Melon, Eastnor Castle. It is grown here extensively, but not exclusively, as I found one large house filled with various sorts, including Blenheim Orange, Burghley Pet, Victory of Bristol, Read's Scarlet, and others, all bearing heavy crops and in excellent health. The Eastnor Castle is, however, the main sort; the others were merely on trial, and amongst them Burghley Pet seemed to be one of the best, being good in flavour and distinct in appearance.

An economical plan of building deserves notice before leaving the fruit houses. Against one of the walls there is a shed, over which has been erected a Peach house; sheds often

considered unsightly are thus put out of sight, and still their utility is unimpaired. Peaches are trained under the glass roof in the ordinary way, and others may be taken over the roof of the shed below them, the two roofs being pitched at the same angle. They are, in fact, two houses in one without restricting the capabilities of either.

Plants do not occupy so many houses as fruits, but they, too, are numerous and well grown. Shelves about the Pine stoves are filled with Calanthes, Dendrobiums, and other Orchids which flower freely, and yield abundance of bloom for cutting. A little cool fernery contained many healthy plants and a choice selection of what are called "cool Orchids." *Adiantum farleyense* was exceedingly fine; I was told that it was grown chiefly in pure loam. A large house is devoted to Camellias, most of which are planted out, and all were well furnished with flower buds. A large plant of the old single red was pointed out as being a useful sort for cutting. Another lofty house contained tree Ferns, many of which were noble specimens of *Dicksonia antarctica*; some have massive stems 14 feet in height, surmounted by a wide-spreading head of luxuriant fronds. The stems were one mass of living roots. *Cyathea dealbata* was also nobly represented. The large conservatory, which measures 50 feet by 30 feet, was filled with a well grown assortment of plants. The roof was charmingly festooned with Passion flowers and other climbers, and in the centre of the house were *Dracenas* and Palms, such as *Seaforthia elegans* and others, all of which were of large and elegant proportions. Apart from this large conservatory is a small greenhouse, which is constantly kept gay with flowering plants, and here there were some fine specimens of tuberous Begonias in bloom. These glasshouses are not placed strictly range after range; on the contrary, there may be a range here and a single house there. This, however, does not prevent them all from being conveniently situated in the kitchen garden, with good pathways between each, and flower beds and vegetable quarters where space will admit. Roses are extensively grown in beds together for supplying cut blooms, and all the vacant pieces of wall outside the houses are clothed with Tea varieties.

The collection of Conifers and of ornamental trees and shrubs generally is the most extensive, varied, and well grown I know of. Around the castle 40 acres are devoted to this class of plants, amongst which all kinds are to be found. Many of them, too, have attained large proportions, and these are seen to advantage, as, unlike the generality of such things, they are not crowded. Straight lines or anything like avenues of trees are not to be seen here, but there are many walks and a large amount of closely cut Grass. *Abies Douglasi* has in several instances attained a height of 50 feet, and a width in proportion. *Picea grandis*, planted in 1861, is now 25 feet high. *Taxus adpressa*, a fine bush, is 30 feet in diameter. *Picea cephalonica* is 50 feet high, and a grandly developed tree. *Picea Pinsapo* is equally tall. *Thuja Lobbi* is 30 feet high and 10 feet through. *Thuja pendula* 12 feet high and highly ornamental; and *Cupressus macrocarpa* is 50 feet high and 20 feet in diameter. Maples of the choicest kinds are extensively mingled among the Conifers, and some of them are just now simply gorgeous in leafage. One of the finest plants of *Acer polymorphum atropurpureum* in the country is growing here; it is 18 feet high and 12 feet through. Compared with this, purple Beeches and other plants of a similar colour are not nearly so bright. I may add that *Cryptomerias* (*C. japonica* and *C. Lobbi*) are each 30 feet high, and *C. elegans* over 20 feet. *Picea bracteata* is 33 feet high and 12 feet through, and *Taxodium sempervirens* is 60 feet high, and there are many others equally good. The deer park around the castle contains 800 acres, and on its south side there is an ornamental lake 22 acres in extent. The margin of the lake is wonderfully rich in vegetation, and amongst other low-growing bushes the Dogwood is used with telling effect; as seen from a distance the leafage of this looked like glowing masses of scarlet Pelargoniums. Close to the castle are beds tastefully filled with a choice assortment of flowers, many of them consisting of old-fashioned, sweet-scented kinds. Under the ramparts which form the foundation of the building huge specimens of hardy Palms may be seen. They are growing in tubs and boxes; some of them have stems 16 feet high and wide-spreading heads. They are noble-looking objects, and associate well with the surroundings. CAMBRIAN.

ROSE GARDEN.

ROSES FROM CUTTINGS.

THE beginning of November I find to be the best time for putting in Rose cuttings in quantity. A sunny position sheltered from the east winds should be selected for them; the soil should be friable and well manured, and the beds prepared when the ground is dry. They should be made about 2½ feet wide for handlights with a path 18 inches wide between them, and the beds should be raised 9 inches above the path to keep the soil dry during winter. Thus situated, the cuttings will root more quickly. The paths should be filled up above the level of the beds in May in order to let the cuttings have plenty of water during the summer season. Firm, short growths should be selected for cuttings, and they should be taken off with a heel, leaving them full length if possible. They should be put in about 2 inches apart, inserted 3 inches or 4 inches in the soil, and watered copiously in order to settle the soil well round them.

Tender sorts, such as those of Teas, should have the protection of handlights, but the hardier varieties may be put in beds about 3½ feet wide; the soil should be made firm, a layer of sand should be put on the surface, and the cuttings protected from severe frost by means of mats, boughs, or other material of a suitable kind. Last winter being mild, protection was not necessary, and those who were so fortunate as to put in quantities of cuttings will now have a fine lot of plants. Success greatly depends on preventing early growth until the cuttings make roots; consequently they should be exposed as much as possible when the weather is mild. Many of the cuttings here put

in last November flowered finely this autumn, particularly *Souvenir d'un Ami* and *Souvenir de la Malmaison*, and some of *Maréchal Niel* made 5 ft. of growth.

Roses on their own roots are particularly well adapted for planting in the wild garden, in open places free from tree roots, where the soil is suitable. If the beds made for them are well manured they will want little other attention beside pruning and keeping free from weeds; many of the prunings may be taken in November before the leaves are off and utilised for cuttings. They will not strike well after the leaves have fallen. S. Ross.

Higheley, Newbury.

Roses on the Seedling Brier.—Mr. Proctor has sent us from his nursery at Ashgate Road, Chesterfield, half-a-dozen dwarf Roses to show the condition of his stock on a strong, cold soil and in an exposed situation in that part of North Derbyshire. Better rooted plants than those sent could not be desired, and the young wood was short-jointed, clean, and thoroughly well ripened, though in most instances upwards of 4 feet in length. Such Roses cannot fail to give satisfaction. For beds their long shoots pegged down would answer admirably.

Disturbing Rose roots.—In reference to this matter, permit me to say that some six years ago I had occasion to move a considerable number (several hundred) of dwarf Roses, some time in the month of October. They were "heeled in," and in a very loose way too, with the object that when required for permanent planting they could be pulled up without the aid of spade or fork. When the time came to make such use of them (less than a month, if I recollect aright), they were found to have emitted a host of young fibres. The ripened roots were in some cases white with them. To prove that this was but an extra effort of nature to re-establish her progeny after the "disturbance," some other dwarf Roses growing quite beside them that had not been disturbed were examined, and, as expected, no young fibres had been emitted. The ripened roots were, to all appearance, at rest. Not so in the other case; as there was disturbance, Nature at once went to work to repair the damage. Our part is to assist her, and we cannot more effectually do that than by affording her an opportunity of getting herself well established in her new abode before the strain of spring work is upon her.—A. B.

GARDEN DESTROYERS.

THE AURICULA FUNGUS.

I MUST confess to being considerably perplexed by some of the statements of Mr. R. Dean in *THE GARDEN* the other day on the subject of Auricula culture, more especially as to what he says of the Auricula fungus. I have grown Auriculas for a long number of years, but I never heard of any particular fungus attacking them, and I can only conclude that he means the woolly aphis. I was myself one of the earliest sufferers by it, and although it is just possible that I may have overrated the damage did, and that my losses may have been due to over-carefulness and anxiety about them. I cannot accuse myself of neglect or of sheltering my discomfiture under the ægis of this little nuisance; nor can I believe readily that the presence of an insect which sucks the juices of the roots cannot be in some degree hurtful.

The subject has gone through many phases. When first it was announced, some growers who had not then had it contended that it could only come from neglect; and when I mentioned that I had found it on Sow Thistles in my garden, I was coolly informed that if I grew Sow Thistles I could not expect to grow florists' flowers. Since that time it has attacked, I believe, more or less every collection in the kingdom; and now we hear no more about the neglect, but its effects are minimised, and we were told that a collection got on

quite as well with it as without it. I once jestingly wrote that perhaps someone would find out that the plants were all the better for having it; and so, according to Mr. Dean, it has come to pass. Perhaps it may be in some such way as gout is said to keep away other complaints, but I rather imagine the patient would say, "That is as it may be, but I would rather not have the gout;" and so I say with regard to the supposed harmlessness or beneficial action of the woolly aphis. As to Mr. R. Dean's remedies, if the fungus is so beneficial to the plants, I do not see why it should be interfered with, but I can tell him from experience that soot and water is perfectly useless; indeed, I have tried everything, and the only thing that touched them was fir tree oil insecticide; as to soot, &c., you might as well try, as Mrs. Partington is reported to have done, to keep out the sea with a mop, or as a facetious Figaro said to a relative of mine whose hair was falling off, "Anything, Mr. G., that would be of use to me?" "Yes, sir; rub your head with a brick-bat."

I believe that if you can get the one great requisite of a good fibrous loam, you have what will enable you to grow Auriculas successfully, and that the size of the pots makes very little difference. "R. D." and many growers use small pots, but one of the best growers I ever knew always used large ones; but then he thoroughly well drained his pots, and the depth of soil used did not exceed 2½ inches. I have seen healthy plants where only a piece of slate (and indeed of glass) was placed at the bottom, and then a little rough Cocoa-nut refuse. My late lamented friend Mr. Woodhead used glazed pots, and with what success we all know; while I have a frame in which there are about forty plants, planted out in simple fibrous loam. They have been exposed all the summer in a north aspect to all weathers, and are now covered with a light and looking well, and there I intend to leave them. It is an experiment, and I hope it may be successful. I intend to have my frames, as I did last year, in a north aspect, as I found that they required less watering, and being kept dry were not more likely to suffer from frost than when they were out in the open. This autumn's wet ought to make growers look very carefully to their frames, for nothing is more injurious to the well-being of the Auricula than drip; while, as your correspondent has observed, thorough cleanliness is of great consequence.—DELTA.

I am surprised to learn from Mr. W. G. Smith that it is difficult to find insects in the white, woolly substance affecting Auricula roots and thought to have been a fungus. I have not at any time since my attention, some three or four years since, was directed to this parasite had any difficulty in finding it with the naked eye. The insects are not very lively, but still they may be stirred into motion. They are small and of a pale grey colour. Perhaps they are allied to the well-known American blight, as that too seems to evolve a woolly coating. Why this aphis should thus attach itself to the Auricula and allied plants is not easy to understand, and without doubt the insects affect the roots injuriously in a very minor degree, if at all. I have been examining roots infested with them, and am unable to find any evidence of injury even to the smallest of the rootlets. But if, as seems evident, that this Auricula aphis is identical with that found so abundantly upon the roots of Milk Thistles, is it not remarkable that it should attach itself to plants so strangely diverse? I lifted a dozen or more Thistles in an adjoining field here soon after reading Mr. Smith's note, and found every root of them more or less covered with the woolly aphis. In many cases the soil about the roots was quite white with the product of the insects. I should think one Thistle root would show twenty times as much of the aphis as any one Auricula root would, and yet the Thistles seem none the worse for their presence. It is no new thing to find it associated with Thistle roots, but its connection with the Auricula seems to be a modern innovation.—A. D.

—Mr. R. Dean's statement (p. 377), that scarcely a collection of Auriculas is free from

disease, has rather surprised me. In my experience of this interesting class of choice florists' flowers, which extends over eighteen years, I have never once had an example of this pest until this year, when repotting my plants I found some of the woolly aphis on one plant which had been recently imported from another collection. In alarm, I shook all the soil from the roots, washed them well in a mixture of soft soap and water, and afterwards in clean water, before repotting. I have kept a close look-out since, but have not found any symptoms of its re-appearance.—J. T. Poë, *Riverston*.

Destructive grubs (*H. W.*).—Your plants are attacked by the grubs of the black Vine weevil (*Otiorhynchus sulcatus*). Carefully examine the roots of any plant which appears in any way to flag, and destroy all the grubs you can find; watering with insecticides is not of much use. Tobacco water and Quassia water have been recommended for this purpose. The parent beetles feed on the foliage of Vines and other plants; they should be destroyed in the spring and summer by spreading sheets under the plants on which they are feeding; and entering the house after dark with a bright light, the brighter the better, many will fall at once, others on the plants being sharply tapped. The beetles are black and nearly half an inch in length (see a fig. of this insect in *THE GARDEN* of the 3rd June, 1879).—G. S. S.

WILD NUTS OF CANADA.

ALL Canadian forests are fairly rich in nuts, which, however, are hardly equal in commercial importance to the wild fruits. First in rank comes the Walnut, best known on account of the excellence of the wood which the tree produces rather than for the quality of the nut, which, though its size is almost double that of its English namesake, contains a much less kernel. It is perfectly round, and is encased in a thick green "hull," or outer skin, fully a quarter of an inch thick, while the shell proper is almost as thick and very strong. The kernel resembles in shape the English variety, but its flavour is utterly different, being strong and slightly pungent. The Walnut invariably grows on good land, and is found along the rich river flats. Such has been the demand for Walnut of late years, that large trees are very uncommon in the older settled districts, a few acres of Walnut being worth a fortune. Good Walnut will sell now at the mill for £20 per thousand feet. Next comes the Chestnut, almost identical with that growing in England. Unlike the Walnut, it never grows on good land, being found on light sandy soil. The wood is also valuable, and is worth about half the price of Walnut. The Hickory is a fine nut. It is peculiarly shaped, and is about the size of a small English Walnut. It is encased in a thin outer "hull," enclosing a thin, but strong shell. The kernel in flavour and formation resembles pretty closely that of the English Walnut. In fact, in this respect it is a good deal nearer the English Walnut than the Canadian Walnut. The trees seldom grow to any great size, but the wood is very valuable for fuel, and being hard and tough, makes good rake-handles, spokes, &c. The tree has a beautiful leaf, and presents a very handsome appearance. There are several species of Hickory, the two most important being the "shell-bark" and the "bitter," the nuts of the latter being unfit for human food, but greedily devoured by pigs. Next comes the Butter Nut, which again strongly resembles the Walnut both in shape and flavour, though somewhat sweeter. The wood of the tree has a fine grain and colour, not so rich or dark as the Walnut, but of the same nature. Then there is a small variety of the Hazel, of excellent quality, which grows in enormous quantities in the southern counties of Ontario; while the Beech Nut, identical with that so well known at home, is also abundant. Such are the native nuts of Canada. They grow in immense profusion, and, like wild fruit, have become an article of com-

merce, thousands of bushels being annually picked and sold in the markets. In the bright autumnal weather, when the early frosts are beginning to pinch vegetation, nutting commences, and is carried on on a large scale, nuts being gathered by the waggon load. No pleasanter pastime than this can well be imagined at a season when all the discomforts of summer seem to have vanished, leaving nothing but genial warmth by day, and bracing coolness by night. A Canadian "nutting" is not soon forgotten by anyone who has, for business or for pleasure, once spent a day in the woods in search of the "shell fruits," which they produce in such abundance.—*Colonies*

PROPAGATING.

YUCCAS.

ALL or nearly all of the Yuccas may be propagated freely from the roots, but it is concerning the choice kinds, such as the variegated forms of *Yucca aloifolia*, *filamentosa*, and *quadricolor*, so useful for indoor decoration during the winter or, in fact, at all seasons, that I propose to speak. Where fair-sized plants of these kinds exist, they may be propagated without in any way injuring them or detracting from their appearance in this way. Turn the plant carefully out of the pot, when several large roots, or rather underground buds, will in all probability be found protruding through the sides of the ball. These should be cut off, and the operation may often be done in such a manner that a few fibres remain attached thereto; indeed, always endeavour to secure them in this way, but if the present appearance of the plant is to be considered, do not disturb the ball for that purpose, as the buds or eyes when removed soon push forth fibres of their own. As the embryo plant occupies the point of the removed root, it must not be cut off too closely, but should if possible be left a couple of inches long, though that cannot always be done. When all the buds are removed the plant may be replaced in its pot. If not in large pots, turn the plants out just as in repotting, that is, support the ball with the left hand and remove the pot with the right. That done, the right hand will be at liberty to cut off the eyes, and when finished, the pot may be dropped on again without disturbing a single crock. After this go over the excised portions and prepare them for repotting, that is remove any spots of decay that may possibly exist thereon and if too long or of an inconvenient shape cut them a little shorter. The pieces well provided with fibres may be potted singly in sandy soil, keeping the point of the root from which the new growth will proceed just below the surface of the soil; those not so provided with roots may be put in pans till growth takes place. Place some crocks in the bottom of the pan, and over them a layer of sandy soil, then another layer of pure sand, and after that stand the eye in a perpendicular position, and fill the space between them also with pure sand in such a way that every bit is quite surrounded by it. Then fill up the pan with soil keeping the eyes about half an inch below the surface. When done set them on a shelf in a moderately warm house and keep them just moist but do not allow them to become wet, as the fleshy roots speedily decay from excess of moisture. So treated they soon push forth both leaves and fibres, and when sufficiently advanced may be potted off.

Another way is to lay the buds in Cocoa-nut fibre (just covering them with it) where they can have a little bottom-heat. In this way they also do well, but such conveniences are frequently wanting, and then the first named plan must be carried out. Where tall and ungainly plants exist they may be utilised to obtain a good stock of small ones by cutting up both roots and stem. Take off the head with just enough stem to form a good plant when rooted; then cut up the remaining portion in lengths of from 6 in. to 1 ft., and lay them if possible in Cocoa-nut fibre. Space may be saved by putting them in between the pots on a bottom-heat bed—such, for instance, as

that in which Palms and such things are growing. After being for some time in this situation young leaves will commence to push through the fibre, but it is better to let them grow and form thrifty little plants before removing them, as if taken off at once the young portion will have no roots, and a part of the old stem must remain attached thereto for its support, while after a time fibrous roots are pushed forth from the base of the new growth, and if cut off then a young and vigorous plant is obtained without depending on the old stem, and the latter can be returned to its place to push forth more buds. In this way old pieces of the stem will often produce young plants for a long time with a little attention, such as thoroughly cleaning them when taken up by cutting out any symptoms of decay, and just surrounding them with new fibre when put in their place again. Even if the young plants have good roots when potted they are better kept close for a few days till they recover from the check. The head of the plant when cut off may be either struck in the fibre or potted in as small a pot as possible, using sandy soil and some broken crocks mixed with it. Where no such place exists as that just spoken of in which to lay the stems, they may be placed in boxes or pans of light soil, and set in a warm house, but the first named method involves much less trouble, and yields as a rule the best results. T.

OBITUARY.

THIS neighbourhood has just now sustained a loss which, I think, should have a tributary notice in your columns. I refer to the death of Mr. Edward Meehan a few days ago at the ripe age of eighty-four years. For more than half a century he has been in charge of the beautiful gardens at St. Clare, which are rather more than a mile from Ryde. For considerably more than forty years he was in the service of the late Colonel Francis Vernon Harcourt, formerly member for the Isle of Wight, and latterly he has been in that of his brother, Mr. Egerton Vernon Harcourt. Mr. Meehan has passed away from us amid the sincere regrets of his numerous friends in this place. It was impossible to know him without forming a great regard for him. He had a kindly open-hearted sort of way which was very attractive. But it is more especially as a gardener and very devoted lover of flowers that this reference is made to him. Mr. Meehan lived for his trees and his plants, and they paid him back in full. It was very interesting to walk with him through one of the most beautiful gardens in the kingdom—his own creation under his master's eye at St. Clare—and to hear him tell how fifty years ago he turned out some magnificent tree—when yet a sapling—from a small pot, or planted some striking shrub which has now attained to great size. There is a *Pinus insignis* in these grounds which looks as though a century had passed over its head, and which Mr. Meehan remembered when it was only a foot high. And in addition to this a Judas tree, which is quite worthy of the environs of Smyrna itself; a *Paulownia imperialis*, which is smothered in a cloud of innumerable bluish blossoms in early spring; an *Edwardsia grandiflora* which grows over the south side of the house in golden profusion; *Fuchsias* which are now of towering dimensions; *Myrtle* trees in abundance; *Magnolias* which seem to have been cheated into a belief that they are in the Southern States of America; *Camellias* doing well in the open air; *Rhododendrons* that must be from 12 feet to 15 feet high, and which arch over one's head, so as to form a canopy over a broad gravel path; some *Arbutuses* of the rarest sorts—all these and other things far too numerous for mention in this place were for many years the subjects of his fostering care, and they were like children in his hands. But it is also as a successful grower of Roses, and the winner of the highest prizes at the local shows, that Mr. Meehan will be remembered in the Isle of Wight. The Rose was his favourite flower, and no one could permanently wrest from him the supremacy to

which he attained in cultivating it. The St. Clare stand for cut blossoms used to be unrivalled in its way, and a very enchanting sight it was when it had just been set up with the greatest assiduity and skill. But all this has now come to an end. The trees and shrubs will not be less beautiful in the gardens of St. Clare than they have been in bygone years, but the voice of the interpreter will no more be heard among them. Mr. Meehan had a strong scientific turn about him as well as much practical knowledge. In his early days he was very fond of the study of botany, and he gave a great deal of time to it. It was curious to note how, when mind and memory failed him towards the close of his life, the sight of a favourite flower seemed to quicken his drooping faculties at once. When he had begun to take little notice of what was passing around him, and old and familiar things were slipping from his grasp, he was often able to give with accuracy the botanical name of a plant and to say a good deal about it. His kind employers, Mr. and Mrs. Egerton Harcourt, knew full well how to bring a smile on the old man's face. The best Roses of the season were the truest cordials for him, and they were freely sent to him. Quite up to the end Roses and other choice flowers were strewn in profusion over his bed, and he seemed to be all the happier for the solace they gave him. His was no perfunctory round of duties carried on for a livelihood, and only for that; it was the devotion of mind and heart to a favourite study of which he never tired through life. It should be noted here that Mr. Meehan has handed on the torch of science to his son, Professor Meehan, a well-known botanist of the United States, and editor of the *Gardener's Monthly*, a valuable work on American horticulture. He has left behind him a family of several grown-up sons and daughters, and more than one of them is treading in his steps. The gardening fraternity have assuredly sustained an immense loss in his death, and the Isle of Wight in everything that has to do with trees or plants will not soon meet with his equal. H. E.

St. John's, Ryde.

Labels.—Thick paper for temporary labels for nurserymen has been recommended. Those which we receive on our importations are frequently illegible from the destruction of the paper by moisture. The best labels for nurserymen we find to be wooden ones with a smooth surface, over which has been rubbed with a cloth a very thin coating of white lead paint. They should be fastened to the plant with copper wire. The best cheap permanent label is a strip of bright zinc, written upon with chloride of platinum, sold in the shops for the purpose. A strip of zinc written upon with a common lead pencil is also legible after many years. They should be fastened on the trees with galvanised iron wire, as they will soon cut through copper wire and fall to the ground.—S. B. PARSONS, *Flushing, N.Y.*

Seedling Ageratum (*M. & Co.*).—We cannot fully judge of the merits of your seedling *Ageratum*, *M. Mobilium*, at this season, but it has the appearance of being a good kind.

Names of plants.—*Anon.*—1, *Erythrotis Beddomei*; 2, *Coccoloba platyclada*.—*S. D.*—1, *Salvia splendens*; 2, *S. ianthina*; 3, *S. eucaliptifolia*; 4, cannot name; 5, *S. Brantii*, a variety of No. 1; 6, *S. Hoveyi*, a variety of No. 2.—*P.*—*Cupressus Lawsoniana*.—*D. P. G.*—*Selaginella Mertensii*.—*E. Rustel.*—1, *Asplenium bulbiferum*; 2, *A. Trichomanes*; 3, *A. Adiantum nigrum*; 4, species of *Peperomia*.—*Chrysanth.*—We do not undertake to name florists' flowers.—*A. B. C.*—1, *Aster Reevesi*; 2, *A. Novae-Angliae roseus*; 3, *A. turbinellus*; 4, *Solidago Virgaurea*.—*W. H. C.* Next week.—*Norman.*—*Salvia Hornum*; blue flower is *Gentiana acaulis*.—*Dr. P.*—*Promenaea citrina* variety, *Cologne speciosa* (fine form).

COMMUNICATIONS RECEIVED.

I. L.—F. G.—W. J. M.—J. S. W.—J. G.—W. W. R. G.—W. T.—J. H. A. D.—V. A. & Co.—R. B. S.—Delta. J. C.—J. S. W.—J. S.—W. M.—P. G.—J. S. W.—W. W.—W. G. S.—E. G. L.—J. D.—P. I.—W. P. R.—T. B.—J. C. W. C.—S. W. J. S.—Cambridge.—W. J. M.—H. W. E. B.—A. J. E. D. T. F.—L. Society.—A. K.—B. W. G.—J. H.

"This is an Art

Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE. — *Shakespeare*.

WINTER GARDENING.

As gardens generally will now have become bereft of their summer occupants, a brief list of some of the most suitable subjects for ornamenting them in winter may not be unacceptable to those who have not yet given the many varieties of dwarf shrubs suitable for bedding or vase decoration a fair trial. By such means beds can be filled at once even more effectively than with ordinary spring flowering plants, or both may be used together with or without the aid of bulbs. Thus while a cheerful effect can be produced during the winter months, a really brilliant display may be secured in spring. The shrubs should be planted thinly, so as to show every plant off to the best advantage, the whole being set in a groundwork of dwarf, carpeting plants, through which bulbs, if used, will spring up and look far better than in beds by themselves. The shrubs will also afford some protection in winter, and in spring when dwarf-spreading plants cover the ground, and the bulbs open their flowers, a really charming mixture will be the result. A bed, for example, thinly planted with gold or silver variegated *Euonymus* would look well carpeted with blue *Myosotis* and studded with crimson Tulips, or say another filled with the Fern-like *Retinosporas* on a groundwork of *Silene*, edged with variegated *Alyssum* and purple *Crocus*, with *Narcissi* in the centre. For such beds additional material exists, suitable like for temporary purposes or for permanent groups, as nearly all the shrubs named are easily kept dwarf by pruning. Vases or rustic baskets look particularly well filled with hardy shrubs, such as *Box*, *Aucubas*, or the bronze-leaved *Berberis Aquifolium*, and edged with *Ivies* or *Vincas*, plain-leaved or variegated. The winter tints of some of the plants usually employed for such purposes, such as *Cryptomeria elegans*, are very pretty; in fact, some shrubs are in their greatest beauty as regards foliage in winter, and by selecting the most attractive as well as those that produce a crop of berries, the winter outdoor garden may be rendered in some respects almost as interesting as that of summer. In the case of balcony and window boxes, too, that are always under the eye, little shrubs like those alluded to are just the things to give a warm, furnished look to a building, be it large or small. By strict attention to watering they may be kept many years in pots of very small size, and in summer they may be plunged up to the rims of the pots out-of-doors, thereby reducing the necessity for such frequent watering as would otherwise be needful.

The following I have proved to be eminently useful winter plants in many ways, viz., *Andromeda floribunda*, which has bright green foliage and white, Lily-of-the-Valley-like flowers that open very early in spring, or even in winter if mild; *Aucuba japonica*, which is very pretty when covered with berries; *Box*, both plain and variegated; *Cotoneaster microphylla*, a hardy trailing plant, which produces abundance of purplish red berries; *Cupressus Lawsoniana* and its varieties, all of which are very effective when young; *Cryptomeria elegans*, one of the handsomest of Conifers, and Fern-like in foliage, the latter assuming a deep bronze colour in the depth of winter. Heaths belonging to the dwarf hardy section are also very pretty, and some of them flower very early. *Euonymus japonicus*, plain and variegated, rank amongst the most beautiful of winter shrubs, and if kept in pots the variegation becomes bright and effective, and the wood sufficiently matured to withstand frost.

Ivies, both gold and silver and the plain-leaved tree *Ivies*, are all very hardy, and when grown in pots may be utilised in any way needful for several years. *Junipers*, such as *virginica*, are ex-

ceedingly pretty plants when young; and *Laurustinus*, if kept dwarf, make nice little flowering shrubs that are always welcome. The *Osmanthus*, in addition to beautiful foliage, has the excellent propensity of flowering in winter. *Pernettya mucronata* is a beautiful berried plant, and Portugal and common Laurel, and also the Caucasian variety, have bright shining foliage that is very cheerful during the dull months.

Retinosporas are, perhaps, the most beautiful of all the coniferous tribe for central or dot plants in hardy carpet beds, especially *R. ericoides*, which has Heath-like foliage; *R. obtusa* and its dwarf golden variety are exceedingly light and feathery in appearance; and *R. plumosa* and *R. squarrosa* are really indispensable for first-class hardy foliage beds. *Thuopsis dolabrata* and its variegated variety are also exceedingly handsome coniferous plants, with foliage very like that of some large *Lycopodiums*. *Yews*, both common and Irish, come in well by way of contrast with lighter shades of green, and their rigid aspect sets off the feathery *Retinosporas* and similar plants to good advantage. *Rhododendrons* make good green beds, and bear removal at any time with impunity, and *Skimmia japonica* is one of the best berry-bearing plants in cultivation for winter beds. *Yuccas*, too, must not be omitted from the most select list, the stiff *Y. gloriosa* or the elegantly arched *Y. recurva* being alike useful in beds or vases. Many other plants might also be enumerated, but these will form a good selection.

Scarfild, Gosport.

J. GROOM.

ROSE GARDEN.

PLANTING AND THE BEST STYLE OF ROSE TO PLANT.

To those who adhere to the practice of planting in November with all the pertinacity of a Mede and Persian law, it may be observed that when that month obtained the almost unanimous consent of rosarians as the best of all the twelve for Rose planting, Roses were widely different in their character and constitution from what they are today. The older Roses mostly flowered but once; their wood had ripened, their leaves fallen by November, and hence they could then be moved with most convenience and, perhaps, on the whole planted with greater success. But this November many of our Roses are as green as Leeks; not a few of them are still in flower, and hence it must be obvious that a practice that was successful in regard to one set of Roses may prove quite the reverse when applied to another and quite different family. Writing broadly, our Teas, Bourbons, and Hybrid Perpetuals are seldom or never at rest, and hence, to a great extent, the diverse views that have been advanced as to the best time for planting them. Not a few growers have thought a month or six weeks earlier than November probably the best time, and arguments of considerable force have already appeared in your columns in favour of early planting. "Wild Rose" advances, in a contemporary, not a new idea, yet still one so rare in practice that it deserves the name of novelty. It consists in lifting Roses in November, for he is silent about an earlier season, laying them in by the heels for the winter, and planting them in their final flowering quarters in February. Could the roots be kept almost dormant throughout the winter, this method might have several advantages. The prostrate state of the tops and the limited area occupied by the roots bring the whole of the Rose within the smallest possible area, and places it in the handiest position for ensuring its safety by protection.

Root disturbance. — "Wild Rose" assumes that the roots will remain in comparative rest for the winter. General observation and experience point just the other way. Root disturbance, unless carried to mischievous extremes, does not damage root action, but quickens it. Should "Wild Rose" or others yet doubt this, let them lift and lay in by the heels a dozen, fifty, or a hundred Roses at once, and note the result in a month or six weeks' time. Long before

February the heeled-in Roses stimulated thereto, not only by the violent root disturbance of transplanting, but likewise by the abnormal position alike of their tops and bottoms, will have filled the covering earth with innumerable growing roots, white as milk and crisp as glass. Attempt to disturb these in the spring, and the major part of them are injured, probably a full two-thirds of them snapped off. Were it possible to preserve the growing roots, which it is not, a Rose, which is not a very hardy plant, could hardly be placed in a more trying position than to have its head, which had been wintered against the comparatively warm earth, and probably further protected with a screen of Fern fronds or other litter, set up suddenly fully exposed to the harsh severities of February weather, or the more cutting blasts of March. The roots, too, if unharmed, which they could not be, must perforce be unattached by vital holdfasts to the soil, a condition at once the most trying and the most dangerous. More than this, it is almost certain that April sunshine and shower would stimulate the buds of the tops to burst into leaflets before the roots had made much or any progress. Such growth speedily exhausts the Rose tree or bush of sap, and unless the roots are prepared to renew and enlarge the supply, the plant is necessarily weakened or destroyed. No; late planting, even with "Wild Rose's" expedient of a temporary lull, rest, or semi-state of torpor between, is not likely to answer. Whatever mode or time of planting is adopted, it seems essential that root action should be excited as quickly as possible on the heels of root disturbance, and both disturbance and new growth should be so timed as that the roots shall be re-established in full activity before top growth is excited in the spring. Those who advocate

Spring planting seem also to forget that root growth does not follow root disturbance so quickly in the spring as it does in the autumn. Neither is the cause of this far to seek. In the spring the rush of the sap is upwards; in the autumn it falls downwards. And not only are the currents reversed, but the quality of the sap is different. Expressing the difference in two words for the sake of perspicuity, it may be said that in the autumn the sap is thick; in the spring it is thin. Nor is the entire difference one of direction and of quality, but one of function as well. In general terms this autumnal sap forms wood and makes roots; spring sap bursts buds and nourishes young shoots, flowers and fruits. If these are facts, and theory and practice alike combine in establishing their substantial truth, then they afford cumulative and conclusive proof in favour of the early autumnal planting of Roses. In regard to

The style of Rose to plant, I agree with "Wild Rose" that dwarfs are on the whole the best. Still, where rabbits abound, it is well to grow standards and lift your Roses beyond reach of their nibbling and peeling propensities. True, they will also bark the Briers, but it is easy to bush these round. But dwarfs are impossible on not a few estates, since the Hares and Rabbits Bill have driven the rabbits off the farms into the gardens and pleasure grounds. Standards are also admirable for lifting Roses up to the eyes and smelling line. It is all very well to stoop to conquer, but the aged and the invalid cannot always stoop with ease or alacrity. The hedge Brier will always be useful to aid those in budding and enjoying their Roses with more ease. And then there are not a few positions in which the additional height given to Roses by their stands gives greater importance and dignity to the Roses thus elevated on standards. Besides all this few exhibitors will deny that many of their finest flowers have had standard Briers for the strong foster mother. Hence, it is not only desirable to have standards, few or many, but as a matter of fact few rosarians have yet attempted to do without them. Nor is there any need, for in most gardens room enough and to spare may be found for every style of Rose tree or bush. As to

Dwarf Roses, "Wild Rose" says nothing about those on their own roots. He discusses the

question of Manetti, seedling Brier and Brier cutting stocks, and pronounces in favour of the two latter as the more lasting stocks. But I confess that the longer I grow Roses, the more I am opposed to any and all stocks for dwarf plants. Neither have I ever found that fondness of Tea Roses for Brier stocks in preference to Manettis referred to by the writer in question. But, of all Roses that can afford to dispense with stocks, the Teas are at once the most able and the most successful on their own roots; they are also the most readily rooted from cuttings. No doubt grafted and budded Roses are likely to continue the most popular with the trade. Time and strength are gained by the aid of borrowed roots; material is also economised, as each bud makes a plant when placed on the Manetti or Brier stocks; whereas six or more buds are mostly used upon a single cutting. But this saving of time and material, and the rapid growth into saleable plants by the employment of borrowed roots, is by no means all gain. There is often a lack of durability in budded and grafted plants and the pest of suckers accompanies this all the way through from the cradle to the grave. Not only this; the old stock not seldom hastens the death of the stocks by its persistent development of suckers. The general advice to plant so deeply as to enable the scion to form independent roots is, after all, a practical protest against the use of borrowed roots for dwarf Roses. Neither is the result of this dual rooting always satisfactory. Between the two set of roots, as between the proverbial two stools, the Rose not seldom comes prematurely to grief. Either the Brier or Manetti roots are sufficient for the Rose, or they are not. If they are, why supplement them with others?—if they are not, why use them at all while the Rose is capable of forming amply sufficient and far more durable roots of its own? Dwarfs on their own roots have also recuperative power of great value within themselves. The natural tendency of Roses to produce suckers enables them to renew their youth at the will of the cultivator. When an old branch or stem becomes exhausted, behead it down, and anon from the old root stocks or roots themselves will spring forth suckers—that is, new Roses—probably more vigorous and equally long-lived as the original plants. D. T. FISH.

FERNS.

BEST CULTIVATED KINDS.

It is my intention in this and in what papers may follow on the subject to furnish a list of Ferns, with descriptions, peculiarities of growth, and cultural requirements, with the view of helping those who are about to form a collection of these charming plants. Only those possessed of special qualities, and suitable for particular purposes, such as the decoration of the dinner-table, the ornamentation of the plant house, or the furnishing of a Fern case, have been selected, and these will be described in alphabetical order.

Acrophorus.—The species belonging to this genus form a very pretty group, the fronds of which are delicately cut, and are very valuable for bouquets. As a whole, they are easy to manage, provided their pots are well drained, and that a mixture of fibrous peat and sand, with a few small pieces of charcoal, is obtained for them. Although in winter the deciduous kinds do not require so much water as when in a growing state, they must never be allowed to get dry, for if their rhizomes become shrivelled they will most likely perish altogether, and if they start again their growth will be feeble. They are closely allied to the Davallias; so much so, that several of them are quite as well known under that name as under that of *Acrophorus*.

A. affinis (*Davallia affinis*).—This is a beautiful species, found widely distributed through tropical and sub-tropical Asia. The fronds are tripinnatifid, and somewhat triangular in shape; the pinnae dense and overlapping each other. Its rhizome, which is the thickest of all the *Acro-*

phorus, is very scaly, and creeps on the surface of the soil. The fronds of this species are particularly adapted for cutting, as they last a long time in water.

A. chærophyllus (*Davallia chærophylla*).—This very handsome species, a native of the East Indies, somewhat resembles the preceding, but the segments of the fronds are more finely divided. It is also of smaller dimensions, growing only from 10 in. to 18 in. high. It is, therefore, very useful for planting in the Fern case. This, like the former, is a stove Fern.

A. hispidus (*Davallia Novæ-Zelandiæ*).—A beautiful evergreen species from New Zealand, and, being very dwarf, admirably adapted for a Fern case; its fronds, which rarely exceed 10 in. in length, are tripinnate, and of a dark, shining green colour. It almost equals the Filmy Ferns in beauty, and should be grown extensively, as it makes a pretty object on rockwork, in the fissures of which it makes itself quite at home. The rhizomes, which are very wiry, do not bear burying in the ground.

A. immersus (*Leucostegia* and *Davallia immersa*).—A distinct and handsome species, widely distributed throughout India and most of the adjacent islands. Its fronds, which grow from 15 in. to 20 in. long, are pale green, smooth, deltoid, and tripinnate. Although a deciduous species, it well deserves a place in every collection, as it makes a very handsome specimen during the summer months when grown in a basket. This seems, indeed, the best way to grow it, as the rhizomes, which are rather slender, prefer being kept under ground. This, like the preceding, is a greenhouse Fern, as is also the following.

A. pulcher (*Davallia pulchra*).—A very pretty species from the East Indies, which, although partly deciduous, succeeds remarkably well in a Fern case. The fronds are many times divided, their segments very finely cut, and their colour a vivid green—altogether a very conspicuous plant, well deserving a place in every collection.

Actinopteris.—Up to the present two forms only of this charming little Palm-like Fern are in cultivation. They should be grown in good fibrous peat and sand, intermixed with small lumps of sandstone or small corks. They must be kept close to the glass, and supplied liberally with water at the roots. Both are evergreen.

A. radiata.—This species, which is a perfect miniature of the Fan Palm (*Latania borbonica*), is of tufted habit, and produces fronds from 3 inches to 6 inches high, flabellate, with segments divided about half-way down, and pale green in colour. It is found in exposed situations all through India, Egypt, and Arabia. It is a stove Fern.

A. radiata var. australis.—This Australian form is in all respects a stronger and better grower than the preceding. The habit of the plant is not so compact, the fronds often attaining a height of 8 inches. The segments are much more deeply divided, dark green, and very glossy. It also succeeds well in a lower temperature than *A. radiata*. PELLEA.

Hardy hybrid Gladioli.—In addition to the remarks about these interesting hybrids in THE GARDEN (p. 431), I may say that M. Lemoine, of Nancy, is this autumn sending out eight new varieties, exhibited by him in Paris on the 27th of last July, when they were awarded a first prize by the Central Horticultural Society of France; these varieties are named Christophe Columbe, Cléopâtre, Enfant de Nancy, Incendie, Mars, Obélisque, Stanley, and Victor Hugo. Of these the third named seems to be (in the raiser's opinion at least) by far the best, if we may judge from the length of description given of it and the price charged for it. It is said to be of a shade of colour and marking hitherto unknown among Gladioli. As I have all these plants already imported and in the ground, I shall hope, if all go well, to give your readers some account of their respective merits as they come into bloom in the course of next summer. The well-known hybridist

of Marseilles, Monsieur J. B. A. Deleuil, has also been trying his practised hand at these plants, and sends out his first two hybrids this year, named respectively Cœlus and Zélie, which I have ordered, but have not yet received. My experience of these hybrids shows them to be perfectly hardy, but by no means such quick increasers as their purpureo-auratus parentage would lead us to expect, as they are not (as we were told when they were first sent out) stoloniferous; and though some of them double themselves each year, they throw comparatively few offsets.—W. E. G.

ORCHIDS.

Culture of Orchids.—Dr. Paterson writes as follows from Fernfield, Bridge of Allan: "I am glad to tell you that my Orchids are thriving well under cool treatment. The East India house at present is seldom higher than 50° night temperature, the coolest house being often below 40°."

Cypripedium insigne.—I send you flowers of this old-fashioned Orchid, of which I have now 140 open similar to those sent. I grow my plants of it in a cool house along with a miscellaneous collection of plants, where they seem quite at home, and make a nice show at this dull time of the year.—T. B. FIELD, *Stanley Hall, Bridge-north*. [Fine blooms of this handsome Lady's Slipper.]

Oncidium Rogersi.—I send a small spray of this beautiful Orchid, the good qualities of which you noticed a fortnight ago. On a small plant in a 5-inch pot there have been forty-one flowers equal to those sent. They last a long time in perfection, those sent having already been open a fortnight, and yet they are quite fresh.—J. C. [Remarkably fine flowers of this beautiful variety, which is among the best of the yellow-flowered Oncids.]

Fine variety of Odontoglossum crispum. Mr. F. Sander, of St. Albans, showed us the other day a flower of an exceptionally fine variety of *O. crispum*, which has just flowered in Mr. Thomson's establishment at Clovenfords. The flower measures over 4 inches across, the petals are unusually broad, exquisitely crisped at the margin, and pure white, while the sepals are delicately shaded with purple and blotched with chocolate-red. There is a sort of clouded look about the flower which is quite indescribable. It is certainly among the most distinct and best varieties of this *Odontoglossum* we have ever seen.

Vanda Hookeriana.—Mr. Hill's account (p. 417) of the way in which he treats his plants of this species is very interesting. He was the first to flower it, and therefore more likely to be listened to than one who has not flowered it at all. Our plants of it receive the same treatment as that given to *Vanda teres*. If the latter is not forced to rest, it will not do so. Keep it moist and in a high temperature all the year round, and it will grow like a Willow, but under such circumstances it will not flower, nor will it continue for many years in good health. Mr. Hill frankly tells us that the plant had not been in his possession more than ten months, and there was nothing out of the common in his treatment, so it seems that this species may be more free flowering than *V. teres*. I saw Mr. Bockett's plants at this time or later last year, and I fancy they were dry and at rest, or at least comparatively dry, and Mr. Bockett's gardener has been successful in flowering it. Both *Vanda teres* and *V. Hookeriana* should have three months' rest, and during the resting period they ought to be kept cooler than when in growth, and those who adopt this system will be more likely to maintain their plants in health than those who neglect it.—J. DOUGLAS.

Sale of Orchids.—At Stevens' Rooms, on the 9th inst., the rich collection of Orchids belonging to Mr. E. Pilgrim, of Cheltenham (who through ill-health has given up Orchid culture), was disposed of by auction. The collection included some

uncommonly fine specimens, the majority of which were in good condition, and there were also some extremely rare kinds which fetched high prices. The lots amounted in all to 416, but these in most cases comprised from a couple to half a dozen plants. The total amount realised was about £1200. The following are the names of some of the highest priced plants, the descriptions of which are from the catalogue: *Cattleya labiata*, the true old autumn-flowering kind, with eight bulbs and two breaks, 32 guineas; *Saccolabium guttatum* Holdfordianum, a grand specimen, 32 guineas; *Cattleya Trianae* Morganix, very healthy plant, with eight bulbs and four breaks, 26 guineas; *C. exoniensis*, with eight leaves and two breaks, 23 guineas; *Cattleya Skinneri*, a specimen, 3 feet across, showing eleven sheaths, 24 guineas; *Masdevallia Harryana* Denisoniana, with thirty leaves and high-coloured flowers, 19 guineas; *M. Chelsoni*, a beautiful new hybrid, with thirty leaves, 17 guineas; *Cattleya Warneri*, fine plant, twenty-four bulbs, with five breaks, fine variety, 12½ guineas; *C. Trianae alba*, with eight leaves, 15 guineas; *Odontoglossum histrionicum bellum*, a fine healthy plant, and the only known one in existence, 14 guineas; *Laelia anceps Dawsoni*, 12 guineas; another plant, 10 guineas; *Cattleya Mossie*, grand specimen in 12-in. pot, over 2 feet across, full of breaks, 11 guineas; *Odontoglossum polyanthum*, five bulbs, one break, 11 guineas; *Vanda tricolor*, grand variety from the Boyd collection, forty perfect leaves, 10 guineas; *Odontoglossum citrosum roseum*, fine specimen in 12-inch pot, 10 guineas.

GARDEN DESTROYERS.

THE CLUB-ROOT FUNGUS.*

THE subject which I propose to introduce to your notice is the club-root fungus. You thus see at once that I assume that the phenomenon of clubbing in the roots of certain plants is due to the presence of a fungus. But it can hardly be expected in the present stage of this question that the assumption of the fungoid origin of clubbing should be generally acquiesced in. I do not know that more than two or three persons in this country have qualified themselves by histological investigation of clubbing to give an independent opinion of its origin. Work of this kind is so much specialised, that a botanist who knows about a *Peziza* may know little about a *Peronospora*, so that we have all to take far more of our knowledge upon trust than we might do if our time were properly utilised.

The cause of clubbing in the roots of Brassicaceous plants remained unknown till between the years 1873 and 1876. In the year 1872 the Russian Horticultural Society (of St. Petersburg) offered a prize for the investigation of Cabbage hernia, but without any result. M. Woronin, a Russian botanist, tells us that in 1873 he entered on the investigation of clubbing or hernia in the Cabbage, altogether irrespective of this offer of a prize, and that he finished his work in 1876, being more or less occupied with observation and experiment for three years, and he had the good fortune to be successful in discovering the real cause of the disease. "I detected," he says, "a new organism, which I have named *Plasmodiophora brassicæ*," the name signifying that the fungus at one stage of its life bears a plasmodium, that is, a formless mass of living plasma, which affects the roots of many species of the Cruciferous or Brassicaceous order of plants. You all know in a general way the appearance which clubbing presents in the roots of such plants as the Cabbage, the Turnip, Charlock, and Mustard. But as it is found that the clubs on these different plants assume somewhat various forms, and as it is also found that on the roots of some of them there are nodes or warts or excrescences or protuberances which appear to be

different in character from the swellings called club or finger-and-toe; and as on the roots of many plants of the Leguminous order, such as the Bean, the Pea, the Vetch, the Clover, the Broom, clubs or nodes are also found, and likewise on the roots of other orders, it becomes evident that any inquiry into the nature of club-root must embrace a comparative examination of as much related phenomena as can be accomplished. No single object of natural history can be safely or successfully studied by itself; and the wider the range of comparison the greater will be the value of the results. Allow me, therefore, before coming to club root proper, to point out some of the characteristics of a few of the root nodes alluded to, and we shall then be upon safer ground to form a correct judgment on the main subject. The roots of the common Alder produce great quantities of small clubs or nodes. They are sometimes produced singly upon a thin root, and sometimes they appear in large clusters, containing ten, twenty, or many hundred clubs. But they are not mere annual growths; and if examined will be seen to show new tissue of a lighter colour growing at their points. These nodes are also capable of throwing out new nodes, and hence the production of clusters. But the structure of these nodes does not imply disease, nor the presence of any parasite, either animal or vegetable. They have a central vascular axis arising from the axis of the supporting root, in the same way as an ordinary rootlet, and around this axis a large mass of cell tissue containing various vegetable principles.

The nodes, again, which appear on the roots of Leguminous plants, although outwardly somewhat resembling those of the Alder, are altogether different in the arrangement of their structure. There would not be time on this occasion to go over in detail the minute points in which the nodes, for example on the roots of Clover, differ from the nodes on the roots of Furze; and therefore I shall only attempt to give you a general conception of such nodes. In all the cases I have examined, these root nodes are simply tuberculated rootlets. If a node is taken from a Bean root, or a Clover root, and a vertical section made down through the centre and going through the centre of the supporting root, it will be seen that, instead of one vascular pencil running up the centre of the node, as in the Alder, probably two may be seen a little within the epidermal tissue, going round and meeting each other at the apex of the node. Then if a cross section is made through the middle of the node, it will be found that in addition to the two vascular rays seen in the vertical section, there may be four or five more at nearly equal distances all round the circumference forming the ribs of a cone. In the interior of this cone is a cellular deposit containing large quantities of starch and albuminoid materials. But here again there is no indication of the presence of any parasite. The node is a tuberculated root. When an ordinary rootlet arises from a larger root the vascular centre is condensed, forming a round pencil; but if the vascular branch at its rise is more diffuse, extending a little up and down the axis, then half a dozen pencils may run out, not close enough to form a single root, nor far enough apart to form separate roots, and a node or club is the result, in which all the pencils are enclosed in one cellular sheath with a deposit of starch and other matters in the interior. Whatever purpose these clubs may serve, they do not seem to indicate the presence of any disease, or of any parasite. They are not confined to cultivated legumes, but exist equally upon the wild members of this order of plants.

Plants in which clubbing takes place.

—Enormous quantities of Cabbages are grown in the vicinity of St. Petersburg and in other parts of Russia, and it was to the phenomena of clubbing in these plants that Woronin chiefly directed his attention. But although in this country clubbing extensively attacks the roots of Cabbages, yet as all the phenomena of the disorder are much better seen and more easily studied in Turnips and Swedes, these afford the best means of becoming acquainted with the facts, and when you have the facts the difficulty of verifying them in more

difficult cases is much lessened. But as the roots of the Turnip and the Cabbage frequently present other abnormal appearances besides those of finger-and-toe, we have first to make as sure as we can that we know this species of clubbing when we see it, for I have noticed people who are taken as practical judges at shows mistaking some of these appearances for true clubbing; and Woronin himself, as I humbly think, falls into the mistake of regarding tubercled root-buds as fungoid clubs, or at least as being produced by the inroads of his new fungus. Well, then, the roots of Turnips and Cabbages are liable to subdivision or furcation, sometimes attended with bulbing and sometimes not.

The furcation of the roots of Turnips and such like plants has been regarded by some as indicating a latent desire to return to some happier state of nature from which the plant is supposed to have been withdrawn for the voracities of cultivation. But as Turnips and Carrots have been in cultivation from the earliest historical times, we have no proof that they were ever derived from any uncivilised progenitors of a different type, and therefore we are not as yet entitled to say that furcation of the root implies any retrogression. If furcation of the root implies retrogression, the whole vegetable kingdom must be going backward; but if furcation is not retrogression, neither is it disease. A Turnip root may throw out fingers and toes which are perfectly healthy, and have nothing to do with club rooting. Let us next look at tubercled rooting as it appears on the Turnip, and more especially on the Swede. Very few persons will mistake mere furcation of the root for clubbing, but it is not always obvious at first sight whether these excrescences are clubs or tubercled root buds. They must be dissected and microscopically examined. If one of these tubercles on a Swede root of say one-eighth of an inch in diameter is cut right down the middle and through the supporting root, and if a thin slice is then taken off the face of this section and examined with a very low power, a most interesting field of study will be presented. If your section is across the root, you will see the medullary rays running out and terminating in the cortical tissues at all points of the circumference, except one point, and that point is where the vascular system of the node takes its rise. Some of the medullary rays run out at the side of the root, but instead of forming an ordinary fibre or rootlet, they give rise to a tubercle, and that tubercle, instead of being, as in former examples, a tubercled root, is a tubercled bud. A vascular stem will be seen, and at the top of it a whorl of fleshified leaves all enclosed within the tubercle. These leaves are often green, even while within the node. Frequently in favourable circumstances they burst the node altogether, and one season I cultivated a few of them into stems and flowers—the stems in some cases being more than 2 feet in height. These tubercles, M. Woronin thinks, are caused by his fungus; but I have never found in any of them the plasmodium spots or spores of the fungus, and therefore it seems to me that they are a natural product of the plant. There is nothing more wonderful in a Swede sending up a flowering stem from one of its roots than there is in a hundred other undiseased plants doing the same thing.

Root galls.—There is yet another kind of protuberance produced on the roots of Cabbages and Turnips differing from true clubs, namely, the galls produced by the gall weevil (*Curculio pleurostigma*). It has always been thought that these and other galls are mere formless excrescences, a mass of cell tissue swollen up by some injection of the insect when depositing its egg. If you examine these galls in the same way as has been suggested for the nodes, and before the larva has eaten out the interior, you will find that they also are root buds. The depositing of the egg sets free the outer end of certain of the medullary rays, and a tubercled bud grows up just in the same way as the natural root bud grows, that bud containing within it the egg of the weevil and the fleshified leaves forming the food of the young grub before he cuts his way out into the great world.

* Read at a meeting of the North of Scotland Horticultural Association by Mr. A. Stephen Wilson, North Kilmarnock.

Finger-and-toe, or anbury.—In many cases and in certain seasons clubbing begins at a very early stage in the life of the plant. Woronin found seedling Cabbages affected; and in this country the Turnips are often very visibly affected before the tap-root is one-tenth of an inch in diameter. Indeed, if Turnips are cultivated in water along with the pulverised materials of old clubs, the young root shows the presence of something wrong when only one-hundredth of an inch in diameter. But clubbing cannot proceed far in water; and all the phenomena are best studied on plants growing in the ordinary way. When the tap-root of a young Turnip is seized, the club is seldom of an abrupt form; it has a smooth outline ending off gradually, although to this rule there are exceptions. The flowing outline of the true club at once distinguished it from a tuberculated root-bud, the outlines of which are abrupt. Now, if we take a small plant with one or more clubs upon it, and another small plant with no clubs upon it, and cut off both their tops and drop them into pure water, the one with the clubs upon it sinks to the bottom, while the one without clubs remains floating. The clubbing, therefore, whatever it arises from, has changed the physical constitution of the plant and increased its specific gravity. Something must thus have gone into the substance of the tissue which has increased its density. And if we are dealing with common Turnips we know that this something cannot be the normal materials which produce ordinary bulbing, because ordinary bulbs all float in water. We must therefore follow this something into the interior. But before entering upon the examination of the clubs I would advise anyone who wishes to form an independent opinion on club-rooting to make himself familiar with the microscopic appearances of pure Turnip or Cabbage root tissues. If a small club be now taken while still perfectly fresh, and a thin slice be made in any direction, and submitted to a low power of the microscope, it will be seen to be full of clouds, which did not appear on the pure tissue. The general disposal of these clouds is best seen in a slice which is not too thin; but in order to determine the intimate structure of the spots, a thinner slice must be taken, in which here and there an unbroken cell will be found full of the plasm which causes the spots. An inspection of these spots shows that the material forming them consists of a clear yellowish fluid plasm intermixed with minute granules. This material is contained within the cells of the plant; but although it may fill up and distend them, they are not disrupted by it. Nothing more is to be seen than the matter of the spots; there are no threads of mycelium running through the intercellular spaces, and you must now wait and see what will turn up. If, then, you again examine similar spots two or three weeks later in the season you will find that their number has increased, and that they have become darker and denser or more impervious to light, and that the granules floating in the plasm have become larger and more distinct, have become, in fact, of a measurable diameter, and that diameter may be six or eight hundred thousandths of an inch. You thus see that a process of growth is going on in the granular matter within the cells, and if you again examine this matter in August or September, you will find that the whole mass within a cell has become fully developed clear globular spores, very much resembling the roe or spawn of a fish, but of course much smaller. When the cells are broken the spores either float out in masses, being slightly glued together, or singly all over the side, when, if measured, they will be found varying in size from twelve to eighteen hundred thousandths of an inch in diameter. M. Woronin thinks the spores are mere aggregations of the plasm; but as granules can be detected at an early stage, and as the spores may be seen in a half grown condition, it is much more probable that they are organic growths like other spores and embryos. But the main discovery of the Russian botanist, that the clubbing is caused by the introduction of a parasitic plant of the most simple character, is beyond all possibility of doubt.

Non-parasitic part of the life cycle of this fungus.—The mature spores remain perfectly quiescent in the substance of the host plant, and the rotting or disintegration is only indirectly caused by the fungus, or caused only by the fungus when the spores begin to germinate. The distortion of the tissues renders them more liable to meteoric influences, but the rotting of the host plant does not affect the spores, and in clubs which were fully exposed to the intense frost of the winter of 1880-81, the spores remained as bright and plump and vital as if nothing particular had happened. In the spring they begin to germinate. Some of the spores give rise to at least one true zoospore, which when half escaped is able to whirl its cast-off shell round and round with great velocity. But I think most of the spores are plasmodiate in various ways without giving rise to regular zoospores, and this is in agreement with the conduct of many other fungoid fruits. A plasmodium, I may explain, is simply a formless mass of fungoid matter capable of germinating or reproducing at any point. Now reproduction does not come about directly from the zoospores while they are dashing about and sowing their wild oats. All zoospores of a fungoid character very soon begin to myceliate or to plasmodiate. And a single spore of the clubroot fungus can form a plasmodium by itself, or two or many may run together and form one mass. Well, it is in the condition of plasmodia that the roots of plants come in dangerous contact with this fungus: It would not touch them if they would let it alone. but the roots running out in all directions come here and there alongside a particle of this semi-fluid plasm, and just as they absorb liquids and liquified manures, so do they absorb the liquid plasm of this fungus, the matter of which is probably carried from one cell to another by the ordinary osmotic action of these cells. Woronin thinks it a weak point in his discovery that he did not see the entrance of a zoospore in some amoeboid form into the substance of a root, but all zoospores are far too large to pass through a cell wall. The zoospores have first to be reduced by myceliation or plasmodiation before the matter of them can be absorbed by a cell wall.

Propagating clubbing.—To make the contention that this fungus reproduces itself looks like a piece of unnecessary pleading; but I may state that in the spring of 1879 I mixed a quantity of the rotten clubs of the crop of 1878, containing spores which had been exposed to the winter frost, with garden mould, and filled a number of pots with the mixture. Good Turnip seeds were sown in the pots, and all the resulting plants became at an early stage excessively and fatally clubbed. The two largest pots had each a crowd of thirty or forty plants, and all were clubbed. In May, 1881, I made some further experiments in propagating the disease. Three pots were filled with a mixture of mould, farmyard manure, and one artificial manure each, along with pulverised rotten clubs of crop 1880. Another pot had farm manure only, along with pulverised clubs. Other two pots had no rotten clubs—the one being manured with cow manure, the other with a mixture of artificial manures, namely guano, ground coprolite, and dissolved coprolite. All were then sown with purple top yellow Turnip seed. The pot manured with cow manure and without rotten clubs had 44 plants, none of which were clubbed. And the general result was that in the two pots taken together which had no rotten clubs, 9 per cent. of the plants were diseased; while in the four pots which had rotten clubs 52½ per cent. of the plants were diseased. The guano pot had the highest percentage of clubs, but the difference in the infected pots was not sufficiently marked to warrant any decided conclusion that any one of the four manures compared is more favourable to clubbing than another. But the difference in per centage of disease between the pots having rotten clubs and those not having is conclusive proof that the cause of clubbing is propagated by what produces the clubs. And what produces the clubs is undoubtedly this simple fungus in the parasitic stage of its life. While the spores lie in rotting clubs or in the soil,

giving rise to zoospores and masses of plasm, the fungus is not a parasite; and for anything that we yet know it may reproduce itself for a thousand years without ever becoming a parasite. Thus you see the plant has

Two distinct systems of life—a parasitic system and a non-parasitic system; and from considerations which cannot be here adduced, it is highly probable that the non-parasitic system can reproduce itself non-parasitically, and without producing spores or fruit. The fungus is only brought to its completed state by becoming a parasite. In its seminal form the germ of one plant enters into the tissue of another plant, and there undergoes a process of what I propose to call apogestation, that is, the gestation of one plant in the tissue of another plant of a different species. I have found that this is really the method by which the Potato fungus also is propagated, and the principle of apogestation is evidently going to be of wide application. And a marvellous unification indeed does a portion of the vegetable world receive when it is seen that the tissues of certain of the higher plants become the substituted mothers to the germs of these lower plants, and carry them to birth, and to the production of their fruit and their highest forms. For you are not to imagine that the method by which the Cabbage and the Turnip absorb the plasm of a fungus is peculiar to these plants. Probably all fungi which become parasitic in the tissues of the higher plants really enter them in the consistency of a fluid plasm. And during the course of last year, by the application of this principle, I was fortunate enough to discover the true life theory of the Potato fungus. And now it turns out that the Potato disease, instead of being spread over the country in the autumn by the carriage of conidia and zoospores on the air, is in the leaves, and in the stalks, and in the tubers, not in the form of mycelium, but in the form of plasm spots or sclerotia, from the very hour that the Potato plant begins to germinate in the pits or in the soil. So long as they keep quiet and do not germinate the leaves remain green, and the tubers remain white; the destruction only begins when the parasite begins to myceliate in order to produce its perfect fruit.

Preventing club-root fungus.—If I could now conclude by suggesting a practical method of preventing the club-root fungus from coming in contact with Brassicaceous roots, perhaps a service would be done to horticulture, but perhaps not, for we do not see all the consequences of such prevention. But a mode of looking at the relationship of certain parasitic fungi to their host plants is becoming prevalent, about which I would venture to say a word. We frequently hear such expressions as "disease-resisting Potatoes," and we hear it contended that weak and unhealthy Turnip plants are most liable to club-root. All this seems to me to proceed upon the assumption that we already know the whole theory of the relationship between the fungus and the host plant; we possess no such knowledge. If there is poison in the food at a dinner party, all the partakers are equally liable to be poisoned, whether strong or weak, and the very conception of "disease-resisting" is entirely inapplicable. In the same way, if the fungoid plasm and sporidia are absorbed by the tissues of plants while performing their ordinary functions, the conception of resisting disease does not apply. A fungoid plasm absorbed by a root or a leaf is no more a disease than a manure absorbed by a root. But, beyond these somewhat abstract considerations, you have the broad fact that a vast number of plants which nobody can regard as weak or wanting in aggressive force are the perpetual hosts of parasitic fungi. Charlock is as ready to act the part of gestator to the club-root fungus as the Cabbage or Turnip. Coltsfoot and Thistles act the same friendly part towards certain parasitic rusts that Wheat and Oats do. And the Lilac leaf nourishes the ovularia which ungratefully destroys its mother with the same readiness as the Potato leaf nourishes the sclerotia of the *Peronospora*, whose presence is per-

fectly harmless, but whose germination destroys it. So that whoever maintains that weakness or non-resistance of disease, consequent on cultivation, is the necessary antecedent of the presence of a parasite is bound to maintain that hundreds of plants which are not in cultivation are also in a state of perpetual weakness. He is also bound to maintain that one root of a Turnip is weak while another is strong, and even that one part of a root is weaker than other parts. But why weakness should better enable a plant to mature itself and another plant at the same time than strength and a vigorous growth I do not profess to understand; but there is no difficulty in seeing that the logic of the contention is not supported by facts. The causes which favour or obstruct the growth of the club-root fungus have not yet been investigated. While the spores remain dry, plasmodiation (which is equivalent to germination) cannot take place. A certain degree of moisture is necessary to commence this activity, and hence it is generally the case that in soils which are damp without being positively wet, clubbing is more prevalent than in drier soils, and the effect of a damp soil may be produced by a manure which has a great affinity for moisture. From experiments which I have made on what may be called the hygroscopicity of manures, that is, their power of absorbing atmospheric moisture, I find, for example, that in the time during which cow manure absorbs 16 per cent. of its weight of moisture, guano absorbs 53 per cent. A saline manure, therefore, will keep a dry soil somewhat moist, and consequently will promote the plasmodiation of the fungus spores; in other words, will reduce them to that condition of semi-liquidity in which alone they can be taken up by the roots of plants. But this branch of the subject is entirely new, and until it has been more fully studied I should not be justified in making any recommendations.

PLANTS IN FLOWER.

* * The "Editor's Table" has been merged in this department, so that all our correspondents and readers may have the opportunity of recording in it (at the time of their flowering) any good plants not generally known or grown. We shall be obliged by our readers sending a few words when they have or see any good thing in flower, either under glass or out-of-doors. The back volumes of THE GARDEN contain records week by week of the plants in flower at the time, which help those who have to produce their best effects at particular seasons. But the record should go on for the sake of the new plants if for no other reason, and we hope all will contribute to it.

NOVEMBER FLOWERS.—This morning a bunch of twenty-six flowering spikes of *Schizostylis coccinea* was brought in from out of doors to save them from being injured by frost. *Oenothera taraxacifolia* and *Geum coccineum* are still flowering, but the *Schizostylis* has been the glory of the garden since the single Dahlias went a fortnight ago.—ROMSEY.

TACHIDENUS CARINATUS, now in flower in the Royal Exotic Nursery, Chelsea, is a pretty perennial *Gentian*-wort and valuable for winter flowering. The plants of it in question, which are dwarf, with small shining leaves, bear on slender stems blossoms about an inch in diameter, of a rich, deep purple, fading with age to a lighter shade. It is, we believe, a greenhouse plant and of easy culture.

NYMPHÆA DAUBENYANA.—We had (says the *Irish Farmer's Gazette*) on more than one occasion during the present year to allude to this lovely and most desirable stove aquatic. As early as April it was in full flower in one of the side tanks of the Victoria house, Glasnevin, its fragrant cups of azure and gold not numbering one or two, as in the case of the normal form, *N. cerulea*, but generally a dozen or more open at a time; add to this the marvellous persistency with

which they are produced, for up to the present week they are almost as abundant as they were six months since. It is a gem.

DICHORIS-ANDRA THYRSIFLORA.—As a bright winter-flowering plant for a stove giving little or no trouble there are few more commendable plants than this, which is about the only one that at present enlivens the Palm house at Kew, where it is numerously represented. It is a plant which grows about 3 feet high, and has ample leaves and stout stems, terminated by long dense clusters of flowers of an intensely deep violet purple; many of these, however, do not expand at a time, but even in bud they have a bright appearance.

FREMONTIA CALIFORNICA IN NORTH WALES. —Flowers of this handsome Californian shrub have been sent to us by Mr. A. O. Walker from Nant-y-Glyn, Colwyn Bay, who says that it grows as a bush on the lawn and is quite unprotected. This fact conclusively proves that it is hardy at least in North Wales, and the flowers sent are as fine as any we can obtain about London. Mr. Walker also sends flowers of *Choisya ternata* from a plant growing against an outside verandah wall. This beautiful evergreen Mexican shrub should be quite hardy in North Wales, seeing that it is uninjured about London against a wall.

NEW DOUBLE BOUVARDIA.—President Garfield we saw for the first time in flower the other day in Mr. Turner's nursery at Slough. It is the exact counterpart of the double white variety, *Alfred Neuner*, except in the colour, which is a soft delicate pink, a colour so pleasing that it cannot fail to render the plant even more popular than *Alfred Neuner* itself. It is a vigorous grower, a free flowerer, it continues in bloom a long time, and is especially valuable for winter flowering. In Mr. Turner's nursery there are also some finely flowered specimens of the double white, the best we have seen.

LUCULIA GRATISSIMA.—A very fine specimen of this plant, measuring 12 feet high and about 10 feet through, is now in perfection at Hatfield. It is carrying no fewer than some 500 trusses of bloom of large size. Mr. Norman, the gardener, never prunes this plant, but pinches out the strong leading shoots in order to strengthen the bottom growths, which flower as profusely as those at the top. It is to be regretted that such a useful plant as this is so often found in a neglected or mismanaged state, and generally confined to an intermediate house, or stifled up in a stove, where it only struggles to exist. A cool house is undoubtedly its proper quarters throughout the year.—A. I.

CHRYSANTHEMUMS.—At Eynham Lodge, Shepherd's bush, Mr. Bird's residence, is as fine a collection of *Chrysanthemums* as we have ever seen in any private garden. They number some four hundred plants, all of which are arranged in a capacious lean-to Peach house, a capital idea, thus putting to a good use an otherwise uninviting structure at this season. The plants are arranged on either side of the pathway, and the pots and naked stems are hidden behind canvas placed along the sides of the path. The collection includes all the finest of the incurved varieties, numerous Japanese sorts, and all are admirably grown by Mr. Rigden. From the end of September till nearly Christmas this Peach house is rendered attractive by the *Chrysanthemums*, for when so protected the blooms last long in perfection.

BEGONIA AUTUMN ROSE.—A new hybrid variety, raised in Messrs. Veitch's nursery at Chelsea by Mr. Heale, promises to become one of the finest and most valuable of winter-flowering *Begonias*. It is a cross between the well-known *B. insignis*, a beautiful winter flowerer, and the new *B. socotrana*, a species with large, peltate leaves and loose clusters of large, deep pink blossoms. The hybrid is exactly intermediate; the leaves are much larger than those of either parent, and oblique in outline. The flowers, as regards size, are midway between the two parents, and produced more abundantly than in either, while the colour is a clear, deep rose, a tint that will harmonise with other flowers, and thus render the

blossoms especially useful in a cut state. We have seen the Autumn Rose variety in bloom for the past six weeks, and the more we see of it the more are we convinced of its great value as a plant for cultivators in general.

CACTUS DAHLIA (D. Juarezi).—Of this singularly striking Dahlia I lately saw large numbers of plants making a good display in the College Nursery, Cheltenham, as did also a good collection of single Dahlias. Of the Bouquet or Pompon section, proportionately large numbers are likewise grown here, white flowered kinds especially; the latter are very useful in a cut state, and in order that they may be utilised to their greatest extent a light skeleton framework of wood made in convenient portable lengths is placed over the plants. The latter are not tied to stakes in the usual way, but pegged down near the ground, and mats or other covering are placed over them to secure them from frost, by which means quantities of flowers are preserved till *Chrysanthemums* are ready for use. Among *Pompones* Fire King claims special mention; its flowers are brilliant scarlet. I am informed that this plant has been in existence nearly forty years, but is now, I believe, rated as a new variety, under the name of *Glare of the Garden*. It is the most brilliant Dahlia I have seen.—E. JENKINS.

FERTILISING MOSS.

As I have had a little experience of Dumesnil's Fertilising Moss, as well as *Sphagnum* and other Mosses locally gathered and fertilised, I have thought a few notes on the subject might be of interest to your readers. I have now over 1000 plants growing in Moss, many of which were struck in it. In a good few cases I have used Dumesnil's Moss alongside a mixture of *Sphagnum* and *Hypnum* fertilised by myself, but as my experience only runs over twelve months at the furthest, I would not like to dogmatise on the matter; but my opinion is pretty decided in favour of home-gathered Moss. In the case of half a dozen *Hydrangeas* and the same number of *Begonias* grown in Dumesnil's Moss, and as many in locally fertilised Moss, I am as yet quite unable to say that either the one or the other has any advantage; at the same time a few others were put in Moss without fertilising, and even they are not very far behind. I have also lifted a hundred plants or so of *Mignonette* from the open ground, a good many of which are in Dumesnil's, and the remainder in locally fertilised Moss. Almost the whole of them have done fairly well, but on the whole the locally fertilised Moss plants have done best. I have also grown a quantity of *Marguerites*, *Chrysanthemums*, *Deutzias*, *Bouvardias*, *Fuchsias*, *Roses*, *Pelargoniums*, &c., partly in the one and partly in the other Moss, among most of which my own fertilising has the preference. Still I would by no means advise florists from giving both systems a fair trial, as I feel assured that Moss-grown plants are coming and must come to the front, and many plants, I am quite convinced, do better in Moss than in soil. But the idea of potting in Moss seems to me to be preposterous. Why not dispense with the pot when plants can be equally well grown in a piece of Moss tied round with matting, which may be either set on a bench in the greenhouse, or arranged in a vase for the table, covered with beautiful fresh, green Moss, which is often as beautiful as the plants, or hung up in basket form either in a wire basket or the simple tuft of green Moss, in either of which ways I have found most of the plants do remarkably well, and they can be arranged with much more effect than they can be in the old-fashioned clay flower-pot? JOHN SIM.

Galeside, Strachan, Banchoory.

Hot-water pipes.—How ought these to be arranged in a low span-roofed Orchid house, 60 feet long, with a path in the middle sunk 3 feet, the side stages on each side being level with the ground outside? Two doors, one at each end.

create a difficulty as regards getting the pipes past them, and upon each side of the stage where they are wanted. Being near upon water the stoke-hole cannot be sunk below 3 feet, the depth of the path. If the pipes cannot be upon the stages, will the four rows (two flow and two return) answer in and on one side of the path, viz., the side where the stove is? The stove is outside at the door, and there are steps down to the sunken path. If some of your readers will kindly set me right in this matter I shall be greatly obliged.—J. C. K.

INDOOR GARDEN.

FICUS REPENS AND ITS FRUIT.

THIS little creeping Fig, so common in most warm plant houses where it usually forms an elegant tracery on the walls and woodwork, is seldom seen in its adult or arborescent state, and even more rarely in fruit. Among the few examples which we have seen of the arboreal stage of this *Ficus* the most remarkable is that in Mr. Bird's garden at Eynham Lodge, Shepherd's Bush, in which there is a large plant covering two sides of a capacious stove. This plant has this season borne six fruits, one of which is represented in the annexed engraving, which also shows the mature fruiting branch as well as one that is barren. This plant is about nine years old from a cutting, and now has a stem some 2 inches or 3 inches in diameter, and, what is very remarkable, it still occupies the 4½-inch pot in which it was originally placed when small, though over the rim of the pot and from the hole in the bottom it has thrown out abundance of roots, some of which are of large size, and form a dense network on the wall beneath and along the surface of the stage. The pot was originally placed on the stages against a glass partition, and this it covered without showing any tendency to develop the adult growth, but as soon as the plant reached the back wall, on the top of which are large lights letting the light in from the east, it quickly assumed a fruiting character, and bore large foliage, but below, away from the direct light, there is only the usual small-leaved creeping growth. The thick branches with large foliage have been trained vertically to the wood supports of the back lights, and Mr. Rigden, the gardener, annually prunes these shoots, an operation which induces the plant to form short spurs, which subsequently develop fruits. This annual pruning no doubt accounts for the fruits, for on the other branches that have been allowed to run free there are no signs of fruit. The house is maintained at what may be called a warm greenhouse temperature, but otherwise the plant has received no special treatment. This remarkable change from the creeping to the tree-like character in this *Ficus* is singular, and no doubt the same thing occurs in the case of other creeping plants, notably the common Ivy, which is never seen in flower or fruit while the plant creeps on the ground, or clings to a tree or wall, but as soon as it has climbed to the utmost extent of its support it begins to assume a new and quite different character; the main branches send out short twigs, the leaves become smaller and more entire in outline, and umbels of flowers, and subsequently fruits, are formed on the short spurs. This kind of growth constitutes what is called tree Ivy, which may be propagated by cutting.

W. G.

HARDY SHRUBS FOR FORCING.

The Guelder Rose (*Viburnum Opulus*).—Of all the hardy shrubs I have forced in my time this has perhaps given me most satisfaction. Its abundant leafage and the distinctive character of its flowers make it valuable for forcing. It must, however, be grown in pots for a year before it is forced. The best way to get plants of it for this purpose is to go to a nursery and select them. This may be done at any time from November to January. They should be brought home and potted in suitable sized pots, but for all ordinary purposes plants should be selected that can be

potted in 10-inch pots. Any ordinary potting soil that contains a fair proportion of loam will suit them. When potted place them in any cool glass structure, and at the same time shorten back some of the strongest growths; they only want temporary shelter under glass for a few weeks in order to encourage early root action; they should be exposed to the open air about the middle of May. The best position for them during summer is a south border under a wall or some other warm situation where the pots can be plunged to their rims either in a bed of soil or ashes; the plunging reduces the labour of watering, and at the same time the roots are maintained in a more uniform state of moisture, the result being steady and continuous growth that will produce a good crop of flowers. Early and hard forcing it cannot endure; therefore to have it in satisfactory condition it ought not to be expected to flower until the end of March or early in April. To accomplish this it should be introduced into a medium temperature early in January, but I must remark here that the plants must not be interfered with in any way; the roots must not be disturbed nor the branches pruned. If it is desired to have the plants trained in any particular form, that should be done before they are brought into heat. I have grown them on short stems about 2½ feet high, and trained the branches into a compact head, but other plants grown without any training were the most satisfactory; they produced more and larger balls of flowers, and were altogether more effective. When first put into heat the temperature should not exceed 55° for the first month, and 65° by day and 55° by night by fire heat should not be exceeded. In this temperature they will come into flower in due time.

Moutan Pæonies.—Few if any plants produce a more charming effect than these when suitable sized plants are obtained. The securing of large plants is no doubt the greatest difficulty, but where practicable they should be had in preference to small ones, as the latter only produce two or three flowers; it requires plants from twelve to sixteen years of age to produce a score of blooms. The great merit of these Pæonies is, whether old or young, they do not want any particular preparation. Being quite hardy, they are best grown in the open ground, from which they may be lifted and potted and forced the same season, and if potted in November they may be introduced into a temperature of 55° in the middle of December, and if worked on gradually in a day temperature that never exceeds 60° with plenty of light and as much air as the season of the year will admit, they ought to be in flower in the third week in February, and when well bloomed they make grand ornaments for the conservatory. It would be misleading not to say that these plants suffer more from being forced than any others with which I am acquainted; after being forced they take two or three years to recover, as when forced the terminal bud which contains the flower is the only bud that starts into growth. The lower or wood buds do not respond to the heat, but invariably perish.

Double blossomed Plum.—The delicate whiteness of the double blossomed Plum is not excelled by any of the choicest of exotic flowers, and no plant is more easily managed. We raise our own plants from cuttings made from young wood in spring; the first year they are grown in pots, and the next spring they are planted out in rich soil in the reserve garden. After being two years in this position they make nice plants for forcing. We always pot up our stock in November, and introduce the plants into an intermediate temperature about the last week in December. During forcing these Plums receive exactly the same treatment as the Guelder Rose, but it requires less time to bring them into flower. Our plants are generally in bloom about the third week in February. As soon as they go out of flower they are taken to a cool house, and after being hardened off all the growth is cut down to within an inch of the stem. Early in May the plants are replaced in the open ground, where after two summers' growth they are again in a condition fit for forcing.

Lilacs.—I find the Persian kind to be the most useful, and to be more generally admired than the others. I have grown and forced Lilacs under a variety of circumstances, and I find that if small plants are wanted, and they are required to be in flower early, they must be grown in pots one year previous to being forced; but where large plants are in demand, and the number sufficient to allow of certain plants being forced every alternate year, and then not subjected to hard forcing, they will flower in a very satisfactory manner. The early part of November is soon enough to lift and pot them from the open ground. It is better to give them rather large pots than to mutilate the roots too much. After being potted they require the protection of a cool house, from which frost is just excluded, and to be introduced into the forcing house early in the new year. The temperature at first should not exceed 55°, to be increased to 60° in three or four weeks—a temperature in which they will come into flower in six or seven weeks. The plants require a rather light situation and a liberal supply of air.

J. C. C.

Camellias not opening (*J. W. J.*).—The cause of your Camellia buds not opening is doubtless due to a too close or damp atmosphere and too low a temperature. Try what effect a drier and more airy atmosphere and a slightly higher temperature has on them.

Rogiera gratissima.—This, which is largely grown in the College Nurseries, Cheltenham, produces large heads of bloom even on very small plants; some 300 young plants in 3-inch pots have in many instances heads of bloom equalling in size the diameter of the pots in which they are planted. It is a most desirable greenhouse shrub; the small lateral heads of bloom may be employed with advantage in the arrangement of bouquets.—E. JENKINS.

A good winter blooming plant.—*Crasula gracilis*, of which a coloured plate appears in the current number of the *Révue de l'Horticulture Belge*, seems to be a really charming plant, and a valuable acquisition for the decoration of the winter greenhouse, as it is of extremely compact and cushiony habit of growth, its fleshy pointed leaves not exceeding 2 inches in height, while its bunches of small rose-coloured flowers are borne on stems rising about 1 inch above the foliage, and are said to be produced without intermission throughout the winter months, from November to February. It is also said to be quite hardy, and consequently well adapted for the decoration of the cool conservatory during the winter months. Plants can be procured easily by sample post from M. Pynaert Van Geert, Rue de Bruxelles, à Gand, Belgique.—W. E. G.

Eucharis, amazonica.—Where a steady supply of bloom from this plant is the object in view, no doubt "Peregrine" is right in advising the continuous growing system as the best means to attain that end, but the resting system has also its advantages. As an exhibition stove plant, few are more deservedly admired than the *Eucharis*, and it is for such purposes, in order to have a limited number of plants, or may be one specimen plant, in bloom by a certain day, that the resting system must be adopted. From a house devoted to these plants we this spring selected two plants which we wished to have in bloom on a certain day. They were put into a cool greenhouse, were kept dry, with an occasional watering to preserve the foliage, and kept so for, not, as "Peregrine" says, two or three weeks, but as many months; they were then put into heat, with the result that both plants at once threw up several flower-spikes, were finely in bloom by the time required and were exhibited, the foliage being all that could be wished for. Not one plant out of any of those left growing on in the house would have answered our purpose, although several had odd spikes on them. My own opinion is that where a continuous supply is the desired object the growing-on system is the best, but where a large demand at a given time is the object, then the resting system has the advantage.—J. D.

PERPETUAL FLOWERING CARNATIONS.

In order to make my previous communications respecting Carnations more complete, it may be desirable to add a chapter on this section. To those who are fond of beautiful and sweet-scented flowers, perpetual flowering Carnations are invaluable. My first acquaintance with them was about thirty years ago, and the recollection of them will ever remain in my memory. The plants were 4 feet or 5 feet in height, and trained to the wall of a dwelling house, where they continued to

Cuttings, which may be taken off and inserted in sandy soil, using 4-inch or 5-inch pots. The pots should be plunged in a gentle bottom heat in a house about the same temperature as that the plants were growing in. The object in putting in cuttings so early in the year is that the plants may be strong enough to produce a succession of blooms from the time the strain of bizarres, flakes, and seedlings thereof are over early in August and onwards from that time. Cuttings may be put in until the end of April for succession. Indeed,

the plants must be potted on as they require it, until by the autumn they are in 8-inch pots, and producing a plentiful supply of flowers. We grow our plants in frames until the end of May, when they are put out in an open, yet sheltered, position out of doors until the weather in the autumn becomes too cold for them again, when they are removed under glass to produce their flowers. Good turfy, moderately clayey loam, to which has been added a fourth part of rotten stable manure, as much leaf mould, and some sharp river sand, is



Fruiting and sterile branches of Ficus repens (natural size).

produce blooms during the summer. This is one way to get good blooms out of season, the protection which the wall affords being sufficient to protect the flowers during unfavourable weather. Of course this is not nearly such a good way to grow them, nor does it give anything like the satisfaction that hothouse culture does; it is merely a good makeshift. To those intending to take up the culture of this section of Carnations the following cultural remarks may be useful. We will suppose it is the first week in January, and our plants are in a house with a temperature of about 55°, with a rather dry buoyant atmosphere. In that case they would be growing rather freely, producing good blooms, and numerous side growths. These small side growths are of much value, as they form

Carnations may be propagated thus in any month of the year, but the spring months are the best, as the plants become strong to flower during the winter and following spring months. But we will now return to our cutting pots, and we will find that under favourable circumstances they will have formed roots in about three weeks; as soon as this takes place the plants should be potted off into small pots, either 2½-inch or 3-inch pots. Still keep them in a house with a temperature of from 50° to 55° and as near to the glass roof as possible; they grow away rather freely under these circumstances, and in four or five weeks will require repotting into large 3-inch pots. They may be replaced in a house slightly heated until they have made roots, when the protection of a cold frame will be sufficient. Hereafter

the best compost in which to pot them. Green-fly is a troublesome pest to the plants when making their growth under glass; they do not suffer much from its attacks when outside. Dipping the plants in soapy water, or fumigating them if they are under glass, will speedily destroy it. As to

Varieties, the last season has produced a considerable number of them, possessing much merit either in improved form or distinct colours. As early as April Mr. C. Turner, of Slough, exhibited a group of seedlings, eight of which received first-class certificates of merit from the committee of the National Carnation and Picotee Society. They were described in *THE GARDEN* about the 29th of April, and it will now only be necessary to give the names. They are Conqueror, Enchantress, Flambeau, Hector, Nimrod, Premier, Rufus,

and Whipper-in. These are the results of crossing the Alegatière type with rose-coloured varieties, and Mr. Turner must be congratulated on his success in raising so many fine varieties, which have the merit of producing large, well-shaped flowers with a dwarfer habit than many of the old varieties. What we want in this type is flowers with decided colours—pure white, rose of different shades, good purples, scarlet, and crimson. Amongst the old varieties there are some really good ones, such as the rose-coloured Miss Joliffe and Annie Williams, the pure white La Belle and Guelder Rose. Empress of Germany has white flowers slightly striped; King of the Belgians, large rose flowers prettily fringed; Scarlet Defiance and Proserpine represent the scarlet-coloured sorts; and Sir Garnet Wolseley buff, edged and flaked with red, may be grown for its distinct character. It is better to grow a number of plants of a dwarf, free flowering sort than to fill up the space with a large collection, of which the half of them are inferior. J. DOUGLAS.

SONERILAS.

RECENTLY these pretty little Melastomads have had a little attention paid them, and several improved forms have been obtained. M. Linden especially has raised some very handsome hybrids, the latest being the three or four which were well represented in the *Illustration Horticole* for October last. Although some of these new plants are sufficiently marked to merit distinctive names, yet there are others which cannot be said to differ from kinds which we already have. Of course, it often happens that the same plant is sent out at the same time by two firms, each giving it a name. In such cases it is difficult to decide which name shall stand, and, in truth, there appears to be no recognised authority to which difficulties of this kind may be submitted for settlement. Continental nurserymen are rather prone to indulge freely in this multiplicity of names. Take, for instance, M. Linden's six new Sonerilas. Judging from their pictures in the plate just referred to, is it possible to find more than three distinct kinds? Sonerilas are known to sport freely. I have seen a batch of seedlings of *S. maculata* most of which possessed sufficient distinctiveness to merit a name, though to name them would have been absurd. Turning, however, to the plants themselves, we have amongst Sonerilas some very desirable plants for the front row in a stove, for moist nooks on indoor rockeries, or for suspending in pans from the roof in warm houses. The shining green leaves, which in some varieties are thickly studded with crystal spots, in others blotched and streaked with white and tinged with purple, together with the dense habit of the plants, are charmingly effective, while the freely produced and really handsome flowers alone render Sonerilas worthy of a place in gardens. They flower in the winter months, November and December being the season in which they are gayest. A note on their cultural requirements was published in *THE GARDEN* in February last, so that space need not be occupied in referring to them here. *S. margaritacea* was the first species introduced, Messrs. Veitch exhibiting plants of it in 1864. Since then we have become acquainted with *S. speciosa* and *S. elegans*, both green-leaved, but handsome kinds, and, for the genus, large-flowered; *S. grandiflora*, large flowers, and leaves purple on the under-sides; and *S. Benoni*. From these species the beautifully marked kinds we now possess have been raised, *S. Hendersoni*, *S. Mme. V. Alesch*, and *S. Van de Sande* being the first sent out. There are now dozens of names, but perhaps not more than ten or twelve distinct forms. The species are all natives of India. B.

Toxicophlæa spectabilis.—How little known or grown is this most useful winter-flowering, shrubby plant, introduced from the Cape. Its culture is of the simplest, not requiring any special treatment. During the summer and autumn I kept my plants in an ordinary plant house, and having recently placed them in an

intermediate temperature, they are now opening their deliciously-scented heads of white Ixora-like blossoms, of which a faithful coloured plate was given in *THE GARDEN*, Vol. XII., p. 14.—J. T. Poë, *Riverston*.

Plants for indoor rockwork.—I am covering with rockwork an ugly wall on one side of my conservatory. Will some of your readers kindly assist me with the names of any bulbs or small compact-growing flowering plants (not Ferns or Mosses) that would be likely to succeed in the somewhat close atmosphere? The conservatory is not kept very warm, but at this season and through the winter there would scarcely, I fear, be fresh air enough for many things.—F. K. L.

The succulent house at Kew.—I have often thought when passing through this house that a great improvement could be effected in it by simply introducing a few cartloads of rough stones and clinkers, and so placing them amongst the plants, as to effectually screen the tubs and pots from view. In the interstices between the stones pockets could be formed in which to grow dwarf and spreading succulents, Saxifrages, Sedums, and other things likely to succeed in positions of this description. This would not only exhibit the plants, for which the house was built, to greater advantage, but by removing the array of pots now so unsightly, would display a surface at once more natural and pleasing.—A. B.

Stove plants in flower.—When describing in last week's issue amongst the "Plants in Flower" that handsome Peruvian Amaryllid, *Urceolina pendula*, it was stated that there was little else in flower in stoves. On going round my stove to-day it occurred to me how incorrect that statement was, for I counted no fewer than fourteen different classes of plants in flower, besides others, such as *Calanthes*, *Poinsettias*, *Liliums*, &c., just coming in. Those that are now in bloom are *Anthurium Scherzerianum*, *Æschynanthus grandiflorus*, various *Epiphyllums*, *Plumbago rosea*, white *Begonias*, *Salvia splendens*, *Bruantia*, *Toxicophlæa spectabilis*, *Achimenes coccinea*, *Eucodonia*, *Tydasæ*, *Gesneras*, *Nagelias*, *Impatiens alba*, and *Euphorbia splendens*.—J. T. Poë, *Riverston*.

Callicarpa purpurea.—Amongst the few plants of this truly showy and interesting plant may be said to be done justice to may be mentioned the Botanic Gardens, Birmingham, where its cultural requirements are evidently understood by Mr. Latham, the curator, who grows annually a number of plants of it for the embellishment of the warm conservatory. It seems to luxuriate in a temperature of from 65° to 70°, and, dotted about here and there, has a most telling effect in these gardens. It is not unusual to meet this plant with its slender, pendent branches 4 feet and upwards in length, furnished with its axillary clusters of violet-purple berries, as is stated in *THE GARDEN* (p. 410). It retains its berries throughout the winter, and consequently can be recommended as a highly decorative plant. This, combined with the fact that it is easily reproduced from seed, entitles it to far more extended cultivation than it gets. Cuttings also root readily, and the plants in the Birmingham Botanic Garden to which I refer are annually pruned hard back, a practice which seems conducive to its free growth.—E. JENKINS.

Lily of the Valley.—This is at all times so universally admired and sought after, that it cannot be had in bloom too soon or too long. Imported clumps are far better for decorative purposes than single imported crowns. They should be potted as soon as they arrive from the nursery in an admixture of loam, sand, and leaf-mould, and then they should be placed in a cold pit for a couple of weeks and covered with leaf-soil, so as to exclude light and air. About the middle or end of this month (according to the length of time they have been potted) introduce a few pots to the Mushroom house, and again completely cover the pots and crowns with leaf-soil or coal ashes, and let them remain there until they have

thrown up their flower-spikes, which they will do in about three weeks from the date of being put into the house. The plants should then be removed to a plant stove, and be gradually inured to the light by placing an inverted flower-pot over them for a day or two, which will admit sufficient air and light to allow of the plants being then placed on a shelf near the glass until their flowers have fully expanded, when they can be transferred to the boudoir, drawing-room, or conservatory, where they are sure to receive a right hearty welcome. Failing a Mushroom house, the pots can be plunged and covered over with a few inches of leaf-soil in a box, which may be placed anywhere in a temperature of from 55° to 60°. English-grown Lilies of the Valley can be potted up (the strongest crowns should be selected for the purpose) and treated, as just recorded, for supplying cut flowers. Lilies of the Valley treated as above advised will throw up a flower-spike from every crown of well-ripened clumps.—H. W. WARD, *Longford Castle*.

Hymenocallis fragrans.—Why is it that we so rarely see this lovely plant grown? It is a truly beautiful object when in bloom, and even when not in bloom it is very grand, its broad green leaves making it a useful plant for table or room decoration. I have seen it in three or four gardens in the north of England, but only once since I came to the south. That was about five weeks ago in Mr. Ley's nursery at Croydon; it was growing amongst the same batch of *Eucharis amazonica* that was mentioned in *THE GARDEN* some few weeks ago. We have a plant of it now in bloom; I had it an offset two years ago, and now it has a bulb 13 inches in circumference, and has produced a spike bearing seven flowers, clearly showing it to be easily cultivated. No one would think of being without a good pot of the *Eucharis*, and why not give the *Hymenocallis* the same position in our gardens. I think it would be possible to bloom it twice a year. Perhaps one thing may be against its becoming as popular as the *Eucharis*, and that is its not lasting as a cut bloom. Still, that ought not to exclude it from cultivation, for a few good spikes mixed with Ferns and Mosses, or even as I have it, mixed with *Odontoglossums* and other cool Orchids, have a charming effect. I have another variety under the name of *H. speciosa* which I have never bloomed. I pot mine in a mixture of rich sandy loam and leaf-mould with the addition of a little peat and silver sand; then when they are growing I feed them well with liquid manure (steeped sheep droppings); in fact, I have treated them all the summer exactly the same as the *Calanthes*. I have grown them on without any additional bottom-heat along with other plants in a medium stove. I put them on a shelf for a week or two, withholding water, and they seem to like the light. Thrips is rather an enemy to them, but they can be checked by constant sponging with soft soap. If any of your readers can recommend any other variety besides the two I have mentioned as worth growing, and can at the same time give us a few useful hints as to their cultivation, I shall esteem it a favour, for I am convinced if these *Hymenocallis* were more generally known they would be more generally grown than they now are. There are some score or more species of them inhabiting the West Indies and South America.—W. ROBINSON, *Melksham, Wilts.*

SHORT NOTES.—INDOOR.

Gloxinias.—How am I to treat my Gloxinias? They have generally started in February, and I have potted them with good results; but I have had them lying on their sides in a cold frame since last May, and they have started and I have potted them. What had I best do with them?—DIDO.

Arctotis Aureola.—It is to Mr. W. E. Gumbleton we are indebted for pointing out the correct name of the *Arctotis* figured lately in *THE GARDEN*. In my notes I mentioned that the correct name was given to it at Kew, but the name was only confirmed here, specimens having been sent by me to the herbarium as to a final court of appeal.—R. IRWIN LYNCH.

FLOWER GARDEN.

ERYTHREA DIFFUSA.

THIS is an interesting little alpine perennial belonging to the same Natural Order as the lovely Vernal Gentian. It forms little carpet-like tufts not more than 1 inch high, and the creeping, much-branched shoots, which root freely from their under-sides, are clothed with opposite, roundish, evergreen leaves, and terminate in a sub-erect, wiry stem, from 2 inches to 3 inches high, supporting from three to five bright rosy pink flowers, each blossom being about half an inch in diameter. The general appearance of the plant reminds one of the well-known *Veronica repens*, which it closely resembles—so closely, indeed, that when growing together it is by no means easy to distinguish one from the other unless they happen to be in flower. It is, I believe, a new plant, at least to cultivation, and is destined to become a general favourite. Its neat prostrate habit and the readiness with which it can be grown, com-



Erythraea diffusa (natural size).

bined with its gay flowers, continuing, as they do, for several months during the summer, render it quite a valuable addition to hardy plants.

R. P.

[Our drawing was made from a plant sent to us in July last by Messrs. Backhouse, from their nursery at York.]

AURICULA DISEASE.

I DO not know of any fungus that supports itself on roots of the Auricula. From spawn begotten in the compost, divers Toadstools will sometimes spread their little Japanese umbrellas over our shade-loving plants, and permeate the soil with mycelial threads, but I have not seen these damage any fibres of the plants. One obtrusive fungus has annoyed me this year by heaving up the soil and some young plants for the sake of getting his rude head above ground, but the mischief was merely mechanical. I should assuredly attribute white wool among the fibres to the woolly aphid (*Trama auriculæ*). The insect itself may almost to a certainty be detected among it, and, that by the naked eye, although I have found light puffs of the wool deserted, but the insect has recently been there as surely as the little heap of powdery white ashes down the quiet green lane-side has lately boiled the kettle of the moving gipsy camp. I do not know that the winged form of this insect has yet been brought into notice. Some of us in Yorkshire have seen it, and I have twice found it above ground on my Auriculas, once upon an open flower. I slightly magnified the latter specimen as he stood, and he was a proud insect. He had a finely displayed tail of snowy plumes, opalescent wings, and a body with the bloom and plumpness

of a well-finished Grape, the tint about that of the Buckland Sweetwater.

Like other growers, I had rather be without this subterranean insect, and yet I am not able to say that the most infested plant looks any the worse for it. I often do not destroy it unless I see a flourishing colony where numbers may be killed by a touch, but I brush off any I may find at repotting time, and always when I see a woolly nidus round the collar of a plant, because this substance is perfectly waterproof, and young fibres breaking from the neck may get a check from an unnatural dryness thus produced. This aphid can only flourish so long as it is near or among its dry shed wool. Anything that will take the texture out of this covering and wet it through dislodges and destroys the insect. But I have found so far by experiment nothing that will do this but two things. One of them is Fir-tree oil, and that imparts an odour to the soil for some days which I did not like; the other is paraffin oil, and that I think is not to be trusted, especially since one cask may give an oil of more potent brand than another, and the soil is again impregnated with an unnatural smell.

As to pots, Auriculas like them small. Practically, all our Yorkshire collections that I know of are in small pots as regards the quantity of soil in them. One grower has large pots, but there are only about 2½ in. of soil in them, the rest being immense crock-ery. Another has a depth of 5 inches or 6 inches of compost, but it is in a narrow column of about 3 inches across. Others, like myself, use ordinary pots of 3 inches to 4 inches across, and much drained. The plants will grow in glazed pots, but equally well in those that are not. I prefer to keep the pots clean and uniformly moist by plunging them; and the stages are for this purpose so many sloping banks, 6 inches deep in sand or sifted coke dust, in the glasshouses. North aspect for summer and autumn, and south for winter and spring.—F. D. HORNER, *Kirkby Malcald, Ripon*.

—Mr. A. Dean appears to have read my short note on this subject hastily. I did not say the insects were "difficult to find," but that when the disease first appeared the insects were not immediately forthcoming—it is different now. And I certainly did not say that the insect of the Auricula was the same as that of the Sow Thistle; in fact, my note indicates exactly the opposite view. Mr. Andrew Murray (as I said) considered the Auricula insect to be a new species, and described it as such. I have not pulled Sow Thistles myself, but I have noticed the bad effect of an allied insect on Euphorbias, for it is very easy to tell the insect-infested plants by their starved and miserable appearance.—W. G. S.

GARDENING IN SWITZERLAND.

MR. INGRAM, who so graphically describes his tour in Switzerland, forms a correct estimate of the botanical gardens there. It is quite true that not one of them is worthy of the name, and they can only be regarded as remnants of a bygone period. I would not, however, have your readers imagine that the botanical gardens form an index to the horticultural taste of the Swiss, as this would be doing an injustice to a people who have developed a really remarkable love for flowers. As regards public gardens, there is nothing in Switzerland which can compare with our own parks or those of Paris and some other Continental towns, which may be owing to the fact that the Swiss are surrounded by Nature in her most beautiful and picturesque forms, and have therefore never much cared to expend money upon the creation of such places, which at their very best can only be a feeble imitation of that which the great Architect has so bountifully endowed them with. Much has been done, however, of late years to improve the aspect of large towns, every one of which is, I believe, provided with a *stadt gärtener* (town gardener), whose mission it is to maintain existing gardens in good order, and where practicable to form others. He has also to undertake the propagation of such trees and shrubs as are found

to succeed best, for the Swiss are a thrifty people and think it cheaper to grow what they require than to buy. At Bale the whole of the ancient moat has been transformed into a nursery for trees and shrubs, special attention being given to such as are distinguished for the beauty of their flowers. Where practicable, public promenades have also been set out. The trade done by florists in the neighbourhood of towns for cut flowers all through the winter is really very large, and at that time of the year they find it impossible to grow enough, the custom being to import them from Nice. Violets are bought at 10 francs the kilo (about 2 pounds), Roses and Carnations 25 centimes each, and very fine Mignonette, such as we cannot grow under glass here at that time of the year, also comes to hand, whilst white Lilac comes from the Paris growers. Everlastings and Gypsophila are also largely used in the confection of winter bouquets. The purchasing of flowers is of such a common practice amongst the Swiss that all classes have to be provided for even in the dead of winter, and at that time a hand bouquet may be bought for a franc. I once had a good deal to do with bouquet making in English nurseries, and when an order came in for a shilling bouquet in the winter season it was refused; nothing under half-a-crown could be made. Neither could it perhaps as bouquets are generally made in this country, but in this matter Swiss thrift again peeps out, and by a judicious mixture of flowers with hardy greenery, such as the small-leaved Periwinkle and fresh Moss, a really bright and attractive bunch of flowers is made up for the money. Then, again, window gardening is more thought of than in this country, and most of the large shop windows are ornamented in winter with a handsome Palm or something of a like nature. The furnishing of windows is generally contracted for by local florists, who renew the plants at stated periods, or, if tender or valuable specimens are used, when they choose. This kind of window gardening is a pleasant feature in towns, and imparts to them an agreeable and varied aspect. The English shopkeeper as a rule displays a lamentable want of love for flowers. One may go through a large town and never see a plant or flower in the plate glass windows—just the place where they would, if suitably chosen, be happy. I shall perhaps be told that a shop is a shop, not a flower garden or greenhouse, all the space being required for trade purposes. Well, I think the Swiss appreciate the value of money as well as any people can do, but they do not find that a nice plant or two in their shops interfere with the making of it. What we need to effect a change in this matter is that it should occur to the English shopkeeper that pretty flowers or plants would form an additional attraction. Then we should probably see even choice Orchids and other varieties brought into requisition. J. C. B.

Oxalis lobata.—This is a very neat little plant, well deserving of cultivation. Its bright green leaves appear towards the end of summer, and the comparatively large flowers from September onwards, ceasing only when hard frost comes on. They are very numerous, bright deep yellow, and harmonise well with the small foliage; the whole plant is only 2 inches in height, requires no care, forms patches when left alone, and is perfectly hardy. It is at rest during summer, but makes a border or rockwork gay late in the year. *Crocus zonatus* (September), *iridiflorus* (October), and *Crocus longiflorus*, which is in flower just now, would associate well with it.—MAX LEICHTLIN, *Baden*.

Eulalia japonica.—This variegated Grass we find useful in many ways. In the mixed border amongst herbaceous plants it is a pleasing and striking object, and in a cut state for the decoration of large vases it is most valuable, as its graceful arching leaves give a degree of brightness to floral arrangements not otherwise obtainable. The variegation, too, is clear and well defined, a circumstance which adds to its beauty. It is a great gain to be able to cut spikes of it 4 feet high for indoor decoration. Here in the west of

England the severest winters do it no harm, and we are able to cut from it in the open borders up to the end of November. Any soil not too rich suits it; in rather dry poor material I find that the variegation is more clear and defined. I have not grown it in pots, but I should say it would make a capital plant for mixing with Ferns and other fine foliage plants in the conservatory.—J. C. C.

BOTANICAL GARDENS.

BECAUSE a garden is botanical, it does not follow that it may not be beautiful also; but in straining at a gnat one must not swallow a camel unawares. There are many diverse opinions as to what represents beauty in a garden. Statuary, water-works, and pollard Limes and Chestnuts were once thought to be the acme of beauty in the finest of French gardens; the Dutch admired a flat expanse of Grass or gravel, and straight lines with walks and trim edgings at every turn; and the Italian garden of statuary and shorn Yew hedges is not quite a thing of the past. We see that in gardening, as in other things, fashion has been followed, and we might do worse than pause and ask ourselves whether the gardening of to-day only is pure and classical, or whether it is not after all a fashion as liable to change as that of yesterday. After all, beauty is but the reflex image seen by taste in the looking-glass of our own time. It seems very clear to myself, and I know to others also, that the first object, the very reason for the existence of a botanical garden, is use rather than beauty. In a case of this kind what must be comes first; what may be is a secondary matter. Adaptability for the teaching purposes of our time is first to be considered; that once gained, as much beauty as may be is desirable. Of two botanical gardens both equal in the teaching power required for the time, that which is most beautiful is undoubtedly the best, but we must never forget that "noble beauty is entirely dependent on a nobler usage." We may have our cooking pots chased by a Cellini, but of what real use is the beauty thus gained if they fail to hold water, or do not serve for cooking purposes as well as a common crock or an inelegant cast-iron pan? Of course wherever and whenever it is possible it is wise to unite utility and beauty. I say this, knowing a little of the world's vegetation and of the sublime and bewitching beauty which chaos sometimes presents to us in the forest or on the mountain; but so long as botany as a science is to be taught on the present lines, so long must cosmos take the place of chaos, even in the case of the most beautiful of our botanical gardens.

When we come to details, I know how much like a cemetery a "botanical arrangement" becomes in the leafless winter time. What could bring home this truth more forcibly than did the two children who thus chattered to each other at their play? "Is not this place like a dog's burying-ground?" said the boy. "No," said the little girl; "by these small tombstones I know that they bury babies here." But however unbeautiful it may be, it is an easy key to a practical knowledge of botany; all things educational must needs be systematical, so as to facilitate study, or, what is practically the same thing, to save time. In a good, systematic arrangement such as a botanical garden must ever possess, a student of average intelligence needs no guide. Armed with his text book, he can find his way unaided from Buttercups to Ferns; a good road has been made for him, with direction boards, sign-posts if you will, by the way; all genera and species are in their natural order; groups are easy to find and easy of comparison.

If beauty is to be the main end of all botanical gardens, the *ultima thule*, so to speak, we may, of course, apply the same argument to other things in which use and beauty are both desirable. The arms in a guard-room do not look beautiful as the men put them away temporarily in racks against the bare walls. We will take the bayonets and make bright stars of them on the ceiling, and group the rifles on the walls in a beautiful way. It is true the men may be surprised in the night and want to use them, but what matter; they are not

half so beautiful—so says the armourer—in use as when arranged in pretty groups and stars; or we will take a library as an example of this beauty-before-use kind of teaching. A library proper is a collection of books arranged for easy and convenient use. We find travels, let us say, in one case, novels in a second, and theology in a third. Every book is numbered also for easy reference in the catalogue. But, says one, there is no beauty here; the plain strong brown covers would be much prettier if made red and green and yellow or blue, and then one could arrange them so as to make a beautiful effect all over the place—a mosaic of books from floor to ceiling! No; the argument for beauty before utility in anything of which the fulfilling of a distinct purpose is a *sine qua non* is wrong in part, even if not wholly wrong; and so long as a botanical garden has a distinct and definite use, so must its arrangement depend upon its very reason-to-be-ness rather than on mere beauty *per se*, whether real or supposed. Of course there are botanical gardens where a little more beauty would be a great gain, but I think that all, or nearly all, of those I know are improving in this respect, as also in their facilities for teaching. Some of us no doubt remember the "Brompton Boilers" even amid the more beautiful South Kensington of to-day. Beauty is as often as not a question of a little more expenditure whenever it is added to that which must perforce be useful. The parrot cry of "wolf! wolf! when there is no wolf," is calculated to effect some harm, even supposing that our best botanical gardens might be better—as most things may well be. But the question arises whether it is not as well to praise what is believed to be good as to blame what is supposed to be bad in botanical gardens.

Rich as our garden flora is to-day, we must never forget that our botanical gardens preserved much of it which would otherwise have been lost to us in the whirling race after mere beauty. Their best work is often unseen. As the prophet bath said, "Take thy bread in thine hand and cast thy garment about thee, and so shalt beauty come as a white moth in the gloaming."

F. W. B.

INDIANA WALNUT IN 1834.

In the course of a recent conversation concerning Indiana timber in general and Walnut in particular with one of our pioneer settlers who came to Indiana in 1834, says the American *Wood-worker*, he remarked that "Walnut timber used to be a great deal of trouble in those days. In clearing lands we usually felled the trees, then rolled them into log-heaps and burnt them. Walnut was the meanest wood of all, as it was almost impossible to burn it. I knew a neighbour to spend the best part of some three weeks trying to reduce an immense Walnut tree to ashes. Some years later there was a saw-mill erected a few miles away, and the owner bought a great deal of timber, some of which he sawed up, but most of it he shipped in the log to Cincinnati. I had sold him a considerable amount of timber, when one day he came to me and asked what I would take for a large Walnut tree that had fallen in a swamp a year or two before. I told him he might have it for nothing if he would take it out of the way. He told me afterwards that he made quite a little sum out of it, but had I that tree now I could sell it for £80. We had no particular use for Walnut then. It was in the way, and we took the quickest and best methods of getting rid of it. Sometimes we made rails of it, but it was frequently so curled and twisted that it was impossible to split it. We would probably have ridiculed the idea then that these curled and twisted logs might some day have made us wealthy, or that a big Walnut knot would ever have any value."

The Phylloxera convention.—The *London Gazette* recently published a copy of a decree of the Belgian Government, received by the Board of Trade from the Secretary of State for Foreign Affairs, by which the provisions adopted by the International Convention at Berne with a view of

checking the ravages of the Phylloxera are enforced. The importation into and transit through Belgium of Vines and dried cuttings, and also of slips and suckers of Vines from phylloxerated districts, is prohibited, but the latter articles may be imported from non-infected districts, subject to special authorisation from the Minister of the Interior. Market garden produce, cereals, fruit, and cut flowers may be imported without special formalities; but all other plants, shrubs, and vegetables (not being Vines or parts thereof) can only be admitted by the custom houses of Antwerp, Brussels, Ghent, Liege, and Ostend, or, if coming by the land frontier, by any custom house situated on a railway. The import of such plants is also subject to certain conditions set out in the decree.

GARDEN FLORA.

PLATE CCCLXIII.

ECHINOCEREUS GONACANTHUS.*

THIS is one of the few Cacti which are hardy enough to stand the cold of our winters; but, although it will live and occasionally flower if planted in a very favourable position out-of-doors, still it is, in my opinion, far better to cultivate it in a frame. The manner in which hardy Cacti are managed here is as follows: I have tried a good many species in a considerable number of different positions—in open borders, under walls, on rock-work, in frames, and in greenhouses. I have had some failures, but I think that on the whole I have had considerable success, and am glad to give your readers the benefit of my experience, in hopes that many of them may be induced to attempt the cultivation of some most interesting, but nearly neglected, plants. All of them are beautiful, and some quite splendid when in flower. *Echinocereus Fendleri* bears flowers of a very fine rich purple. In June, 1878, I planted out some small plants of *Opuntia Rafinesquei* in a border under a south wall. The plants have never had any protection whatever from frost, snow, or rain. This is a very cold district, and the two summers after the one in which they were planted were wet and sunless, and they did not flower freely, but last summer these plants when in bloom were a splendid sight. One had upwards of forty-four flowers upon it. There is, too, a beautiful satiny gloss on the flower of a Cactus that no drawing can reproduce. I tried to dry and press some of these flowers, but failed altogether. Cactus flowers seem almost impossible to prepare for the herbarium. Does any correspondent know how it can be done? When I found that I could not dry the flowers, I put one of them down on paper and ran a pencil round it, and thus traced a rough outline, the diameter of which was 4 inches.

* *Cereus gonacanthus*—sub-genus, *Echinocereus* (Eng.).—Stems simple or sparingly branched from the base, 3 inches to 5 inches high, seven-ribbed; areola large, orbicular, distant; the young areolae are very tomentose; spines robust, angled, straight, or variously curved; radial ones 8, yellowish, often blackish at base and apex, 3 to 15 lines long; the upper radial spine is much longer and stouter than the others, $1\frac{1}{2}$ inches to $2\frac{1}{2}$ inches long, nearly equal to the central one, which is remarkably stout, angular, and channelled; flowers scarlet, open day and night.—ENGELMANN & BIGELOW: *Pacific Railway Report*, vol. iv. PORTER & COULTER: *Synopsis of the Flora of Colorado*.

Growers or introducers of new plants will oblige us much by early intimation of the flowering of new or rare species, with a view to their representation in our "Garden Flora," the aim of which is the illustration in colour, and in all cases where possible life size, of distinct plants of high value for our gardens.



No species of Cactus which I have tried does well when planted in a level border. I have seen *O. vulgaris* grown in this way at Washington, U.S.; here it only exists, but does not flower. A narrow rock border, raised about 1 foot high, against a south wall would be a capital position, but it is much improved if the wall has a good wide coping. The most sightly is a natural one of Ivy. I have a wall here where the Ivy hangs over in such a way that it keeps off a large portion of the winter's snow and rain from the plants growing underneath. In this position I have grown several species of *Opuntia* and *Echinocereus*, an *Echinocactus*, and a *Mammillaria*. Only small plants were tried, yet several of them have flowered in spite of our very severe winters and not very favourable summers. We had 41° of frost here the winter before last, but none of these Cacti were at all injured by it. My larger plants I have kept till now in cold frames, but I shall probably plant out some of them in my rock garden, where overhanging rocks will ward off from them most of the winter's rain. Eighteen months ago I planted out about fifty species of Cacti and other succulent plants under an overhanging rock, and they are doing fairly well, although the weather has been far from favourable.

My large plants in frames I have treated in the following manner: The pots are set on planks resting on a few bricks, and dry Cocoa-nut fibre is packed in between the pots. At this time of year the plants are kept as dry as possible; in fact, no water is given them from about the beginning of October until March. They become brown or purple and shrivelled during the winter, but as the sun gets more powerful in spring they begin to swell up again and to turn a better colour. When I see this I take it as a sign that I may begin watering them a little. The soil in the pots never becomes dust-dry, although no water is given all the winter, for a good deal of moisture condenses at times inside the lights and drops down, and so keeps moist the Cocoa-nut fibre in which the pots are packed. At first the plants are watered sparingly, but when warm, sunny weather sets in, a large quantity of water is given them, so as to soak them thoroughly. The syringe also is used freely; in fact, during hot weather the Cacti are treated almost exactly like the Cucumber plants in the neighbouring frames—watering and syringing at about 3.30 every afternoon in really hot weather, and then shutting down the lights close and keeping them so until the last thing in the evening, when the lights are raised considerably at the back, and 1 in. or so in front. The first thing in the morning they are drawn right off and kept off all day except during misty or rainy weather. After the beginning of August less and less water is given at a time and at longer intervals till about the beginning of October, when watering is stopped altogether. During autumn and winter, as well as in summer, the lights are taken completely off on every fine day, and when the lights are on as much air is given as possible. My object in treating the plants in this manner is to induce them to make a healthy, rapid growth during warm weather, and as early in the season as possible, so as to give plenty of time for the growth to ripen. A plant of *Echinocereus gonacanthus* which has been for two years in a greenhouse has never flowered, while all the plants of the same species which have been more freely exposed to the air have flowered

freely every season; one plant had thirty of its scarlet flowers upon it at the time when it was exhibited at the Royal Horticultural Society's show, in June, 1880.

The blooms of many of these Cacti last for a considerable time; the flowers of *Echinocereus gonacanthus*, *E. phoeniceus*, and *E. paucispinus* remain open day and night from about ten days to a fortnight; those of *Echinocereus Fendleri* (the best of all) will last more than a week, closing, however, at night, and never opening fully except in sunshine, so that they can never be properly seen in an exhibition tent. *Echinocactus Simpsoni* begins to flower early in March, and continues to bloom till the middle of May. What success I have had in the culture of these plants has amply repaid me all the trouble and care that I have spent upon them; but much greater success might reasonably be expected by any one who will undertake their cultivation in a warmer and more sunny part of England.

While in the Rocky Mountains of Colorado, in the summer of 1878, I collected besides *E. gonacanthus* the following equally hardy Cacti:—

<i>Echinocereus phoeniceus</i>	<i>Opuntia arborescens</i>
p. var. <i>conoidicus</i>	<i>missouriensis</i> , with its
<i>paucispinus</i>	many varieties
<i>Fendleri</i>	<i>Mammillaria vivipara</i>
<i>chloranthus</i>	<i>Echinocactus Simpsoni</i>
<i>viridiflorus</i>	(This last at 10,000 ft.)
<i>Opuntia camanchica</i>	

The first three have very similar flowers to the plant figured in the coloured plate; *E. Fendleri*, however, has much larger flowers of a fine bright purple. *E. chloranthus* and *E. viridiflorus* have peculiar golden-green flowers. *Opuntia missouriensis* has flowers very similar to those of *O. vulgaris* and *O. Rafinesquei*. The flowers of *O. camanchica* I have not seen, but when I found it it was bearing bright red oval fruits nearly as large as a pigeon's egg. *O. arborescens* has purple flowers, but, like the last, has not flowered with me. *Mammillaria vivipara* and *Echinocactus Simpsoni* have rosy pink flowers. The latter blooms in very early spring. All these plants have done very well under cultivation, but none have flowered so freely every year as *E. gonacanthus*.

The plant from which the coloured drawing was made in my garden last summer had nearly fifty flowers open upon it at once. The flowers last for a considerable time: for ten days or a fortnight, but after the first week or so they are not so completely open as at first. At the time that the drawing was made the flowers had been open for eight or nine days, and had begun to close up a little. E. C. LODER.

Floore, Weedon, Northamptonshire.

FRUIT GARDEN.

THE BEST PEARS.

Beurre Giffard.—*Syn.*—Poire Giffard.

DESCRIPTION OF THE TREE.—Wood, of medium strength and of a beautiful greyish red. Branches, pretty numerous, spread out and slightly twisted, weak, very long, slightly elbowed, of a deep red colour, with fine and very distinct lenticular markings. Eyes, very small and flattened against the bark. Leaves, medium, seldom abundant, oval, pointed, with the edges entire, the stalk long, thin, the stipules being excessively developed. Fertility, ordinary.

CULTURE.—A vigorous variety, grafts well on a Quince or free stock, grows quickly, and forms fairly fine and regular pyramids somewhat bare of leaves, however.

DESCRIPTION OF THE FRUIT.—Size, medium. Shape, turbinate, blunt, gibbous, and swollen,

Stalk, short, straight, or arched, thin, perpendicularly or obliquely inserted in the fruit. Eye, small, open, well formed, and nearly jutting out. Skin, greenish-yellow, strongly speckled with brown, spotted with fawn-coloured markings round the stalk, and tinged with dull red on the side turned towards the sun. Flesh, white, fine, melting, rarely hard or gritty. Juice, in fair quantity, sweet, slightly acid, slightly, but delicately scented. Season, the end of July and beginning of August. Quality, first-rate on account of its earliness.

HISTORY.—Two versions of the history of this Pear have already been published. One states that it was discovered by accident in 1840 by M. Rousseau, a horticulturist, at Angers, and the other that it grew spontaneously in the same year in Mr. Giffard's nursery in the same city. But those two versions are both erroneous, as is proved by the following note which is taken from the Proceedings of the Horticultural Committee of the Department of the Maine-et-Loire: "This variety was found on a wilding in 1285, by M. Nicolas Giffard, a farmer of Les Fouassières, near St. Nicolas, in the parish of St. James, Angers." M. Millet, formerly the president of this committee, described it for the first time in 1840 in the transactions of this society.

REMARKS.—Generally speaking, this variety is not over fruitful; when, however, it reaches the age of ten years it becomes more prolific, without, however, deserving to be placed amongst sorts famous for their bearing qualities. M. Paul de Mortillet, who has described the *Beurré Giffard* in his "Quarante Bonnes Poires," an interesting little book published in 1860, gives the following description of it, accompanied by several useful hints: "If there is any fault to be found with the *Giffard Pear* it is that it is somewhat wanting in perfume. It is none the less an excellent fruit, and the first very good Pear of the season. It is improved by being gathered just before it is ripe, and allowed to remain a few days before it is sent to table. It keeps well as a summer fruit."

Beurre Hardy.—*Syn.*—Hardy Pear.

DESCRIPTION OF THE TREE.—Wood, very strong. Branches, pretty numerous, generally spread out at the base and erect at the summit, mostly very thick and long, elbowed, of an olive-brown colour, with large clearly defined lenticular markings. Eye, of medium size, rather pointed, ovoid, covered with down, not too close to the wood, and having the scales slightly separated. Leaves, of the usual size, oval, elongated, somewhat geniculated, with deeply serrated edges, the stalk being long and thick. Fertility, fairly good.

CULTURE.—Very hardy and strong. It may be grafted on any kind of stock; the buds develop pretty quickly. It forms strong pyramids, but it is objectionable from throwing out but a weak mass of branches.

DESCRIPTION OF THE FRUIT.—Size, above the average. Shape, turbinate, blunt, swollen, always more so on the one side than the other. Stalk, short, thick, curved, inserted obliquely in the middle of a slight depression which is often crowned by a shallow nipple. Eye, medium, open, placed in a broad hollow which is rarely very deep. Skin, thick, rough to the touch, dirty yellow, speckled with light brown, almost entirely marbled with tawny yellow, and sometimes tinged with dull red on the side next the sun. Flesh, white, melts easily, juicy, sweet, aromatic, having an after-taste of musk of exquisite delicacy. Season, from the middle of September to the middle of October. Quality, first class.

HISTORY.—This variety is of French origin and began to become known about 1830. It was raised from seed by the late M. Bonnet, a horticulturist of Boulogne-sur-Mer, one of the most ardent pomologists of his day. M. Jean Laurent Jamin, a horticulturist of Bourg-la-Reine, was its godfather, and named it after M. Hardy, who was then director of the gardens of the Luxembourg.

REMARKS.—The *Beurré Kennes* is not, as some have thought, the same Pear as the *Beurré Hardy*. The *Beurré Hardy* becomes mealy immediately after it has reached maturity; it should therefore

be gathered while it is still somewhat green, and well looked after in the fruit room.

Brown Beurré (Beurré Gris).—*Syns*.—Beurré, Beurré Rousse, Clairville Ronde, Ysambert, Beurré Roux, d'Amboise, Beurré d'Anjou, Isambert le Bon, Beurré d'Amboise, Beurré Isambert des Normands, Beurré Rouge d'Anjou, Beurré Rouge, Beurré Vert, Beurré d'Ambleuse, Beurré d'Or, Gisambert, de Vendôme, Beurré de Trévrenn, Beurré Doré, Beurré du Roi, Lisambert, Isambart le Bon, d'Ambleuse, Beurré d'Isambert le Bon, Beurré de Saintonge, Isambert, Beurré Gris d'Automne, Beurré d'Isambard, Eisenbart.

DESCRIPTION OF THE TREE.—Wood, strong. Branches, pretty numerous, spread out thick, long, very much kneed, brownish red, with fine close lenticular markings, and the callosities very prominent. Eyes, numerous, ovoid, pointed, and usually placed like spurs. Leaves, small, yellowish green, often reddened, oval or elliptical, wavy, deeply indented, carried on a short thin stalk. Fertility great.

CULTURE.—The Quince stock agrees well with this Pear, but it always grows better on a free stock; however, no matter which is chosen, it only ultimately takes a somewhat irregular pyramidal form.

DESCRIPTION OF THE FRUIT.—Size, large or medium. Form, turbinate, round or oblong, knobby, blunt, generally having one side more swollen than the other. Stalk, short, thin, curved, obliquely inserted in the middle of a narrow funnel-shaped cavity. Eye, medium, half shut or shut, placed nearly level with the surface of the fruit. Skin.—The colour of the skin varies a good deal. Sometimes it is greyish and rough like a piece of granite, or else it is bronzed still more highly. It is, however, more frequently golden-yellow speckled and marked with red, streaked with the same colour in the hollow of the stalk, and slightly tinged with dull red on the side next the sun. Flesh, dead white, fine texture, excessively melting, rarely granular. Juice, very abundant, sugary, slightly acid, vinous, with an exquisite flavour and aroma. Season, from the middle of September to the end of October. Quality, first-rate.

HISTORY.—We read in the "Pomologie de la France," published at Lyons by the Pomological Congress, the following particulars with regard to the Brown Beurré, or Beurré Gris as it is called in France: "This is a very ancient variety of Pear. If it were true that the old names of Pears had been preserved, as we are assured by Olivier de Serres, who describes it under the name of La Dorée, we might possibly find that it came down to us from the Romans" (vol. ii., 1864). It appears to us, however, that this passage can hardly apply to the Brown Beurré, seeing that the Dorée Pear differs entirely from the delicious fruit we are describing; in fact, if we refer to Olivier de Serres himself he at once gives the proof of what we assert. "The Dorée Pear," he writes in 1608 in the fourth edition of his "Théâtre d'Agriculture et Mesnage des Champs," "is so called on account of the gold tint with which it is covered on the side next the sun. It is somewhat large, the shape of it tending towards roundness, and at ripening time is contemporaneous with that of the Petite Muscateline, the smallest and the earliest of all the others." In this description there are three characteristics which essentially distinguish it from the Brown Beurré, which is assuredly neither very large nor round, nor does it ripen contemporaneously with the Petite Muscateline, now known as the Petit Muscat or Sept-en-Gueule, which is often ripe at the end of June. If there were any doubt on the subject we have only to refer to the "Catalogue des arbres cultivés dans le verger et plant du Sieur le Lectier, procureur du Roi à Orléans," where we shall find the description of the Dorée Pear mentioned by Olivier de Serres, and again further on that of the Beurré or Ysambert Pear, which we are told ripens in September and at the beginning of October. From this it is clear that as no resemblance existed between the two Pears in the seventeenth century, it would be difficult to sup-

pose that they would be identical in the nineteenth. Le Lectier is the first writer who speaks of this Beurré, and even then, in 1628, he gives it as being identical with the Ysambert Pear. No one up to that date having mentioned either of their names, we may be allowed to suppose that it was not raised much earlier or later than 1550. As for its origin, we willingly agree with M. Eugène Forney, who in 1862, in his "Jardinier Fruittier" says, "It appears to have been first raised in Normandy, where it originally bore the name of the Ysambert Pear, Ysambert being a common family name in that province (vol. i.). This idea is also put forth by La Quintinye in 1690, who, in the first volume of "Instructions pour les jardins fruitiers et potagers," calls it the Isambert of the Normans. Besides, it is certain that Isambert was the original name of this Pear, and not Beurré, which only applied to it in 1625, as we are told by Claude Mollet, the designer of the gardens of Henry IV., and author of the "Théâtre des Jardins," a very rare work, in which we read the following description: "The Beurré Pear tree is a right good tree, but it has another name. The ancients gave it the name of Ysambert, but in our times we call it Beurré, on account of its ripe fruit melting in the mouth like a piece of butter as soon as we put it therein, with an odoriferous taste." So says this grand old writer. In Germany the Brown Beurré is grown everywhere, and has had a singular surname bestowed on it. Either by notion or by a play upon words, instead of giving its synonym Isambert its true etymology, it has been changed to Eisenbart, which in German means iron beard.

REMARKS.—In our days there are many growers who still think that there are many distinct varieties of the Brown Beurré, a red, green, golden and half-a-dozen other colours, but we cannot share this opinion, seeing that for several centuries past the most distinguished pomologists have never ceased to fight against it. We may quote at any rate three of them. In 1690 La Quintinye, the man of his time who knew most about fruit, decided the question as follows: "With respect to the Beurré, it must be positively affirmed that the Beurré Rouge, *alias* the Amboise, *alias* the Isambert des Normands, *alias* the Beurré Gris, and *alias* the Beurré Vert, are one and the same Pear; so much so that all these varieties are often found on the same tree. Their differences in colour have no other source than difference of aspect, or perhaps some slight weakness on the part of the tree, or perhaps of some particular branch which for that reason yields red fruit, or that the effects of the shade, or the particular vigour either of the whole tree or of one branch gives green or grey Pears" ("Instructions pour les jardins fruitiers et potagers"). In 1768 Duhamel du Monceau, whose large and beautiful work on the subject will always be an authority, says almost the same thing as his predecessor: "The skin of the Beurré is green, grey, or red. This difference in the colour does not constitute three varieties of Beurré, as is generally believed; they are all simply one and the same Beurré, the colour of the skin of which varies with the soil, the aspect, the method of cultivation, and even the particular tree. Young and vigorous trees, for instance, and those grafted on free stocks generally give grey fruit, whilst those grafted on a Quince stock, and of only moderate strength, produce green fruit. Those which are in a languishing condition, or which are planted in too dry a soil, and in a southern aspect produce red. Sometimes the same tree bears fruit of all three colours, having branches of the varying degrees of strength or weakness calculated to produce this difference in the colour of the fruit" ("Traité des arbres fruitiers.")

To conclude, quite recently a learned authority in arboriculture in Paris, M. Eugène Forney, whose opinion we have quoted above on the subject of the origin of the Beurré, proved to his readers in one of his works that La Quintinye was perfectly right when he declared that the Beurrés of different colours were identical. "La Quintinye," he observes, "has acknowledged that these varieties

are identical, and it is easy to prove it. We have only to graft the Beurré with green fruit (as I have done) on a sickly tree, and we shall obtain yellow and red Pears; in fact, we see green fruit growing on a particular tree one year and yellow fruit the year following ("Jardinier Fruittier"). We have only one remark to make in conclusion before ending this long article, and that is that there exists in Germany a variety which we multiply in our own nurseries called Beurré Rouge, which has no relationship whatever to the red variety of the Brown Beurré which we have described so minutely, seeing that its flesh is brittle, dry, and coarse.—*Dictionnaire de Pomologie*.

CHASSELAS DE FONTAINEBLEAU GRAPE.

THIS is so well known as to need no description. Large quantities of it are annually imported into this country from France, principally from Thoméry, the vineyards of which have a world-wide reputation. In flavour this Grape, when well grown, is sweet and peculiarly refreshing; it is probably indeed one of the most wholesome fruits in cultivation. When thoroughly ripened the berries assume a yellow tinge. Golden Chasselas is the title bestowed upon it by the French Pomological Society, but it is probable that this name will never become so popular as the one it now commonly goes by. It is too much to expect that in this country we can grow Chasselas Grapes out of doors to equal those produced in France; but although we cannot give them the amount of sunshine they get there, we might take a lesson from the French growers, for it is a fact that the out-door culture of no hardy fruit is so much neglected in this country as that of the Grape. If the grower of Chasselas in France were to trust to climate alone, he would probably be deprived of half his profits. Seasons in France vary quite as much as they do with us. As a proof of this, and that the French grower has to contend at times with very adverse circumstances, I may mention that whilst in 1875 upwards of eighty-three millions of hectolitres of wine were made in France, but little more than twenty-nine millions were made in 1880. The Phylloxera has undoubtedly much to do with this falling off, but as the difference is even more marked in the case of cider, not six million hectolitres being made in 1880, as against eighteen millions five years previous, it is evident that the bad seasons have much to do with the matter. We thus see that "sunny France" is sometimes only so in name, and the moral pointed by these statistics is that we ought not in this country to be discouraged by a few bad years.

Chasselas shanking.—This year the Chasselas in the district of the Côte d'Or, a region noted for its vegetable products, has been seriously attacked by a disease which, although it appeared in isolated cases some two or three years ago, has never before done much damage. The whole of the stalky portion of the bunch is said to dry up before the berries arrive at maturity, and the same symptoms are reported to have strongly declared themselves in the Thoméry vineyards, in some instances threatening the entire destruction of the crop. One cannot but think that this must be a case of shanking, a disease with which the French are but little acquainted, as comparatively but few Grapes are grown in France under glass, and shanking rarely occurs in the open air. M. Ricaud, secretary to the Horticultural Society at Beaune, Côte d'Or, discredits the notion commonly held that the cold season and the variations of temperature have induced it, remarking that inclement years have often been experienced in France without any such malady declaring itself. I should think, however, that a series of more or less unfavourable years have debilitated the Vines and rendered them liable to it, but it is to be hoped that a recurrence of more favourable years will cause it to disappear. We should be sorry to think that the growers of Chasselas were likely to be exposed to such serious loss and our markets deprived of fruit now so highly appreciated in this country. Rich top-dressings are

often recommended to be given to Vines in the open air, but I doubt the wisdom of so doing. At Thoméry many of the Vines which bear heavy crops of fine fruit have next to nothing in the way of prepared border to grow in; they are planted hard upon the road, under which the roots travel, and they evidently get as much nourishment as they need. The wood made under such circumstances is short and ripens well, and the leaves acquire rare substance. The amount of prepared soil at the disposal of the plant appears to be a secondary matter with the Thoméry grower. Wherever there is a sunny wall a Vine is planted, and always with good results. This may seem strange to the English Grape grower, who generally has a firm belief in large borders, crushed bones, and other manures, but it is a common occurrence in the vineyards of Germany, where one wonders how on the steep slopes and terraced hills the plants

DUKE OF BUCCLEUCH AND GOLDEN CHAMPION GRAPES.

BY way of response to the editor's invitation (p. 403) to Grape growers to record facts in regard to the cultivation of the Duke and Golden Champion Grapes, permit me to say that it is astonishing to see now and then the sweeping manner in which some man of "light and leading" condemns these Grapes, and takes upon himself to speak for the majority of growers. Then follow a chorus of anonymous correspondents. One says these sorts have weak constitutions and will not grow, another gets them to thrive, but, notwithstanding all his experience and knowledge of Vine growing, he cannot get them to fruit. A third says he can get them to grow and fruit freely enough, but somehow the berries spot and will not keep after they are ripe. I wonder if any of these cultivators ever calmly and seriously asked them-



Chasselas de Fontainebleau Grape.

can exist, much more ripen a heavy load of fruit. But they do so, and finish it off well, even where only a shallow stratum of rocky soil exists for the roots to work in.

The best Chasselas Grapes I ever saw ripened in the open air in this country were grown in a pure sand against a south wall. The Vines never had an atom of manure, and the soil was of course extremely poor. In warm years quite handsome bunches were obtained, and the berries were excellent in flavour. The Chasselas de Fontainebleau furnishes a striking illustration of how the enterprise of a single individual may be the means of founding an important industry. Fifty years ago M. François Charmeux planted the first Chasselas at Thoméry; now many thousands of pounds are grown there, considerable portions of which find their way to our markets. This is but an example of how soil and situation may suit to an exceptional degree a certain fruit, and my impression is that there are many spots in the warmer counties of England where the growing of the best hardy Grapes might be profitably conducted, but whoever should make the attempt must take pattern, as I have said, by the French Chasselas growers, and give to them both skill and care. Rambling laterals, unthinned bunches, and an absence of method in training will never do; there must be daily attention and loving care, without which the French grower would assuredly fail to obtain the success which has crowned his efforts.

J. C. B.

selves what are the causes of these failures. Are they satisfied that the atmospherical condition of the vineyard has been all that it ought to be? To say that other kinds of Grapes grow and do well in the same house with them proves nothing, because an atmosphere that is congenial to the well-being of these Grapes is assuredly beneficial to many other varieties. If one cultivator in ten can grow these Vines and induce them to finish their fruit satisfactorily, it in my opinion proves conclusively that it is not entirely the fault of either the Duke or the Golden Champion that the other nine fail to do likewise.

I have grown both sorts ever since they were sent out, and have had failures with them; these I attribute to my former ignorance of their requirements. So long as I tried to grow them in hot, moist, stuffy houses, such as do produce first-class Frontignans and Muscats, just so long did I fail to get presentable fruit. Undoubtedly the home for the Duke and Golden Champion is a large airy house, such as will grow and finish late Hamburgs perfectly. In such a vineyard together with Hamburgs I have for the last seven years grown these Grapes successfully. No Grape that goes upon my employer's table has elicited more praise than the Duke of Buccleuch, with its grand berries; one bunch of it set upon three bunches of Black Hamburg makes a dish of Grapes "fit to set before a king." To say it will not keep after it ripens is simply a mistake.

I have kept it in good condition until Christmas. This year we had both sorts ripe early in August; for ten weeks there went almost daily a bunch of one or the other on to the dessert table.

At the late Edinburgh International Fruit Show Mr. Hunter had in his collection of Grapes very fine clean fresh samples of Golden Champion, which, to my knowledge, were dead ripe on July 27. If any unprejudiced grower would like to give these Grapes a trial, allow me to tell him he need not despair of getting the Vines to grow in such a house as I have described, and if he will entirely give up the old-fashioned plan of having the evaporating troughs continually full of water, and the still worse system of drenching the paths and inside borders every morn and noon-tide, and, lastly, do not overcrowd the foliage, then he may with every prospect of success expect to have Vines of the Duke and Golden Champion in strong, robust health, and that will bear bunches of magnificent golden berries such as will delight the heart of every beholder.—J. MCINDOE, *Hutton Hall, Guisborough.*

— We have two Vines of the Duke of Buccleuch Grape here which have never failed to grow vigorously and bear fruit in abundance. They are associated with Hamburgs, though in separate houses, one of which is started about the middle of January; the other is not artificially heated till the Vines are in bloom. The Duke in the first-mentioned house was all that could be desired this year; the fruit was well ripened and well coloured, and hung in good condition on the Vines as long as the Hamburgs, but the other did not colour its fruit so well, and a few of the berries got cracked owing no doubt to the continual heavy rains and want of sunshine. Had the laterals been partially severed below the bunches before the ripening process began, even in this case we think any defects as regards splitting would have been avoided. In training we adopt Mr. Thomson's plan of keeping the Vines well furnished with young wood, and as an instance of the necessity of so doing I may cite the following case: In pruning a Vine last year, long spurs with four or five eyes were left, and on disbudding these this spring, we found that only in two or three instances did the buds at the base produce fruit-bearing shoots. The fruit proceeded, with the exceptions indicated, from buds nearer the extremity. Equally successful results will follow cropping direct from young rods, as a glance at the great corridor at Clovenfords will amply testify.—J. MCARA, *Glassingall.*

PRUNING TO THE BEST BUD.

"J. S. W." (p. 388) points to this as a misnomer and useless, so far as the supposed pruning will influence for good the future bunch or berry. Now, having more faith in the practice than "J. S. W." allow me to state what I have seen respecting pruning to the best bud. Where I was in 1867 two vineries were thus pruned, and had been so annually for the previous fourteen years, and during the three years I stayed there they never failed to produce excellent crops of Grapes, many of the bunches turning the scales at $4\frac{1}{2}$ lbs. and 5 lbs. More regular and even crops I have seldom since seen. These houses when newly pruned resembled on a small scale a factory for garden rustic work, and looked as if a cartload of it had been promiscuously tied up all over the roof to dry, so irregular and fantastic was the appearance presented by the long, naked, gnarled wood. The latter was produced by branches trained first one way and then another horizontally or nearly so; in short, wherever room could be found for them, there they were laid in. The direct effect of pruning to the best bud, therefore, is the method of training here set forth, which, to say the least of it, is not elegant, but when coupled with the pruning, it has more to recommend it than at first appears. In pruning the finest looking bud was selected within a distance of 10 inches or 11 inches from the base, being always careful that the bud in question sprang from the axil of a sound leaf. Therefore, this was not the

largest bud, which, as "J. S. W." observes, is not the best; on the contrary, in my opinion it is the worst; but I differ from him when he says that in nine cases in ten this bud will produce the largest bunch. I have seen several of them break without ever showing a bunch at all, others have carried bunches, but none which were not in nine cases in ten loose and lanky and misshapen to a degree, and little over half the weight of one from a bud about midway in the shoot. We are all supposed to know a little of the direct influences which leaves have on the buds; but does one find the broad, leathery, finely developed foliage, so much sought after as a test of good management, on the first or even second joint of a Vine? Certainly not. The leaves on these two joints will be found to be thin in texture, and often not larger than small Currant leaves, especially the one near the lower or "best bud," and long before the season's growth is half ripe it will be as yellow as an Oak at Christmas. The lower buds are certainly the oldest; but without good leaves, which will last in perfection the entire season, they will never yield a bunch equal to a bud three or four joints further up the shoot. Upon the whole I am in favour of pruning to the best bud, although I have never had a fair chance of carrying the system out, on account of the prevalent fashion of single rod and short spurring; but if ever I have an opportunity hereafter I will certainly adopt it.

The Oaks, Epsom.

J. KNIGHT.

Temperature for Vines.—As you have permitted Mr. Fish to advert to the cool temperature advocates (p. 414), you will doubtless also permit one of the latter to put their own case in its proper light. First, then, 70° in the evening and 60° in the morning (and Muscats, it appears, are not excluded at Clovenfords) is not the high temperature system, but the cool one, though Mr. Fish attempts to foist the cool system upon us as the warm one as soon as he has had ocular demonstration of its value. I have gone lower than anyone else in vinery temperature occasionally for experimental purposes, but, as back references will show, have always advocated 60° as the minimum morning temperature after the Grapes were set—by fire heat only be it understood. It is only fair to state, too, that 70° is the lowest night temperature recommended in Mr. Thomson's book on the Vine after the flowering period, such a low general figure as 60° being nowhere mentioned, and which is just a drop of 10° generally, and 15° on Muscats in flower. Mr. Fish lets the cat out of the bag when he gives the quantity of piping—three rows on each side of span-roofed houses, 24 ft. wide and about as high, in one of the coldest districts in Britain—a quantity wholly unequal to the high temperature system, and not sufficient to keep the temperature up to 60° even on cold nights. Mr. Fish does not seem to have ever taken the trouble to learn what the cool system is, else he would never have made such a statement. What the cool practitioners advocate is the rational use of the sun-heat and rest at night—a subject Mr. Fish used to dwell on with much enthusiasm in days gone by. Referring to my past notes on the subject in the fullest report ever published by me, I find the average lowest temperature before the setting period in April was 54°, average day 87°, mean of 33 days of 24 hours 70°. After this the temperature went up to 60° minimum in the morning. I therefore leave your readers to judge as to the merits of Mr. Fish's discovery and of the fairness of his remarks. His invitation to low temperature men to "show the results" of their practice comes with bad grace from him of all men; but, taking him as the exponent of the high temperature system in its real sense, I have no objection to compare results with him at Hardwicke next year, on any conditions he chooses to name, and I will meet him vinery with vinery, Vine with Vine, and bunch with bunch.—J. S. W.

Protecting the stems of fruit trees.—Will Mr. Bunyard kindly inform the readers of his article on fruit culture (p. 401) where Davidson's Composition is to be obtained at Leith or elsewhere, and give the name of the machine for applying a solution to Hops?—R. WHITEHEAD

THE QUEEN VICTORIA CENTURY PLANT.

(AGAVE VICTORIAE-REGINÆ.)

THIS beautiful Agave is now in blossom in the garden here, and I am happy to be able to send you photographs of it. This is the first time it has ever blossomed in cultivation, and it has never been seen in flower in a wild state. It is a mature native-grown specimen, dense in habit, and perfectly semi-spherical in form, and the leaves are



Agave Victoriae-reginae

arranged in spiral fashion with as much regularity as those of a Screw Pine. The circumference of the plant is 5 ft. 1 in., and it has 268 leaves. Its flower-stem appeared about the middle of June, grew rather fast till it was 7 ft. high, then rather slowly till it reached its full development. The scape is now 10 ft. 4 in. high above the plant, 6½ in. in circumference at the base, or 5½ in. at a foot above the base; from there it tapers very gradually till near the apex. The flower-spike is exceedingly dense, and 5 ft. 8 in. long; the lower or naked portion, 4 ft. 8 in. long, is prominently marked by abortive flower-buds, with, near the base, some bristle-like scales 3½ in. to 4 in. long. The flowers are regularly arranged in parcels of three, all the three being equal in size and open-

ing together; they are greenish white in colour, 1½ in. long, or, including the stamens, some 2½ in. to 3 in. long. The first flowers opened on August 3, and they have continued to open in succession, a belt about 3 in. wide opening each day. They remain in good condition for two days; on the third day the stamens wilt and drop down, but the pistil remains erect till the fourth day. On the first day of opening the pistil is not so long as the stamens by ½ in.; on the second it has grown to be as long as the stamens, but it is not in condition to receive the pollen till after noon of the second day. Although the flowers on some 18 in. of the spike have already blossomed, none of the ovaries have been fertilised; they are dropping off, but I am rather sanguine regarding those about the middle of the spike. So great is the superfluity of nectar contained in the flowers, that on the afternoon of the second day it often droppeth from the cups, and the least shake to the scape brings it down in a shower. The main beauty of the inflorescence consists in the dense bottle-brush-like mass of bright yellow anthers. This plant, together with several smaller ones, was contributed to this garden by Dr. Edward Palmer, who collected them in their native wilds—the mountains of Northern Mexico—some three years ago. He found them growing in a limited and rather inaccessible locality in gravelly and rocky soil some miles from Monterey. In addition to those he sent here he also sent a quantity to the garden of the Agricultural Department at Washington, and some to Dr. Engelmann, the eminent botanist at St. Louis. To Dr. Engelmann he also sent a piece of an old flower-stem and some dried capsules which he found upon an old plant, and it was from these specimens in 1880 that the doctor was enabled to describe for the first time the inflorescence of this Agave.

Seedlings.—Dr. Palmer also sent us seeds. I sowed them, they came up thickly, and I had hundreds of plants. But a question arose regarding their authenticity: they were so unlike the old specimens, so far as the white markings and spineless leaf edges were concerned, that I began to doubt them. Now, however, as they advanced in age (they are two years old) they become more like their reputed parents; they are short-leaved, stubby rosettes, and some of them show a tendency to lose their leaf-edge spines and to become white marked. I showed them to Mr. Croucher when he was here last spring, and he said they looked something like *Xylacantha*, but the fact that they have now from twelve to twenty leaves apiece dispels, in my opinion, that idea. Again, knowing, as I do, Dr. Palmer so well personally, I feel assured that he is not the man to be mistaken, and I am inclined to believe that the seeds which he sent to us he gathered from the capsules he sent to Dr. Engelmann, and now I am more confirmed in this belief when I compare Dr. Engelmann's original description of the inflorescence (from Palmer's wild specimens) with our plant now in bloom—it suits it perfectly. Dr. Engelmann is here just now and I have called his attention to this matter and shown him the plants, but he cannot tell whether they are Victorias or not, or what they are. I mention this matter of the seedlings, as some of these same seeds were sent to Europe by us, and there, too, a doubt has arisen regarding their identity. It had been mentioned to me that one of the plants sent to Washington blossomed there, but on application to Mr. William Saunders, the superintendent of the gardens of the Agricultural Department at Washington, he answers me, under date July 18, 1882: "None of the plants of the Agave to which you allude have flowered or show symptoms of flowering so far as they are in collections here, and I am not aware who else has got the plant."

Regarding the cultivation of Agaves, we pursue no particular method. In the summer time we plant them or plunge them out of doors, and in the autumn lift and pot them into comparatively small pots and a gritty loamy soil. Some of the larger and commoner Agaves we winter in a cellar, where they remain till the end of April, and receive no water during that time; then we bring

them out, place them under a tree for a time to harden off preparatory to restoring them to their summer quarters. The smaller and finer Agaves we winter in our Cactus house, which is light, airy, and dry. On account of the airiness of the house and the fire heat we have to water them now and then during the winter season, but we do not do so any more than is necessary to keep them plump and vigorous. When planted out Agaves grow too much, so that in most cases I merely plunge them in their pots. When so plunged, I have never yet watered them in summer, no matter how severe may be the drought. In warm, muggy weather, Agaves, like Cactuses, Aloes, and succulents generally, are apt to spot and sometimes rot off at the heart; and the soft-leaved Agaves, such as *mitis*, *glaucescens*, *Ellemetiana*, *sobolifera*, and *densidora*, are not only apt to spot badly along the edges of the leaves, but the surface of the leaves not unfrequently becomes defaced by a disease like pock marks; the same thing is often visible on the leaves of *Phalenopsis*. I am inclined to believe that it is caused by hot sunshine on moist or wet leaves, as I find it is most prevalent on Agaves grown in the sunniest places. *Agave virginica* is perfectly hardy here as an outdoor herbaceous plant, and it blossoms every year: *A. maculosa*, from Texas, and *A. guttata*, a beautifully variegated species from South-western Texas and Mexico, though not quite hardy, do well when planted out, and also blossom every year. Strong suckers of *A. yuccifolia* blossom when about three years old. *Agave utahensis* and *Parryi* are the most defiant species I ever tried to grow, and, indeed, I cannot speak much more favourably of *A. Shawi*. True, of *Shawi* I can get up good plants till they begin to form a stem; then they will spot. Of *Agave Palmeri* I have raised a lot of pretty little seedlings, true to name I know, because the seeds were sent to us by Dr. Parry, who collected them himself in 1881; and we have also a thrifty lot of *A. Wislizeni* from seeds collected in South-western Texas by Dr. Palmer. I find that Agaves raised from seeds in the garden grow better and in every way make better plants than do suckers or imported stumps. And they grow from seeds as readily as do Onions; they germinate in about nine days, and even two-year-old seed germinates freely. From a packet of two-year-old seed shared between Mr. Wm. Thompson, of Ipswich, and myself I have to report a germination of at least 70 per cent. Mr. Thompson reports far less than that, but the fact that I cleaned my lot from all what appeared to me poor or chaffy seeds before sowing may account for the difference.

SEASONABLE WORK.

FLORAL DECORATIONS.

JAMES HUDSON, GUNNERSBURY HOUSE.

CHRYSANTHEMUMS of many kinds will now be yielding an abundant bloom; but where the plants are arranged for effect it is not expedient to cut the most prominent flowers unless required for very special purposes. A plentiful supply for all ordinary uses can, however, be taken from plants that have not been too severely thinned, and also without spoiling the general effect. For decorative work the flowers of some kinds are prettiest when of a medium or even small size, such, for instance, as *Mrs. Rundle* and *Golden George Glenny*. The abundance of side blooms on these valuable kinds will cause them to be in much request where any amount of cut flowers is required. *Julia Lagrèverè* is another good kind in a cut state, having stiff and sturdy growth. Its dark flowers associate well with that fine yellow *Pompone*, *St. Michael*, which when cut is one of the most enduring *Chrysanthemums* grown. For coat flowers and bouquet work, as well as for arranging with either of the two foregoing varieties, I find *Mlle. Marthe* to be one of the prettiest amongst whites. Two very distinct and pleasing sorts are the white *Marabout* and *Adèle Frizette*, a lilac form of the same; for small specimen glasses these,

when used in conjunction, will be found to be very effective. For bolder forms of arrangement with large flowers, *Jardin des Plantes* and its bronze sport are excellent; whilst of dark varieties *Progne* and *John Salter* are both good. *Virgin Queen* is an extremely useful white, its large flowers standing erect; and *Lady Talfourd*, rosy lilac, is another kind distinct in colour. Of the Japanese section, we find the following to be all excellent in their respective colours, viz., *Elaine* and *Fair Maid of Guernsey*, whites; *James Salter*, lilac; *Peter the Great*, yellow; *Fulton*, bright yellow; *Fulgore*, rosy purple; *La Frisure*, rose; and *Red Aragon*, chestnut-red. Having grown and proved these varieties to be good for floral decoration, I can recommend them. Of foliage to associate with them nothing looks prettier or more appropriate than the shoots and leaves of *Berberis Aquifolium*, varying as it does in colour from deep green to bronzy red. The deep tints of some of its leaves look most effective associated with white and yellow flowers. A few shoots arranged first in a fair sized vase, and then some of the larger blooms of two or three distinct shades with sufficient length of stem to stand just above them will make a striking arrangement and one that will last for several days in perfection.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

EXCEPT the usual routine duties connected with the maintenance of neatness, there is now nothing that demands immediate attention, but for all that the work should go on just the same as if it were pressing or important; there will then be no need to dread the arrival of the busy season, as the work will be in advance of it. In all gardens there is always some parts that can be improved, and now is the time to set about such work, and by way of reminder to others, it may be well to allude to our own doings at the present time.

Roses.—The major part are being lifted, the edgings of the beds cut, and the ground deeply trenched and heavily manured; long woody roots are shortened back and suckers pulled off. Re-planting is then done, and the beds are at once thickly mulched—those in positions that must look neat with *Cocoa* fibre, but where appearance is of less consequence, with good farmyard manure. Those who are intending to increase their stock cannot do better than plant now. In some of the beds (not close to the Roses) we have planted *Tulips* and *Hyacinths*, and in others *Violas*, *Daisies*, *Primroses*, and *Forget-me-nots*.

Herbaceous border.—Many of our plants have outgrown their positions. Some have spread to the injury of adjoining plants; some are too tall for their present places; and so we are lifting them all, and this will enable us to prepare the border thoroughly by trenching out all the old roots and adding liberally both fresh loam and manure. This done, the arrangement of plants will be something after this fashion: For the most part the tall growers will be in groups of three plants at the back part of the border, but there will be here and there a group nearer the front, as uniformity either as to height or position seems out of character with this class of plants. In the front part of the border will be arranged the weaker growers; these will be in groups also, and vary in number from three to nine according to the varying height and spread of the plants. This done so far as plants and time to do it will allow, the more naked spots both between and over such plants as *Lilies*, *Pæonies*, and *Funkias* will be carpeted with evergreen *Sedums* and other suitable plants; and those portions of border not so treated will be surfaced either with finely sifted leaf-soil or *Cocoa* fibre. If there is likely to be a scarcity of herbaceous subjects, small evergreen shrubs, disposed at regular intervals throughout the border, may be used with excellent effect, and of course can be moved at any time that the herbaceous plants need additional space. This, together with re-gavelling of walks and planting a clump or two of *Rhododendrons*, constitutes the whole of our present doings in the flower garden line.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Heaths.—The different varieties of winter flowering Heaths are always effective when in bloom, grouped as they usually are with other plants in greenhouses and conservatories; nevertheless, when subjected to the treatment they often receive, their cultivation is far from being satisfactory, inasmuch as they frequently fail to survive their first season of blooming. Similar to the whole *Erica* family, they like cool, airy treatment, with a position where they receive plenty of light, in place of which when used in conservatories that are kept above a greenhouse temperature that at once has the effect of starting them into growth, more especially if, for appearance sake, they are stood in the body of the house, crowded and overhung with other plants. It is very much better to confine their use to structures where a lower temperature is maintained, and in all cases to keep them as near the glass as possible, even if some little sacrifice is made in the arrangement for general effect. They should be frequently looked over to see that they are free from mildew, for if this attacks them, in a very few days so much of the foliage will be destroyed as to endanger their existence. Dry flowers of sulphur is a safer application at this season than syringing with water impregnated with sulphur. Where spring and summer flowering Heaths are grown, they should be looked over for mildew every ten days during such moist weather as we have had through the autumn; this is the more necessary after a cool, sunless summer, in which the season's growth has had less than the ordinary opportunity of getting fully hardened up. It is a pity that in so comparatively few places Heaths are now included amongst the greenhouse plants. An impression often exists that even when required for home decoration, they must necessarily be subjected to the stiffly trained, formal condition in which they are frequently seen on the exhibition stage; this is altogether a mistake. Most of the many varieties now in cultivation are naturally of a compact, bushy habit, requiring little support from stakes and ties if the groundwork has been properly laid by judicious training in the first stages of their existence. After this when they have to be no further moved about than from one house to another, very little support, with a total absence of the formality present in highly-trained specimens, will suffice. But to arrive at this the plants should be well cut back each season after flowering. With a judicious selection of the freest growing, vigorous kinds, a collection can be kept up at a less cost than is often expended on plants that do not possess half the beauty and interest which they do. Anyone disposed to begin the cultivation of these plants, or add to the stock they already have, will find this a better season to get them in than waiting until spring, when the soft growth then present is much more likely to get injured by packing and transit. Where a house or pit is devoted to them they should be kept well up to the glass and have air admitted liberally every day when not frosty, avoiding a direct draught on them as much as possible by letting it in on the side opposite to where the wind happens to be. For the next three months the plants will require less water. This applies more particularly to the hardest wooded, slowest growing kinds.

Hard-wooded greenhouse plants.—Everything that is at all subject to the attacks of mildew, such as the *Boronias*, *Hedearomas*, *Gompholobiums*, *Tetrathecas*, and *Leschenaultias*, should likewise from time to time be examined to see that they are free from mildew and green-fly, as if once the foliage gets thinned by either vegetable or animal parasites it requires some time to correct the bad effects.

Bulb forcing.—The last lot of Roman *Hyacinths* should now be put in heat, to give a succession to such as were brought on earlier; at the same time a selection of the most forward large flowered varieties ought also to be put in warmth, bringing them on gradually, as if at all hurried both the foliage and the flower-stems will have a

drawn, sickly appearance that goes far to destroy their beauty. In all cases see that plenty of roots have been formed before they are submitted to heat.

Amarylises.—It is not well to excite a general collection or valuable sorts of these handsome flowered bulbs so early as this by subjecting them to heat, but where there is likely to be a deficiency of flowers in the first months of the year, a few of the commonest kinds may be induced to move slowly by placing them in an intermediate temperature, if possible on a shelf near the roof, where there is always a movement in the atmosphere that has a counteracting effect to the weakening influences of heat in the dull winter days.

Pancratiums.—So manageable are these plants, that with a sufficient supply they may be had in bloom almost all the year round. There is scarcely any flower in cultivation that gives such a finish to an artistic bouquet as do these elegant fragrant flowers. In such arrangements they produce an effect that even the choicest Orchids fail to do. By putting a few, say half-a-dozen, plants in a brisk heat once a month through the winter a succession may be had that will permit of a few blooms always being available. All that is necessary is that the plants should have had from their last blooming a sufficient time to make and mature a fair proportion of leaf-growth, with a subsequent rest through somewhat drier and cooler treatment.

Eucharis.—Some growers of the useful *E. amazonica* fail to bloom it satisfactorily by the usual treatment of growth, rest, and excitement. The cause of this will usually be found in the growth never being fairly stopped through the presence of combined heat and moisture—too much to allow the necessary cessation. When any difficulty in this way is experienced, they can be made to flower by turning them out of their pots, and shaking the soil from the roots and repotting. This rarely fails to induce strong bulbs to flower. With some, *E. candida* does not bloom so freely as the older kind, but shaking out and separating has a like effect in inducing it to flower. When better known this sort is likely to be a general favourite, its smaller, more elegant blooms being better adapted for some purposes than those of *E. amazonica*.

Bouvardias.—Where a good stock of these is at hand in the shape of plants possessing the full complement of vigour, there are few things that yield such a continuous supply of flowers. Where they have been grown on the planting-out method in pits or frames during the summer and taken up and potted some time ago, each plant will have several shoots, something like 18 inches or 20 inches long, and as thick at the base as an ordinary pencil. Growth such as this will produce flowers from six to eight joints below the leading points, coming in in succession after the first are over; but to bring these up to their full size, they must be kept in a brisk growing temperature close to the glass, so as to counteract the effect of the warmth. Without this the flowers will be soft and liable to flag when cut. Plants that have been grown on the planting-out system are better able to give a succession of full sized flowers than the weaker examples resulting from pot-growth all through the season. Such as are cultivated in the latter way should be regularly supplied with manure water once every ten days or fortnight, otherwise the successional bloom will be weak and poor this is especially the case if much restricted root room.

Propagation.—There is nothing like beginning early in the propagation of Bouvardias. In most cases winter-struck cuttings are quite as satisfactory for blooming the following autumn and winter as are cut-back older stock. It is now time to prepare a few plants of each of the varieties grown for producing cuttings. This is best done by drying them off much in the way that old examples of Fuchsia are done for the winter, so as to stop all growth and cause most of the leaves to fall off. When subjected to this kind of treatment in a little warmth above that of an ordinary greenhouse for about six weeks, all the

soft green portion of the points of the shoots should be cut away, giving water and placing the plants in a brisk, growing temperature, where they will break growth from almost every eye. When the young shoots are from 1½ inches to 2 inches long, if taken off with a heel and put in heat they will strike almost as freely as Verbenas.

ORCHIDS.

J. DOUGLAS, LOXFORD HALL.

East India house.—We are now getting into the season of the year when great care is necessary to keep the plants in a healthy condition. We have evaporating troughs fixed in the house, but after this time of the year they are not used; we rather prefer to obtain all the moisture required from damping the paths and stages twice a day—in the morning and in the afternoon. Nothing need be said about re-potting or disturbing the roots of any of the occupants of this house at present. That is better to be delayed until the days increase in length after Christmas, although there may be reasons for repotting isolated specimens even at this time. The spikes of all the popular species of Phalenopsis, such as *P. amabilis*, *P. grandiflora*, *P. Schilleriana*, *P. Stuartiana*, *P. violacea*, and others will now be pushing freely. See that they receive no injury in any way from drip. The cold water dripping into the centre of a valuable plant would do it much injury. If by no other means the appearance of the plants will show where it is either by the extra green colour of the Sphagnum or by the wet state of the compost. Snails and slugs would soon injure the spikes if they were not captured by setting baits for them where they can be caught feeding at night and also early in the morning. Although Phalenopsis do not like to be exposed to the sun, they succeed best when suspended near the glass, and better in teak baskets than in the shallow pans in which they are also grown. *Angræcum sesquipedale* and others of this genus are also showing their flower-spikes. These also seem to do well in a shady part of the house, with the strong-growing species placed on the stages and the dwarf species suspended from the rafters in pans or baskets the same as the Phalenopsis; indeed, the treatment suitable to Phalenopsis is that best adapted to the dwarf *Angræcums*, such as *A. citratum*, *A. Ellisii*, &c. We had some *Angræcums* imported from Madagascar this season which have been a source of much trouble to us owing to their being infested with red thrips; this seems to be a distinct species, and is also very difficult to destroy. These Orchids seem to like a goodly supply of tepid water, and it must not be withheld now, as the plants seem to be pushing into growth in some cases. There is no difficulty at present to keep the temperature up to 65° at night, but no one need be alarmed if the glass should drop to 5° less than this. The *Calanthes* that are not yet in flower may be pushed on in this house, but they will do in the Cattleya house temperature if this cannot be afforded for them.

Mexican house.—One of the most esteemed, and consequently most valuable, of Cattleyas is *C. Mendelli*. Of this there have been some large importations recently. One large specimen was purchased for fifty guineas at Stevens' rooms just as it was received from abroad, and the bulbs very much shrivelled; this may not always be a fault, for I have often found when the bulbs were shrunk that they started from the base quite as strongly as those that were more plump, and also made a stronger growth. All these imported Cattleyas should be potted in clean potsherds and charcoal only. All dead and decaying matter should be removed, the stems and bulbs well washed with soapy water, and the plants to be laid out to dry before potting them. *Vanda tricolor* in its many varieties and others of this type will now be getting into the resting stage, even although they may be flowering. The varieties of *V. tricolor* are very numerous, and as they flower more freely than *V. suavis* at this season of the year, they are more valuable on that account, for

autumn bloom does not seem to prevent their flowering freely again in April and May. The *Vandas* do not seem to be so liable to be attacked by insect pests as some other Orchids; and nearly all the attention required by them is to wash the leaves with a sponge and weak soft-soapy water. It would depend something upon the stage of growth the plants are in whether they would require much water; if the roots are pushing vigorously, they must be kept rather moist; but if from the appearance of the points of the roots they do not seem to be growing, then but little water will be required. Just a word to those who have *Dendrobiums* going through their season of rest, that is *D. Wardianum*, *crassinode*, *nobile*, *Falconeri*, *moniliforme*, *crepidatum*, *Cambridgeanum*, &c. It is best, of course, to have them in flower at different times and for this purpose they should be brought into this house. In my experience I have found that by removing them from their cool quarters to a high temperature they are apt to be injured; they receive such a check, that the flowers will drop off. This does not happen if they are gradually inured to the heat and also to the moisture. A gradual change to heat and also to moisture at the roots will prevent much disappointment.

Cool house.—Where the collection is a miscellaneous one, comprising *Masdevallias* and Orchids that do not like so low a temperature, as *Odontoglossums* of the *O. crispum* type, it may be well not to let the temperature fall much below 50° if it can be avoided; the ordinary cool house temperature of about 45°, falling to 40° in cold weather, is rather too low for some species of Orchids usually relegated to the cool house. Some species, as previously advised, may be removed to the Cattleya house. The very handsome *Dendrobiums*, *D. infundibulum* and *D. Jamesianum*, succeed best in the cool house; but I fancy they do not like the temperature to fall so low as the cool *Odontoglossums*; they also like to be near the glass, and to have the lightest part of the house. It may be that the difference of 5° exists between the temperature at the extreme ends of the house, or even more; in that case the Orchids that like the most heat may have the warmest end. A house well exposed to the sun is the best for the *Dendrobiums*, and one behind a north wall is the worst. These *Dendrobiums* are both natives of Moulmein; and although *D. formosum* is a native of the same country, and is so nearly related to them, it does best in the warmest house. The Japanese *D. japonicum* also succeeds well in the cool house. Then there is also the Australian species, *D. Johannis*, which also succeeds well in this house; being very distinct and sweet, it is worthy of a place. The old *D. speciosum* is not the least desirable of the species that succeeds in a cool temperature. Unless under exceptional circumstances, it may be as well to do no repotting. From now until January plants almost without exception do not like to be interfered with at the roots. Preparations may be made to get ready for the work when the time arrives. Nearly the whole of the cool Orchids succeed best in peat, Sphagnum, and clean potsherds mixed with a little charcoal. With few exceptions the *Odontoglossums* and *Masdevallias* do best in pots, draining them, so that there is no danger of the compost becoming sour. It does not need that much water should be sprinkled on the paths and borders at this season; a moderate degree of moisture is preferable to the atmosphere being always at saturation point.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Pines.—As the remainder of this month and the whole of December will be devoted to the resting of the plants from which early fruit is to be obtained, while lowering the temperature and reducing the supply of moisture, be careful to avoid injury by carrying the check too far, otherwise that most delicate of all varieties, the Queen, will lose its roots, and the care and attention of the past season will be irretrievably lost.

Where a set of small pits or houses is devoted to Pines a light structure should be selected for these plants, and if a bottom heat of 75° to 80° can be maintained till Christmas, plunge the pots quite up to the rims, but do not disturb the tan or leaves more than is absolutely necessary, and be guided by its condition as to dryness in giving water to the roots. If fairly moist, and the bottoms of the pots are a good distance away from the pipes, they may be kept healthy and progressing by absorption through the sides of the pots; but where everything is dry and calculated to extract moisture, then this evil must be counteracted by watering the tan or giving just enough to prevent the soil from leaving the sides of the pot. Be guided by the state of the weather in the management of the air temperature, allowing it to range from 65° at night to 75° by day, and giving a little top air when gleams of sunshine raise the heat above these figures. Maintain a bottom heat of 85° to 90° in the house where Smooth Cayennes and other winter kinds are now swelling their fruit. Keep them fairly moist at the roots until the fruit begins to change colour; then withhold water altogether, as too much is apt to produce black hearts at this dull season. When ripe the fruit may be cut, or the plants can be removed to a Muscat house, where Cayennes, Rothschilds, and Jamaicas will keep sound for several weeks if not wanted for immediate use. Late starters will require and repay all the attention that can be given to them, as they will come in at a time when English Pines are very scarce; and here again the sectional system of management will tell, as a light pit with a strong bottom heat of 90° and a top heat ranging from 70° at night to 80° by day will be the most suitable structure for keeping the fruit steadily progressing through the winter. Avoid wetting the fruit or allowing much water to accumulate in the axils of the lower leaves, but give just enough tepid liquid with the syringe to keep the stem roots moist and to throw up stimulating vapour from the surface of the bed in which they are plunged.

Suckers that were potted in September will now be well rooted and in a fit state for resting through the dark, dull period now before us. If the bed has settled too far away from the glass, take advantage of a favourable day for introducing more partially spent tan or leaves, and replunge the pots up to the rims to reduce the necessity for frequent watering. Aim at a bottom heat of 75° to 80°, and a top heat of 55° to 58° when sharp firing is needed on cold nights. Give a little air on bright mornings when the glass ranges between 65° and 70°, and shut up with sufficient atmospheric moisture to keep the plants steadily progressing in preference to allowing them to become stunted in their growth.

Pot Peaches.—Where the first Peaches and Nectarines are obtained from trees in pots, such kinds as A Bec, Early Grosse Mignonne, Hale's Early, and Alexander Peaches, Lord Napier and Stanwick Elruge Nectarines should now be taken into the house and placed on the bed or pedestals if fermenting material is to be used for exciting them into growth. Avoid the use of fire-heat at first unless the night heat falls below 40°, and then apply it through the early part of the day, when air can be admitted and the trees can be syringed with tepid water to help the buds forward. Pay particular attention to the roots, as stone fruit trees are often ruined for the season by being allowed to suffer from want of water. Always apply it at a temperature exceeding that of the house and in sufficient quantity to insure a satisfactory state of the balls quite down to the drainage. Wash the trees with soap and water either before or after they are taken in. Top-dress with well-rotted manure, thin the flower-buds if, as is often the case, well managed trees of this class are so thickly set that the flowering process is likely to weaken them, and defer shortening back until the wood-buds on shy kinds become prominent.

Early Strawberries.—Where early fruit is wanted the first batch of Vicomtesse Héricart de Thury or La Grosse Sucrée, an equally valuable

variety, should now be under glass, as the plants must have an abundance of time allowed to enable them to throw up their scapes and perfect their flowers. If the Strawberry house proper is not ready, a spent Melon or Cucumber frame with a little latent heat in the bed and linings will answer very well for a time provided they are kept well up to the glass, and the roots are regularly attended with water. If worms have found their way into the pots lose no time in dislodging them with lime water; examine the drainage, wash the pots, and top dress with rich manure as they are placed in position. Many people plunge their plants or place them on a bed of fermenting material at the outset, but I have never felt quite satisfied with the plan, as the premature excitement of the roots induces a weakly growth of white fibres, which are injurious to the crowns, as they rob them of matter which should go to the formation of leaves and flowers. When the crowns of Strawberries, like the buds of Vines, are fairly on the move, then is the time to slightly stimulate the roots with genial warmth from fermenting materials.

KITCHEN GARDEN.

R. GILBERT, BURGHEY.

WE are just now lifting Rhubarb and Asparagus for forcing. The former forces best when kept quite dark, but the latter must have air and light if flavour is wanted. We are provided with a capital place in which to force this delicacy, viz., an old Pine pit just emptied of Tomatoes. This pit will again be planted with Tomatoes in January and February; therefore Asparagus just fills up the blank. We have Mint in shallow boxes, Tarragon, Mustard and Cress, and a host of other little things, including most kinds of spring flowers for forcing, also in this pit; therefore it is a most useful and accommodating structure. Outside, now that the weather is much better than it has been, we are manuring, trenching, and digging every available inch of land, throwing it up rough. By February it will be like a bed of ashes, well pulverised and well sweetened—certainly one of the main things as regards kitchen garden cropping. Our site for Onions next season is just cleared, having been cropped with Snow's Broccoli, which is now laid in a spare border. To this ground we give a thorough manuring, dig it deeply and roughly, and in the meanwhile we mix up old night soil with ashes and wait for frost; then we give a good top-dressing with this mixture, and as we never sow our Onions before the end of March ample time is given for all to be mixed and worked together, a little trouble, I admit, but fine crops are the result. Cos Lettuce should now be lifted and protected. Endive we find most useful, and the same may be said of Chicory, which we blanch in the Mushroom house, and I find that a sprinkling of powdered charcoal among the plants helps to dispel damp.

SOCIETIES.

ROYAL HORTICULTURAL.

NOVEMBER 14.

FOR a November meeting, that held on Tuesday last was a good one; the council room, being well filled, wore quite a bright aspect, while the vestibule was filled with vegetables in competition for the special prizes offered on this occasion. The chief feature was the admirable groups of Pelargoniums from Swanley and Hillingdon Place, which were surprisingly fine for winter. The large group of Persian Cyclamens, too, from Twickenham added largely to the display, and these were supplemented by a few choice groups of miscellaneous plants and a wonderfully fine collection of cool Orchids from Trentham. Chrysanthemums were not so numerous as might have been expected, but those shown were chiefly new sorts. The following plants were awarded first-class certificates.

PELARGONIUM ALBERT CROUSSE.—An Ivy-leaved variety, having semi-double flowers of large size and of a rich rosy crimson colour. Mr. Little.

CHRYSANTHEMUM CRIMSON KING.—A very large flowered variety of the reflexed class, the flowers globose and of a rich chocolate-crimson, distinct and fine. Messrs. Dixon, Hackney.

ODONTOGLOSSUM CRISPUM DORMANIANUM.—An extremely fine variety of a variable Orchid; the flowers are large, and the sepals broad and beautifully crisped; the ground colour is pure white, which is copiously and heavily blotched with chocolate-brown. Mr. Norman, Sydenham.

SALVIA LANTHINA HOVEY.—A handsome variety, having long slender spikes of flowers with very deep purple, almost black, calices and rich violet-purple blossoms; a valuable winter-flowering plant. Messrs. Cannell, Swanley.

CHRYSANTHEMUM M. DESBREUX.—A very fine Japanese variety with unusually large flowers. The florets are long and narrow and peculiarly twisted. The colour is a rich yellowish brown. Messrs. Jackson, Kingston.

ODONTOGLOSSUM ALEXANDRE VIRGINALE.—An uncommonly fine variety with large, wide sepal flowers of a pure white, except the lip, which has a spot or two of chocolate-red. Mr. B. S. Williams.

PLEIONE PRÆCOX.—A species in the way of P. Wallichiana. The flowers are 4 inches across the sepals, deep rose, the lip white, blotched with yellow. Mr. B. S. Williams.

PELAGONIUM MRS. GORDON.—A very fine single Zonal variety, with pips nearly 2 inches across, of perfect shape, and of a brilliant scarlet colour. Messrs. Cannell.

CHRYSANTHEMUM F. A. DAVIS.—A Japanese variety, with large flowers and long narrow florets of a deep maroon-crimson; very fine. Messrs. Jackson.

CHRYSANTHEMUM MADAME BRUN.—One of the Japanese section, with long quilled florets of a delicate rose-pink, forming a large globular head. Messrs. Jackson.

CHRYSANTHEMUM LORD WOLSELEY.—A very fine incurved variety, a sport from the well-known Prince Alfred. The flowers are very large, of fine form, and of a bronzy red colour. Distinct from any other. Mr. Orchard.

ODONTOGLOSSUM CRISPUM WILSONI.—A remarkably handsome variety, with large, broad-sepal flowers, bluish-white, and with large, deep blotches of chocolate-brown. Mr. Stevens, Trentham.

ODONTOGLOSSUM CRISPUM DUCHESS.—With large blossoms and broad white sepals, exquisitely crisped, with large blotches of brown on labellum. Mr. Stevens.

A choice group from Messrs. Veitch consisted of about a dozen varieties of Rhododendron of the javanicum type, with large trusses of flowers, varying from pure white through pink to deep crimson. These well showed the value of this class of Rhododendron for affording a continuous supply of flowers during winter. The same firm also showed Tachiadenus carinatus, a pretty dwarf Gentianwort with rich purple blossoms; Impatiens Sultani, Cypripedium purpuratum, a rare Hong-Kong Lady's Slipper in the way of C. barbatum; Bouvardia Priory Beauty, a pretty pale pink flowered sort, very vigorous and free flowering; Carnation Lucifer, with large deep crimson blossoms; and a new hybrid Begonia called Autumn Rose, which is a cross between the old B. insignis and the new B. socotrana. It is exactly intermediate, having large peltate leaves and large trusses of small deep rose blossoms. It will be a fine addition to winter-flowering Begonias. A group of new Chrysanthemums was also shown by Messrs. Veitch, which have been raised by Mr. James Salter. These consisted chiefly of Japanese varieties, among which were Mary Major, large pure white; Duchess of Albany, very large, delicate bluish; Rex Rubrorum, intensely deep crimson; La Candeur, a fine white; Comet, a bronzy yellow, fine; Lucifer, brownish crimson, large and fine; Fisisphone, with very narrow florets of a deep maroon-crimson; and Annie Holborn, a very large flower of a deep rose. Among the Pomponie varieties were Ringleader, with quilled florets in small, dense heads of a deep purple; and Eclipse, a bronzy crimson tipped with gold.

Mr. R. S. Williams, Upper Holloway, sent besides the plants certificated some plants of the beautiful *Dendrobium superbiens*, with long, elegant spikes of flowers of a rich violet-purple; also *Odontoglossum pardinum*, a yellow-flowered species; *Cypripedium Spicerianum*, with a fine flower; and a potful of the singular little *Nepenthes ampullaria vittata*, which bears small, erect pitchers, in a dense, cushion-like cluster, in the way of *Cephalotus foliolaris*.

Messrs. Cannell's display was an exceptionally fine one, consisting of an extensive collection of Zonal Pelargoniums, single and double, and various kinds of *Salvia*. The cut trusses of single Zonal Pelargoniums were wonderfully fine—larger than we have ever seen in November. There were three dozen single trusses, varying in diameter from 5 inches to 8 inches across. As these were all good sorts, we give the names of the principal varieties, which were Eureka, the best pure white single Zonal grown; Constance, deep rose; James McIntosh, brilliant scarlet; Jean III, rich amaranth; J. C. Musters, rich crimson; Celia, deep cherry-rose; Eurydice, deep rose-pink, white centre; Rose, vivid scarlet; Paul Bauer, intense rose; Mrs. Strutt, delicate rose; Dazzler, brilliant scarlet; Dr. Orton, intensely deep crimson; Metis, bright crimson; President McMahon, flesh pink centre, light edge; Bacchus, rose-magenta, very fine; Nellie Thomas, brilliant scarlet; Commander-in-Chief, vivid scarlet, very fine; and Atala, bright orange-scarlet. These, as regards large size and fine shape of pips, are perfection among the cream of half-a-hundred varieties. The double Zonals, too, were uncommonly fine, consisting of some two dozen trusses, and nearly as many varieties. A selection of these for winter flowering includes La Quintine, white; Sergeant Hoff, bright scarlet; Ville de Nancy, delicate pink; Charles Darwin, deep amaranth; Magenta King, similar, but lighter; Cræsus, deep rose-pink; Paul Charbonnier, vivid scarlet; F. V. Raspail, bright scarlet; Lord Mayor, deep rose-pink, very fine; Heroine, pure white; R. Brett, vivid orange-scarlet; Clara Pfitzer, deep rose; and M. G. Louvage, a clear scarlet. The pot plants consisted of two groups, numbering some scores of plants of Surprise, or salmon Vesuvius, and Henri Jacoby, one of the finest of single Zonals of a deep crimson colour. These groups were edged with plants of a silver-edged leaved variety called Silver Gem, which continually throws up numerous shoots, but never flowers. It is therefore very dense and tufted in growth, being suitable for edging. New Zonal Pelargoniums shown by Messrs. Cannell comprised Zelia, brilliant scarlet; Ferdinand Kauffer, deep amaranth; Amy Kohn, deep magenta-rose, very fine; Edith George, bright rich rose, white centre; Mrs. Miller, very deep crimson.

From the Duke of Sutherland's garden at Trentham Mr. Stevens sent a very fine group of *Odontoglossum crispum*, numbering some sixteen large plants, all bearing long, elegant flower-spikes, some bearing as many as fourteen blossoms. All the plants represented uncommonly fine varieties of that large-flowered, broad-sealed type so much admired. The large size of the bulbs of these plants and their healthy appearance well indicates that the culture of this cool Orchid is well understood at Trentham.

Mr. A. Waterer, Knap Hill Nursery, Woking, sent a collection of variegated Yews, representing a variety of habit of growth, some spreading, some erect and others columnar. From the same nursery were also shown some fine specimens of the golden *Cupressus Lawsoniana*, which is one of the best of all golden Conifers, as it is so constant in colour, never varying throughout the year except when it is making new growth, when it is finer than at any other time. A vote of thanks was accorded to the exhibitor.

The *Salvias*, consisting of four trays, of some about a score of trusses each, included the lovely *S. Pitcheri*, the finest of all blue *Salvias*. The flowers of this species were intermixed with the large trusses of *Heliotrope White Lady*, making a charming contrast. *Salvia rutilans*, a species with long scarlet flowers in slender spikes, was remarkably fine, as was also *S. Branti splendens*, the

finest of the scarlet *Salvias*. The singularly pretty Mons. Issanchou, with white flowers and red and white calyces, *S. Hoveyi*, and *S. Schimperii* were likewise shown in fine condition. These, with a box of about a dozen new *Chrysanthemums*, completed the fine display. A silver floral medal was awarded to Messrs. Cannell for their display.

Chrysanthemums were shown by several exhibitors. Messrs. Jackson & Sons, Kingston, had a collection of about eight new varieties chiefly of the Japanese type. Besides those certificated there were Safranot, a very large yellowish flower; Perle des Blanchés, large and pure white; Ile Japonnaise, large flower, rosy purple; and Nuit d'Automne, a rich purple sort with large blossoms. Jeanne d'Arc, an incurved variety with white bluish tipped flowers, was also shown; likewise a remarkably fine Pomponé called La Purité, which bears a profusion of white flowers on dwarf vigorous plants.

Messrs. Dickson & Co., Amhurst Nurseries, Hackney, had, besides Crimson King certificated, the following varieties: Etoile Toulousaine, with large flowers of a bronzy yellow; Agréments de la Nature, with narrow florets of a pure yellow, large flowers; Japon Fleur, with large very deep maroon-crimson flowers; and Red Gauntlet, dull red tipped with yellow. These are all of the Japanese class, and are among the best new sorts we have seen.

Mr. Green brought from Sir George Macleay's garden, Pendell Court, Bletchingley, a huge flower branch of *Fuchsia arborescens*, a small-flowered species with large panicles of deep lilac flowers; *Cestrum aurantiacum*, a *Habrothamnus*-like plant, with bright orange coloured flowers; and *Amicia Zygomeris*, a Leguminous shrub which is almost hardy. A vote of thanks was accorded to Mr. Green.

Primula Sir B. Seymour was sent by Rev. E. H. Kittoe, Boldmere Vicarage, Birmingham. It is similar, if not identical with Chiswick Red, a very bright variety. The plants shown were well grown. Mr. George, Putney Heath, showed a fine seedling *Carnation*, named Sir Garnet Wolsley, with large, deep scarlet blossoms. The committee wished to see it again. Messrs. Hender and Sons, Mannamead, Plymouth, sent trusses of a new single Zonal Pelargonium, called Mannamead Beauty. It is a sport from Vesuvius, the colour being a soft magenta-crimson. A vote of thanks was accorded to Mr. Slogrove, Reigate, for cut flowers of single Zonal Pelargoniums, which, having regard to the season, were commendable.

A group of single Zonal Pelargoniums, numbering some three dozen plants, was shown by Mr. Little's gardener (Mr. Wiggins), from Hillingdon Place, Uxbridge. All the plants were remarkable examples of skilful culture, being large and plentifully furnished with trusses, and the majority were the same as those shown by Mr. Little at the Pelargonium Society's show in June last, and have been in bloom without intermission since that time. Among the finest of these were, among single Zonals, Atala, a very bright scarlet; Evening Star, one of the best of winter flowerers, the flowers white, with pink centre; Advance, a beautiful soft rose; Ferdinand de Lesseps, still one of the best; Hettie, a bright carmine-crimson. A silver floral medal was awarded.

A beautiful group of Persian Cyclamens, numbering upwards of a hundred plants, was shown by Mr. R. Clarke, florist, of Twickenham. The plants were all in 4½-inch pots, and were well furnished with healthy foliage and flowers, varying in colour from a pure white to the deepest crimson. A silver floral medal was awarded to the exhibitor.

From the Chiswick Garden Mr. Barron sent a small group, consisting of *Salvia Bethelli* and *Pitcheri*, and large and well grown plants of *Bouvardia* Alfred Neuner and elegans, a single bright carmine flowered sort. A new *Fuchsia*, named A. Decandolle, was also included in the group. It is in the way of fulgens, and probably is a variety of it.

Fruit.—The finest exhibits among the fruit were four huge Smooth Cayenne Pine-apples,

the aggregate weight of which was 29 lbs. 4 oz. These were exhibited by Mr. Ross, gardener to Mr. Eyre, Welford Park, Newbury, to whom a bronze medal was deservedly awarded. Apples were rather numerous. A fine dish of The Queen, the variety to which a first-class certificate was awarded two years ago, was shown by Messrs. Saltmarsh & Son, The Nurseries, Chelmsford, by whom it is being distributed. It is a very handsome variety of excellent quality. A dish of Stone's or Loddington Apple came from Mr. R. Gandy, Maidstone. The six fruits exhibited were of enormous size, and showed this admirable variety to perfection. Seedling Apples came from Mr. Robert Warner, Chelmsford; Mr. Horley, Toddington; Mr. Nelson, Stanwell, but none were considered worthy of certificating. A variety called Peter Pippin was sent by Mr. J. Lilley, Peterborough; it is a small handsome sort, and of good quality. A Melon called Skelton Abbey was sent by Mr. Charles Tyler, Skelton Abbey. It is a round netted, red fleshed sort of fair flavour for the season. A new seedling Grape was exhibited by Messrs. Downie & Laird, Edinburgh. It is similar to Gros Colmar, which was shown with it, but the seedling is not so thick in the skin, and the flavour is finer. The committee considered it "a very promising Grape, and should like to see it again in January to test its keeping quality."

From the Society's Garden, Chiswick, Mr. Barron sent a bunch each of Gros Colmar, Black Alicante, and Alnwick Seedling Grapes, all of which were uncommonly fine, particularly the last-named sort, which is usually considered so difficult to grow well. For these the committee awarded a cultural commendation to Mr. Barron, who also showed a dozen fruits of Apple, Beaumann's Winter Reineette, a large, handsome, and highly coloured variety of excellent quality.

Vegetables.—Some wonderfully fine Leeks, called The Lyon, were shown by Mr. G. Miles, Wycombe Abbey, High Wycombe. They were as fine as could be possibly grown, being fully 4 inches in diameter at the base, and the blanched part was quite 12 inches in length. Messrs. Carter showed samples of their new Golden Queen Onion, a small sort, with a shining brown skin, very useful for some culinary purposes. Mr. Pond, Jersey, showed a basket of Giant Red Shallot, apparently a fine sort, and also samples of Pond's Jersey Silver-skin Shallot. Mr. R. Dean showed a plant of a very fine Parsley called Dean's Superb Curled. It is very vigorous in growth, beautifully curled, and the plant shown was fully 18 inches across. Mr. Horley, Toddington, Dunstable, showed a dozen very fine Onions of the Naseby Mammoth variety. Mr. Ross, Welford Park, Newbury, had a new seedling white kidney Potato called Rival. Messrs. Veitch & Sons showed a large collection of Endive and Kale which occupied a large space in the vestibule. They also showed a dish of a small Onion called Como, grown in Italy, which appears to be identical with that shown by Messrs. Carter as New Golden Queen. It is a neat little sort and one that will be found useful by the cook for many purposes.

Messrs. Sutton exhibited a collection of seventy varieties of Potatoes, including their well-known Reading Hero, Magnum Bonum, Reading Russet, Early Border, Fiftyfold, and Prizetaker, as well as the two new varieties they are distributing this year named Lady Truscott and Sutton's Favourite. In addition to this fine collection there were some fifty varieties of Cabbage, Savoy, and Kale. Among the Cabbages were Imperial and Reading All Heart, introduced last year, while a new and distinct variety called Cleopatra's Needle is likely to make its mark, and be exceedingly popular with those who like a close-growing and delicate Cabbage. There were also fine specimens of Sutton's improved stock of Long Red Surrey Carrot, Champion Horn Carrot, and James' Intermediate Carrot, as well as Sutton's Snowball Turnip, and a heap of Reading Exhibition Brussels Sprouts which confirmed the already high reputation which this new and distinct variety enjoys.

Special prizes.—On this occasion the special prizes, amounting to upwards of £30 in value, were competed for. There were five prizes offered for a collection of twelve kinds of vegetables. There were eight collections shown, the best being from Mr. Austen, Ashton Court, Bristol, who had remarkably fine examples of imported Brussels Sprouts; Carrot, James' Intermediate; Cauliflower, Autumn Giant; Beetroot, Dell's Crimson; Parsnip, Hollow-crowned; Potato, Lapstone Kidney; Tomato, Hathaway's Excelsior; French Bean, Canadian Wonder; Onion, Sutton's Improved Reading; Turnip, White Stone; Celery, Leicester Red; Cucumber, Telegraph. In the second collection from Mr. Miller were fine dishes Trophy Tomato, Autumn Giant Cauliflower, Snowball Turnip, Intermediate Carrot, Leicester Celery, Reading Onion, and Aigburth Sprouts. The third collection, shown by Mr. Haines, included excellent dishes of Woodstock Kidney, Autumn Giant Cauliflower, Reading Onion, Canadian Wonder Bean, Matchless Sprouts, and Tender and True Cucumber. Mr. Phillips' fourth collection comprised fine examples of Sulham Prize Celery, Student Parsnip, Telegraph Cucumber, Improved Reading Onion, Perfection Tomato, Snowball Turnip, and Autumn Giant Cauliflower. Some very fine golden Globe Onions (spring sown), Magnum Bonum Potatoes, Autumn Giant Cauliflower, and Leicester Red Celery were in the fifth collection. In the collection from Captain Le Blanc's gardener (Mr. May) were some excellent examples of Improved Hertfordshire Brussels Sprouts. The stems were nearly 3 feet long, and were covered from top to base with good sprouts. Veitch's Autumn Red Globe Turnip, Major Clarke's Celery, Self-protecting Broccoli, and Pride of America Potato were also shown well by this exhibitor. In the other collection were good dishes Snowball Turnip, Sulham Prize Celery, and Egyptian or Turnip-rooted Beet.

The prizes offered for a dozen bulbs of Sutton's Improved Reading Onion brought out fourteen competitors, and some remarkably fine examples of this excellent Onion were shown by the winning exhibitors. Of two dishes of Sutton's Prizetaker and Early Border there were six exhibitors, and eleven of Sutton's Reading Russet and Fiftyfold. Of Sutton's Woodstock Kidney and Reading Hero there were nine competitors, and of Sutton's First and Best and Magnum Bonum there were eight.

Messrs. Webb & Sons, Stourbridge, also offered prizes for a dish of Schoolmaster Potato. There were seven dishes shown, the winning tubers being fine examples.

A full list of awards is given in our advertising columns.

Lecture.—The Rev. G. Henslow took the Chrysanthemum as the subject of his lecture. This plant is referable to two distinct species—*C. indicum*, L., and *C. sinense*, Sab., though, until Mr. Sabine so determined them in 1823, they were confounded. The former appears to have been in the Chelsea Garden in 1764, but was lost. The latter was first introduced in 1790, though called and figured (Bot. Mag., 327) as *C. indicum*, being supposed to be only an enlarged cultivated variety. The first-named species is with very little doubt the origin of all Pompones. It was re-introduced by Mr. Fortune in 1846 as the Chusan Daisy, or minima, and now numbers probably more than 100 varieties. With regard to the common large kind, or *C. sinense*, the first notice of its cultivation in Europe was by Breynius, who mentions six kinds in Holland in 1688, but it is strange that they all disappeared, and were only re-introduced into Europe by M. Blanchard in 1879. Many varieties had been long cultivated in Japan and China, as Kämpfer in 1712 observed, while Rumphius in his Hort. Amer. notices that they were cultivated in 1745 in India, having been brought from China. The re-introduction of the larger species into Europe was by M. Blanchard into Marseilles; thence it passed to Paris and England. From this, a purple kind, the sport called Changeable White was first obtained. Sir A. Hume introduced several new colours between 1798 and

1808. Many others soon followed, so that in 1827 forty varieties were in cultivation. In 1865 they had risen, Mr. Salter tells us, to 700. In 1830 seed was obtained for the first time in France. Previously, besides forms introduced (the Chrysanthemum being particularly liable to sport) cuttings of such were propagated, but seedlings caused a vast influx of new forms of both species. In 1862, Mr. Fortune introduced the new "Japanese race," some with long petals and curious mouths to the corollas, suggesting the title of "Dragons." It appears, however, on the authority of Mr. Crawford, consul at Oporto, that the Japanese forms had been long cultivated there before their introduction into England. The origin of the different forms of these flowers lies mainly in the changes undergone by the corollas of the "disc" or "eye" florets. In the wild form the ray florets have strap-shaped, the disc florets regularly, five-toothed tubes to their corollas. The principal changes of the latter may be thus represented:—I. To strap-shaped, becoming flattened from the base throughout; (1) inrolled, (2) rolled outwards, (3) loose, (4) loose but attenuated and pointed or trifurcating. II. (1) Tube retained, but short, with five teeth enlarged (anemone-fid.); (2) as 1, but teeth much enlarged and multiplied (dragon); (3) tube elongated but with no teeth (quilled); (4) same as 3, but slightly flattened at end, giving the appearance of a spoon as in "Emperor of China."

Scientific committee.—Dr. M. T. Masters in the chair. Magnolia Campbelli.—Mr. Mangles described the very fine specimen of this tree at Lakelands, near Cork, on the grounds of Mr. W. H. Crawford. Its height was 33 feet, and circumference of the stem 33 inches. This species has never flowered in Europe. It grew as a climber with the late Mr. Gorey at Edinburgh. It was supposed that the warmth of the climate is insufficient to enable it to flower. It was suggested that attempts should be made by grafting to induce it to blossom. Remarkably fine Magnolias were described by Dr. Low at Milan, and others at Nantes were destroyed in the late severe winters. Carlina acanthifolia.—Dr. Low exhibited dried specimens of this large dwarf Thistle of the Continent. He also showed apparently a wild form of the garden Artichoke, the bracts being particularly small. Vitis gongylodes.—Mr. Lynch brought fine specimens of this curious Vine from the Botanic Gardens at Cambridge. The "tubers" on the stems are terminal, disarticulate with the axillary bud, and may be kept a twelvemonth and will then germinate. In one case in consequence of the end of the bough having been removed, the swelling took place at the base of the internode. Agave Victoria Regina.—Dr. Masters exhibited photographs of this plant in blossom in the Botanic Gardens, Cambridge, U.S.A., where it threw up a gigantic spike of blossoms; also a drawing of A. bracteata from the same locality. Chrysanthemum sport.—He also showed a blossom, half white and half yellow, the two being equally divided. Remarks were made upon the way to obtain large flowers, there not being the terminal in position, but lateral ones of a certain period of development. Freesia odorata and Babiana rubrocyanea (?) were sent from Cornwall by Hon. and Rev. Boscawen, the latter received from South Africa. Glass with patterns.—A pane of glass for a lean-to house had been white-washed, the whitewash had partly disappeared, leaving a peculiar pattern on the glass. No explanation could be given of it. It was received from Mr. T. J. Clarke, Smakeleys, Uxbridge. Proliferous and monstrous flowers, &c.—The Rev. G. Henslow exhibited the following specimens: Proliferous states—Rhododendron balsamiflorum aureum (from Messrs. Veitch), with flowers proceeding from the centre of the pistil. The latter organ has dehiscent longitudinally, and a cluster of malformed, orange-coloured petals protruded from the orifice. Mr. Henslow observed that every flower on one bush in his garden of a common pink kind had, during the last season, formed a blossom within the pistil, though in the latter instance the flowers so formed had perfect as well as petaloid stamens. In every case the flower sprang from the base of the ovary. Carnation.—

A blossom with a secondary flower proceeding from within the calyx (received from Miss Owen, of Gorey). Bluebell.—In the specimen shown each flower was borne on a pedicel of about 2 inches in length, and produced a secondary flower from the axil of a perianth leaf. In the place of one flower a complete raceme has grown. Solomon's Seal.—Leafy racemes occupied the positions of the normal flowers. Monstrous flowers.—Pistillody of calyx.—Violets, in which the organs were in part or entirely viviscent and malformed, with sepals abortively ovuliferous and the petals often laciniated. The sepals bore pipalliform structures on the margins and mid-ribs resembling rudimentary ovules. The only recorded instance of ovuliferous sepals is that of a common garden Pea, figured and described in *Gardeners' Chronicle*, 1866, p. 897. Pistillody of stamens.—He exhibited drawings illustrating various stages of ovuliferous stamens in the Alpine Poppy (received from Miss Owen.) Syngenesism in *Diplotaxis tenuifolia*.—In this case the anthers of every flower cohered laterally so that the pollen could not escape. The consequence was that in no case did a flower set seed, the siliques remaining small and abortive (received from Mr. Marshall of Ely.) Placental protrusion in Begonias.—In these flowers the placenta bearing many ovules had protruded from the summit of the ovary apparently from an hypertrophied condition of the former parts (from Miss Owen.) Movement of pedicels in *Meconopsis nepalensis*.—Specimens received from Miss Owen illustrative of observations recorded in the *Gardeners' Chronicle*, July 10, 1882, p. 767. Mr. Henslow suggested that this prevented the seeds from being dropped close to the parent plant, as the fruit dehiscs at the base of the style, as in Papaver, below the radiating stigmas. In both cases the pod is held erect, but when a capsule is pendulous, as in Campanula, the pores are at the base, so that in every case the plant is enabled to scatter its seed as the stem is swayed by the wind. Fasciated stems.—A remarkable example of *Carduus lanceolatus*, some 3 feet in length and 6 inches broad (received from Mr. Marshall) a peculiarity of which was that it had appeared for four years successively in this condition; and another of *Lilium auratum* (from Mrs. Brightman, of Stanmore) "Enations" on Yucca.—Leaves of Yucca filamentosa (?) with peculiar horn-like protuberances of about half an inch long, probably caused by some insect (from Miss Owen).

ROYAL AQUARIUM (WESTMINSTER) CHRYSANTHEMUM SHOW.

NOVEMBER 15 AND 16.

THE annual exhibition of the Borough of Hackney Chrysanthemum Society, held at this place on Wednesday and Thursday last, was undoubtedly the finest the Society has ever had, and indeed about the best that has ever taken place in London, the entries in every class being very numerous. In some of the classes, particularly in that for forty-eight blooms, there were flowers which the judges, among whom was Mr. Douglas, considered to be the finest they had ever seen. Throughout the whole of the exhibition there was uniform high quality, and particularly as regards the plants, which showed a great improvement on those shown in previous years at this place. Every year this Chrysanthemum show becomes more national and less local in character, though it still bears the name of the Borough of Hackney Society. This year, in the classes open to all comers, there were exhibitors even from Liverpool, Shropshire, Taunton, and Bristol, and all the collections from these places were uncommonly good. It is gratifying to see that there is some prospect of there being a central London Chrysanthemum show, for though local societies abound in the neighbourhood, this is the only one that can be said to be of more than local interest; and if a central society can eventually be developed out of this Hackney one, the oldest of London Chrysanthemum societies, the cause of Chrysanthemum culture, now becoming so popular, will be still more advanced.

The arrangement of the show was a decided improvement on that of previous years, particularly as regards the pot plants, which were placed in two masses around central groups of fine foliage plants, which formed a fine background for the Chrysanthemums. The exhibition of fruits and vegetables added considerably to the importance of the exhibition. Such Apples and Pears as were shown on this occasion are rarely seen possessing such excellent quality; indeed, it was by far the finest show of these fruits that has been held in London this year. The vegetables also shown in competition for Messrs. Webb's prizes were numerous and exceptionally fine. The collections of Potatoes competing for the prizes offered by the Society were all that could be desired, as were also those that competed for the numerous prizes offered by Messrs. Sutton, who also showed their extensive collection of Potatoes exhibited at South Kensington the day previous.

Groups arranged for effect were more numerous than usual, there being half a dozen in the class for a group arranged on a space of 100 square feet. Three of these consisted of untrained plants, and these the judges selected for the first three prizes. That from Messrs. Mahood, Putney, which was placed first, was a remarkably fine one, the plants being dwarf, ranging from 2 feet to 4 feet high, and well furnished with flowers, the latter being large in size and perfect in form. There was also a capital selection of varieties and arrangement of colours, which added much to the appearance of the group. The two next best groups consisted of taller plants, and did not carry such fine blooms. An extra prize was deservedly awarded in the same class to a group of trained plants, all of which were finely grown, fresh, and full of bloom, and represented a good selection of Japanese, Incurred, and Pomponne varieties. The only group shown in the Borough class was also of the same character as the last named.

Pot plants, as we have just remarked, were of much better quality than in previous years. The class for six plants consisted of low-trained specimens, and in the first prize lot were excellent examples of Mrs. G. Rundle, Venus, George Glenny, Mrs. Dixon, and Prince of Wales—all admirable sorts for pots. The four collections of standard plants were likewise good, and so were the first two collections of Pomponne varieties in the open class. The pot plants in the Borough classes were excellent, particularly having regard to the fact that all must have been grown in the smoky atmosphere of Hackney. All the pot plants shown were trained in the conventional style, which at the best is formal; and it would be well to offer prizes to encourage specimen plants cultivated in a natural way without either tying or training.

Incurred sorts of cut blooms were the most numerous of all the sections, and on the whole the show of them was very fine, particularly the leading collections in the respective classes. In the open class for two dozen blooms the first prize went to Mr. Langdon, of Upper Clapton, who deserves praise for the fine collection he has grown in the confines of London. The sorts shown were Golden Empress of India, John Salter, Empress of India, Mrs. Heales, Jardin des Plantes, George Glenny, Princess Beatrice, Refulgence, Mr. Bunn, Princess of Teck, Hero of Stoke Newington, Golden Queen of England, White Globe, Mrs. G. Rundle, Venus, Nil Desperandum, Princess of Wales, and Emily Dale. There were six other collections in this class. The five collections of eighteen varieties in the open section were likewise good. The best, from Mr. Berry, contained good examples of Queen of England, John Salter, Princess of Wales, Beauty, Golden Empress of India, White Venus, Lady Hardinge, Princess Beatrice, Barbara, Princess Teck, Refulgence, Mr. Brunlees, Cherub, and Jardin des Plantes. The class for twelve blooms was the largest of all, there being seventeen collections. The finest came from Mr. Ridout, Woodhatch Lodge, Reigate; all the flowers of the following sorts were uncommonly fine: Empress of India, John Salter, Emily Dale, White Venus, Cherub, Mrs. Halliburton, Princess of Wales, Nil Desperandum, Mrs. G.

Glenny, Gloria Mundi, Mrs. G. Rundle, and Mrs. Dixon. The three other prize-winning collections in this class contained some very fine blooms. The collections of six blooms and also twelves and sixes from amateurs, nine in number, were poor on the whole, though some fine flowers were in some of the stands. The incurred blooms in the Boro' classes were good, and Mr. Holmes, Frampton Park Nursery, the secretary, won the highest honours in the class for twenty-four blooms. This contained excellent examples of Rev. J. Dix, Mrs. Heales, Mr. Brunlees, Barbara, White Venus, Golden Eagle, Enamel, John Salter, Jardin des Plantes, Hero of Stoke Newington, Prince Alfred, Mr. Bunn, Golden Eagle, Angeline, and Princess Teck. There were three other collections shown in this class. The collections of twelves and sixes in the Boro' classes were likewise of fair quality, though there was not uniformity of excellence in any one of the stands.

Japanese varieties were shown numerous, and better than we have ever seen them. In the open class for twenty-four blooms there were eight exhibitors, all of which were good. The first, from Mr. C. Herrin, Chalfont Park, Gerard's Cross, Slough, was a wonderfully fine, and uniform collection. It contained the varieties—The Daimio, Soleil Levant, Fair Maid of Guernsey, Mad. Audiguer, Meg Merrilees, W. Ardene, Baron de Prailly, Peter the Great, The Sultan, Red Dragon, Mad. Rendatler, Père Delaux, Oracle, Ethel, Magnum Bonum, Alba Plena, Grandiflorum, and Hiver Fleur, a representative collection as regards varieties. The second, from Mr. Gibson, was also good, containing fine examples of Nagasaki Violet, Ethel, Alba Striata, Garnet, Fulton, M. Moulise, Criterion, Elaine, Comtesse de Beauregard, Fanny Bouchardet, La Nymphe, in addition to those named in the first collection. In other collections we noted grand flowers of such admirable sorts as Lord Beaconsfield, Père Delaux, Bouquet Fait, Red Gauntlet, Rosa Bonheur, Viceroy of Egypt, Chang, Striata Perfecta, Dr. Masters, Thunberg, M. Brunel, Sarnia, Dr. Macary, Mrs. Pedlar, Curiosity, Cry Kang, and Apollo, all of which should be included in a good selection. In the class for twelve blooms there were six collections, the first being very good, containing among others good blooms of Triomphe du Nord, Fulgore, and M. C. Hubert, Baron de Prailly, Fair Maid of Guernsey, M. Dulaux, and Red Gauntlet were the best blooms. There were three collections shown for the cup offered by Messrs. Dixon & Co., which were to contain special varieties. The first, from Mr. Starling, contained M. Ardene, Fair Maid of Guernsey, Comte de Beauregard, Peter the Great, Agréments de la Nature, The Cossack, Criterion, Laurence, Chang, Flambeau, George Gordon, and Rubra Striata. The other collections in this class contained fine blooms of Thunberg, Fulgore, Ethel, Mdme. Rendatler, M. Delaux, and The Sultan. The Japanese varieties shown in the classes confined to the borough of Hackney contained some very fine ones, particularly the dozen from Mr. W. Holmes, Frampton Park Nursery, Hackney, the secretary of the society. It comprised fine blooms of Yellow Dragon, Mdme. Audiguer, Meg Merrilees, M. Rendatler, Gloire de Toulouse, Fulgore, Ethel, and Fair Maid of Guernsey.

The champion class was for four dozen blooms, half of Japanese, the remainder incurred varieties. The three prizes offered were £10, £2, and £1, and were for open competition. There were six collections shown, all of which were of great excellence, and in no class were the resources of the exhibitor tested as in this. The first prize was won by Mr. Gibson, Morden Park, Mitcham. The flowers in these stands were, as may be imagined, of high quality. The sorts among the Japanese were Comtesse de Beauregard, Fanny, Bouchardet, Alba Striata, Garnet, Criterion, Fair Maid of Guernsey, Peter the Great, Arlequin, M. Moulise, Sarnia, Hiver Fleur, Nagasaki Violet, Baron de Prailly, M. Ardene, M. Delaux, Ethel, and Elaine. The incurred sorts included Empress of India and its golden sport, Queen of England, Alfred Salter, Cherub, Hero of Stoke Newington, Barbara,

Princess Beatrice, Mr. G. Glenny, Lady Slade, Mrs. Rundle, Refulgence, Golden Eagle, Mrs. Dixon, Lady Carey, and Nil Desperandum. The second collection, from Mr. Herrin, was also good. Among the Japanese were excellent blooms of The Daimio, Peter the Great, Ethel, Hiver Fleur, Père Delaux, Alba Plena, Mad. Rendatler, Mons. Ardene, Fair Maid of Guernsey, Criterion, Soleil Levant. Among the incurred sorts which were inferior in quality to the Japanese, were fine flowers of Prince Alfred, John Salter, Queen of England, Venus, Emily Dale, Baron Beust, and Princess Teck. The third collection, from Mr. Mease, all the way from Liverpool, was a very creditable one, as were also those from Mr. Garaway, Bristol, and Mr. West, Oswestry, Shropshire. These collections, having regard to their long journeys, were in fine condition.

Anemone and Pomponne varieties were shown admirably by a few exhibitors, but there is an evident falling off with regard to these classes of Chrysanthemum, though among the Anemone there are some very beautiful sorts, and we think a deal could be done in improving them if they received as much attention as do the Japanese and Incurred classes. The best collection of Anemone flowered sorts was a very fine one, containing such fine varieties as Acquisition, Glück, Prince of Anemones, Marie Stuart, Prince Charles.

Fruit.

Grapes were not very remarkable. There were seven collections of three bunches of Black Alicante and five of Gros Colmar. That from Mr. Lyon, Sundridge Park, which was first, were very fine in bunch and berry and highly finished. Seven exhibitors showed Muscat of Alexandria; the first prize lot was very creditable, being large and of good colour; and in the class for Grapes of any other variety there were five exhibitors. Three large and finely finished bunches of Barbarossa were first, and Mrs. Pince's Black Muscat, both fairly good, were second and third.

Apples.—Dessert varieties were uncommonly fine, and there were ten collections of six dishes shown. The best from Mr. Austen, comprised King of the Pippins, Blenheim Orange, Cox's Orange Pippin, Golden Russet, Ribston Pippin; in the second the American Pippin, Herefordshire Pearmain, and Waltham Abbey Seedling, were shown well; in the third were Court Pendu Plat, Downton Pippin, Fearn's Pippin, and Calcot Pippin, of fine quality. In the other collection the following kinds were well shown: Hooper's Seedling, Sops of Wine, Rouget, Brownlee's Russet, Hoary Morning, Welford Park Nonsuch and White Nonspareil. The excellent quality of the old Ribston Pippin was noticeable throughout the collections. Cooking sorts also were good, and there were eleven collections of six kinds. The best lot, from Mr. Fowle, Dogmersfield, consisted of fine fruits of Alfriston, Yorkshire Beauty (unusually fine), Blenheim Orange, Gloria Mundi, Hollanbury Pippin, and Fair Maid of Taunton. The second collection comprised Mère de Merage, Stirling Castle, Waltham Abbey Seedling, Echlinville Seedling, Peasgood's Nonsuch, and Annie Elizabeth; and the third Royal Somerset, Lady Henniker, Nelson's Glory, Kentish Pippin, and an unnamed seedling. All these were uncommonly fine, and the sorts are all first rate. Other good kinds shown well were Tower of Glamis, Wellington, Beauty of Wiltshire, Cox's Pomona, Warner's King, New Hawthornden, Reinette de Canada, Nelson's Glory, Golden Noble, Betty Geeson, and Pomeroy.

Pears.—Collections of six kinds were shown by eight exhibitors. The finest were shown by Mr. Ross, Welford Park, Newbury, and consisted of very fine fruits of Duchesse d'Angoulême, Glou Morceau, Napoleon, Beurré Diel, Doyenné du Comice, and Josephine de Malines. The second, from Mr. Goodacre, contained some exceptionally fine fruits of Grosse Calabash, which were quite 8 inches in length; also of Marie Louise, Beurré Clairgeau, Beurré Hardy, Duchesse d'Angoulême. Some excellent examples of Easter Beurré, Marie Louise, and Beurré Diel were in the third; and in

the other collection we noted fine fruits of such fine sorts as Vicar of Winkfield, Doyenné du Comice, and Passe Colmar. It was interesting to observe how the sorts named predominated throughout the collections. One exhibitor showed two fine dishes of Beurré Diel in his collection, but one was named Beurré Magnifique, the French name for Beurré Diel. Mr. Towle, of Dozmersfield, showed six wonderfully fine dishes, but the fruits of Doyenné du Comice were much over-ripe. The other sorts he showed were Beurré Diel, Beurré Bachelier, Duchesse d'Angoulême, Beurré Clairgeau, and Triomphe de Jodoigne—all grand examples.

Collections of fruit only numbered two. The finest was that from Mr. Waterman, which consisted of nearly three dozen dishes, chiefly Apples and Pears, but there were some fair black and white Grapes, a Pine, and a Melon; the other collection, from Mr. Ross, contained the four splendid smooth Cayenne Pines shown the day previously at South Kensington. These were supplemented by some excellent Apples and Pears, numbering in all eighteen dishes.

Vegetables.

Collections of vegetables in competition for the valuable prizes offered by Messrs. Webb & Sons, Stourbridge, were thirteen in number. Each collection was to contain six distinct sorts, but most of those shown contained more. There was not a bad collection among the whole number, and the prize-winning lots were remarkably fine. The best, from Mr. Austen, Ashton Court, Bristol, contained fine examples of Improved Reading Onion, Snowball Turnip, Leicester Red Celery, Veitch's Autumn Giant Cauliflower, Lapstone Kidney Potato, James' Intermediate Carrot, and some fine Leeks. The next best, from Mr. Finlay, included excellent Carrots, Leeks, Triumph Potatoes, Reading Onions; and in the third, from Mr. May, were Leicester Red Celery, Improved Hertfordshire Sprouts (an excellent new sort), Improved Reading Onion, Dell's Crimson Beet, Autumn Giant Cauliflower, and Maltese Parsnip. Such an extensive and fine exhibition of vegetables as this is seldom seen.

Potato classes.—There were eleven collections entered in the class for twelve dishes, the competition being keen, as the samples were so remarkably even and handsome. Here such famous growers as Messrs. Ellington, Dean, and Finlay were to the front, the first named having samples, if a trifle large, at least handsome. Mr. Dean's tubers were very bright and fresh, and the third lot exceedingly even. International, Cosmopolitan, Advance, and Snowflake were the best white kidneys; American Purple, Mr. Bresee, Beauty of Hebron, and Scammell's Glory the best coloured kidneys; Porter's Excelsior, Schoolmaster, and Bedford Prolific the best white rounds; and Adirondack, Vicar of Laleham, Gramplan, Radstock Beauty, and Reading Russet the best coloured rounds. In the class for six kinds there were also eleven competitors, and there Messrs. Dean, Ellington, and Gribble were foremost with kinds named above, but there were also found Magnum Bonum, Edgecote Seedling, and Prizetaker, all good.

Messrs. Sutton and Sons, Reading, offered one prize of 10s., in eight classes, for named kinds, the largest competition being for the popular Magnum Bonum, eleven dishes being staged, several of which were remarkably handsome samples. Reading Hero was represented by ten dishes. This is a Victoria-shaped tuber, but much handsomer, and resists disease well. Reading Abbey had but five dishes, but it is never a handsome kind. On the other hand, Woodstock Kidney is very handsome, and is now well known to be of splendid quality. In the seven dishes staged were some beautiful tubers. Prizetaker, a new pale red kidney, smooth and handsome and of splendid table quality, was represented by five lots, and Reading Russet, a very handsome, flattish, red round, by the same number. This is not only one of the very handsomest of show

kinds, but is of fine table quality; the first prize dish of this kind could not have been excelled in the kingdom. Fiftyfold and Early Border had each five dishes in competition. These are longish, round, white kinds, and too much alike.

Messrs. Hooper & Co. offered prizes for their Queen of the Valley Potato, and nine dishes were staged in the class for nine tubers. All were large and some handsome. Prizes also from them for the heaviest tuber of the same kind—six ugly and truly useless tubers being staged, the heaviest weighing 30 ounces.

Messrs. Carter and Co. offered good prizes for twelve kinds, to include their Holborn Favourite, Improved Magnum Bonum, and First Crop Ashleaf, but there were only four lots in competition. Mr. Dean took the first place with a beautiful lot, in which were handsome Woodstock Kidney, Queen of the Valley, Cosmopolitan, Holborn Favourite, and Mr. Bresee. Messrs. Carter exhibited a heap of the new white kidney Cosmopolitan, exceedingly handsome, having purchased the greater portion of the stock from Mr. R. Dean.

A full list of awards will be found in our advertising columns.

NOTES OF THE WEEK.

APPOINTMENTS FOR THE WEEK.

- Nov. 21.—Manchester Royal Botanical and Horticultural Society's Chrysanthemum Show.
21.—Oxford Chrysanthemum Show.
22 and 23.—Northampton Chrysanthemum Show.
22.—Liverpool Chrysanthemum Show.
23.—Staines Chrysanthemum Show.

SKIMMIA BERRIES.—I send you berries of *Skimmia oblata* fertilised with *S. fragrans*. Of this I have a dense bush $3\frac{1}{2}$ feet high by $1\frac{1}{2}$ feet through, a blaze of scarlet at this moment. Apparently the above-named species are merely the female and male forms respectively of *S. japonica*.—ALFRED O. WALKER, *Nant-y-Glyn, Colwyn Bay, N. Wales*.

A VARIEGATED BRITISH ORCHID.—I send you part of the stem and leaves of a variegated *Epipactis latifolia*, which I think you will agree with me in thinking that it is very handsome. The variegation is quite constant, and regularly marked on all the leaves. The contrast between this and the ordinary forms of *Epipactis*, with which it is associated, is very striking. Is such a form uncommon? Perhaps some of your readers will say if they have already met with it.—A. D. WEBSTER, *Llandegai, Bangor*.

NEW PARK FOR BRIGHTON.—A contract having been entered into between the corporation of Brighton and the Stamford trustees for the purchase of sixty acres for a public park at a cost of £50,000, leave was asked to go to Parliament for a bill permitting such sale. This was granted, and an expression of opinion on the part of Mr. Justice Kay elicited that it was a transaction beneficial to the estate and the town, especially as the tenant for life offered to pay the costs of the application for the bill if unsuccessful.

INTERNATIONAL SHOW AT GHENT.—M. Linden, Director of the Compagnie Continentale d'Horticulture, Ghent, writes that it is intended to open in their establishment on the occasion of the International Horticultural Exhibition to be held in Ghent next April, a special exhibition of their own plants. A new conservatory and other houses are in course of erection for the purpose. The principal entrance in the Boulevard de la Coupure will be contiguous to the Casino, in which the International Show will be held.

CHRYSANTHEMUM COLLECTIONS.—Fine displays of Chrysanthemums about London may be seen at the Royal Botanic Society's Garden, Regent's Park, where there is an extensive collection in the large conservatory, also at the Royal Horticultural Society's Garden at Chiswick, where the capacious vinery is filled with some hundreds of plants. In nurseries the best displays are at Messrs Cannell & Sons, Swanley;

Turner's, Slough; Henderson's, Maida Vale; Mahood & Sons, Putney; Dixon & Co., Hackney; Veitch & Sons, Chelsea; Jackson & Sons, Kingston; and Holmes, Frampton Park Nursery, Hackney.

HORTICULTURAL APPLIANCES EXHIBITION.—Another exhibition similar to that held at the Agricultural Hall, Islington, this year, is announced to take place from the 15th to the 24th of March next. It will include horticultural buildings' heating and watering appliances, garden furniture, tools, wire-work, statuary, and other decorative garden accessories, also fertilisers and insecticides. A competitive exhibition of spring flowering plants, table decorations, fruits, deciduous and evergreen shrubs, &c., will also be held at the same time in the galleries of the hall. The classes in this section number fourteen, and the prizes consist of gold and silver cups and gold and silver medals. The schedules are already issued.

WEATHER-PROOF FLOWERS.—"J. C. B." will, I am sure, allow *Lobelia fulgens* and *Sedum spectabile* to be added to his list of autumnal weather-proof flowers. The accompanying specimens, gathered from the open on November 14, show what a hardy and rain-resisting pair they are. The *Lobelia*, from a neighbour's garden, has been a thing of beauty for some months; *Sedum spectabile en masse* was very presentable up to last Saturday night. The *Tropaeolums*, too, cut down by the same frost, quite brightened up the first ten days of the month. *Antirrhinum majus* is not to be despised at this time of the year. *Schizostylis coccinea* is still to the fore, the hardiest of all Cape flowers; mixed with a few fronds of Maiden-hair Ferns, variegated Ivy leaves, and sprays of *Sedum Sieboldi variegatum*, it is one of the loveliest decorations imaginable for the dinner table. Ignorant eyes cannot believe that it comes from the garden border. The only drawback is its dreadful name, mouth-breaking to pronounce, worse even than the *Eschscholtzia* to write. Will not the kindly soul who found the name of Plantain Lily for the *Funkia* exercise his ingenuity in naturalising *Schizostylis*? Red Soldiers, I fear, would hardly do.—NORMAN.

THE NEW SEED WAREHOUSES belonging to Messrs. Little & Ballantyne, Carlisle, are furnished with some appliances to which it may be of interest to refer. The building is seven storeys in height, and strongly constructed in order to carry the great weight of seeds stored up on the various floors. The bottom storey is occupied by machinery for cleaning seeds—Messrs. Drummond, of Cumnock, having erected a very ingenious apparatus for that purpose, working from a shaft running the whole length of the building. This, with elevators and a hoist delivering to all the floors, is driven by a five-horse power steam engine, the boiler of which supplies the hot water for heating the premises. At the rear of the shop are situated the offices and a sample room, lighted by a large window built out from the main building to secure a direct ray of light upon an ebonyed "examining" table for the different seeds. On this floor are speaking tubes communicating with all parts of the building, and a telephone connecting the office with the Knowefield Nurseries, a mile-and-a-half away.

HYDE PARK CORNER.—Mr. Warton, on Friday last, asked the First Commissioner of Works whether any contract had been entered into in respect of the contemplated alterations near Hyde Park Corner; and, if so, whether the contractor had undertaken to remove the arch near Hyde Park Corner bodily to its new position; and, if not, whether he could state why. Mr. Shaw-Lefevre: I have entered into a contract for the execution of the works at Hyde Park Corner, and they are now in course of progress. With respect to the Wellington arch, I told the House in July last that I expected it would be moved bodily. I had been advised by more than one authority that this could be done at a considerably less cost than that of pulling it down and rebuilding it. When, however, the plans for removing it were submitted to a contractor, it was found that, owing partly to

the flimsy construction of the arch and partly to the slippery nature of the soil on which it would have to be moved, the cost of the removal was about the same as the cost of pulling it down and rebuilding; and consequently, by the advice of Mr. Fowler, the eminent engineer, I abandoned the project of moving it in a more adventurous manner.

THE DUTCH BULB TRADE.—When "Peregrine" wrote his remarks on the bulb trade which appeared in *THE GARDEN* (p. 328), I should infer that he had not received a catalogue similar to that which I now send, or he would not perhaps have eulogised enterprising Dutch firms to the extent he then did. When reading his statement I had my thoughts directed to the catalogue in question. I could not, however, then lay hands upon it, but have at last been successful. On the fly-leaf it will be observed that the firm from which the catalogue comes makes the following offer to gardeners: "A discount of 10 per cent. may be deducted from accounts of from £5 to £10, 15 per cent. from £10 to £20, and 20 per cent. from accounts above £20. To gardeners who do not pay accounts themselves, the discount will be refunded by post-office order on receipt of amount." Notwithstanding these tempting bribes, I have a better opinion of my fellow-workers than to think they would be unscrupulous enough to deign to notice such methods of doing business, and which cannot be too severely condemned. This may be "free trade;" "pure and simple" it certainly is not. Neither employers nor gardeners need send their orders abroad when bulbs of excellent quality and moderately low priced can be obtained from firms of established reputation at home. It is but natural that large wholesale houses should be studied in the first place by the "growers," and if the latter can then dispose of inferior samples to private customers, so much the better for them, but not for the purchaser.—F. T.

TREES AND SHRUBS.

TRANSPLANTING.

MUCH difference of opinion appears to exist among gardeners and others as to the proper season for transplanting evergreens, but most are agreed that autumn is the right time to move deciduous trees and shrubs, and the earlier this work is carried out the better is it in every way for the plants moved. That this is so I have had repeated proofs afforded by the strength of things operated on in November compared with those left till a later period, and the reason of this is obvious. Those lifted while they have leaves still on them or before they have gone quite to rest, set to work at once to form fresh roots. I have seen striking instances of this in the case of many young trees and shrubs that had been dug up and laid in for a time, when on taking them out of the ground again they were found studded all over the main roots with young rootlets. It is these rootlets or fibres that help to feed the slowly swelling buds and keep the bark plump and fresh, matters of the greatest importance, for if the buds are starved through the shrivelling of the bark, it is impossible for them to start strong in the spring. This being so, it is a good plan, in the case of large standard trees of any kind or such as have much length of stem, to bind them up with Moss or hay-bands which may be kept moist by syringing, but this covering and attention are only necessary in the case of big plants like those mentioned, or such as have not been transplanted frequently to prepare and fit them for final removal.

The principal thing in the transplanting of trees and shrubs in order to get them to do well is to see that proper holes are dug for them, without which not only are their roots doubled up and cramped and crippled at starting, but they cannot break through the walls of the confined space and get away afterwards, and more particularly does this apply where ground is stiff and hard, in which case small holes become full of water, and the end is the drowning and ultimate loss of the plant. To prevent all these evils the

best way is to trench or break up the whole of the land where much planting is to be done, or if the trees are to go far apart to dig holes at least twice the size actually required to get in and spread out the roots, for though the labour may appear great it pays well after, as it will be found that plants so favoured make double the growth. Besides digging the holes large, they should be well broken up below and have the centres raised, on which to place the ball of the tree or shrub to go in, the top of which ball ought not to be lower than the level of the earth around, as then the collar, when the planting is finished, will be the same height as before.

With the plant in position, the next thing is to lay out the roots carefully in a way that they do not cross or interfere with each other, which done, the finest and best of the soil should be thrown over them, and the hole then deluged with water. The advantage of giving water in bulk in this way is that it carries the earth with it, and fills all the cavities in and under the ball, especially if the plant be swayed to and fro slightly, which movement settles it snugly and securely in its bed, and gives the roots every chance of a fair start by getting quick hold of the soil. To let the water get well away and the earth settle a bit, the final filling up of the hole should be deferred a few hours, when the remainder may be put in its place and levelled, and the job finished. With this part completed, a good mulching should be given, which not only keeps out all frost, and thus prevents injury to the mutilated and disturbed roots, but helps materially in maintaining an equable condition of warmth and moisture, as it intercepts the radiation of the one and the loss of the other by evaporation brought about by the hard, drying winds, which, when a mulching is not used, crack the soil and leave it with wide, open fissures.

Another point of great importance with newly moved plants is to see that they are securely staked or made fast, so as to prevent rocking, which movement is very injurious, as it not only strains the main roots, but, by the friction it causes, destroys or damages the fibres fresh formed. For small plants a single stake is sufficient to steady the head if the stake is driven in deep, but for those of larger size three poles must be used, or which answers as well and looks neater, stout cord or galvanised wire, either of which may be made fast to stubs in the ground, and led to the stem near the top of the plant. The stubs to secure the ends should be placed equi-distant, triangular fashion, and leaning from the tree, and be well driven into the ground to make them safe, and to fasten the wire or string at the ends near the tree. It is necessary to have a collar padded with hay or an old piece of carpet to prevent chafing the bark. A tree steadied in this way, or with poles in a similar position, will stand any amount of wind without moving at the base, as whichever quarter it blows there is a stay pulling against the pressure, and holding the plant erect. S. D.

American trees of the Lower Wabash and White River Valleys.—By actual measurement thirty-four species were found to occasionally exceed 100 feet in height, while seventeen others although not measured, were apparently at least 100 feet high. The tallest specimen measured, a Tulip-tree, was 190 feet in height, and individuals of ten other species exceeded 150 feet.

Quick-growing trees.—At the end of our garden were some large Elderberry trees. We cut them down, as they were getting very old, but they have left such a horrid gap and exposed an old wall, that I shall feel greatly obliged if some of your readers will give me the names of a few rapid-growing trees that I can plant to cover up the space again. I am sorry now that I have cut the Elderberries down, as they formed a nice shade to my summer house.—E. C. L., *Manchester*.

Cratægus cordata.—This is one of the best of the Hawthorns for autumn decoration. Its fruits, though individually small, are borne in

dense clusters, and, being of an orange-red colour when ripe, are very ornamental at this season of the year. The leaves, too, well marked by their distinctly heart-shaped base, retain their glossy freshness far into the autumn, and considerably enhance the beauty of the tree when in fruit. A few specimens of it may be seen near the Flower Walk, in Kensington Gardens, where also *Coton-easter frigida* and affinis are just now conspicuous for their profusion of red berries.—R. C.

Pruning the Pyracantha.—I wish to know what is the proper way of doing this so that it may bear berries all over it. We have a very flourishing plant of it which has grown to the top of the house, but it only bears berries on the top-most shoots, and I think it must be a question of pruning. Are the berries borne on the wood of the first or second year? Will some reader of *THE GARDEN* kindly enlighten me respecting this matter?—J. F.

Variegated Privet.—A branch of *Ligustrum ovalifolium* from Mr. Stevens, with the leaves nearly wholly suffused with an orange colour, is handsomer than most variegated shrubs, and the variegation seems to be constant. Another handsome variegated shrub from the same garden bears the name of *Elæagnus reflexus aureo-variegatus*. It has ovate, wavy margined leaves of a bright yellow, broadly edged with deep green. It is one of the finest of all the hardy deciduous kinds of *Elæagnus*.

Mortality in Thuja aurea.—I have been expecting for some time that some one would direct attention to what is to me the most extraordinary phenomenon in my horticultural experience, namely, the almost unusual mortality during this season of *Thuja aurea*. I noticed in early summer that one of two fine specimens in my garden, about twenty years old, had died. I was surprised, but I attributed it to accidental circumstances, although I could not ascertain what they were. I visited the gardens of the Horticultural Society at Chiswick at the end of August, and found that all the specimens there were dying. Upon this discovery I made general enquiries of my friends in various parts of the country, and, without exception, the replies were that their plants were dead or dying. My second plant died in September. What can be the cause of this extraordinary mortality, which has occurred in places so wide apart, and in soils and situations of the most varying character? I have no recollection of any similar experience as to any other plant; it cannot be compared with a like mortality in the animal world, as such can be generally traced to contagion. I suppose it must be attributed to some epidemic influence of this most abnormal season, the nature of which I hope some scientific biologist may be able to explain.—EDMUND JONKS, *Packwood Grange, Knowle, Warwickshire*.

Names of fruits. W. W. (Pears).—1, *Verulam*; 2, *Beurré Diel*; 3, *Vicar of Winkfield*; 4, *Josephine de Malines*; 5, not known, but is an excellent sort; 6, *Beurré Lombard*; 7, apparently *Délices d'Hardenpont*.—J. Rolfe. 1, *Beurré Bose*; 2, *Duchesse d'Angoulême*; Apples 3 and 4 not known, probably local varieties. —J. Buckerfield. —Neither of the Apples you send can be named, all being apparently local sorts, except No. 4, which is *Minchal Crab*.

Names of plants.—*Moorlands*. 1, *Nephrodium Filix-mas*; 2, *Scelopendrium vulgare cristatum*. —Miss J. E. —*Schizostylis coccinea* (red); *Iris fimbriata* (mauve). —E. Hunter. 1, *Croton Weismanni*; 2, *C. maculatum*; 3, *C. variegatum*; 4, *C. pictum*; cannot name the *Dracenas* from leaves only. —F. E. Sternfels. —*Odontoglossum crispum flaveolum*. —W. H. C.—1, *Cephalotaxus drupacea*; 2, *C. pedunculata*; 3, *Juniperus chinensis*; 4, *Cryptomeria japonica*; 5, *Cupressus Lawsoniana*; 6, *Abies excelsa* *Clanbrassiliana*. —W. Mellus. —*Cestrum nocturnum* (the small yellow flower); the other is *Ipomæa* (*Mina*) *lobata*.

COMMUNICATIONS RECEIVED.

J. K.—W. E.—W. J. M. J. M. J. R. H. T. H.—J. T. J. C. J. S. W.—J. S. W.—M.—P. G.—J. S. W.—W. W.—C. G.—W. H. M.—T. S.—J. C. W.—C. H. E.—R. F. McN.—S. K.—J. E. M.—W. D.—E. M.—W. T.—J. P.—A. D. W.—W. E.—E. B.—W. T.—G. S. S.—T. P.—J. S. & Sons.

"This is an Art

Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

FLOWER GARDEN.

THE CHRYSANTHEMUM AND ITS VARIETIES.

THE present season has been upon the whole favourable for the growth of the Chrysanthemum, and the principal exhibitions have been superior to any held in previous years. The reason why this is so is evident. In the first place, better prizes have been offered; in the next place, growers have better material with which to work, and they possess another advantage in the fact that a lengthened experience adds to our knowledge of their cultural requirements. One thing old growers have not failed to notice and comment upon, viz., the excellence of the plants cultivated for the purpose of producing large flowers of good form for exhibition purposes. Many such plants were exhibited at the Royal Aquarium. One grower with whom I have had many close contests more than ten years ago was quite surprised not only at the quality of the flowers, but the dwarf character of the plants. Previously I had recommended the practice of growing Chrysanthemums to single stems without stopping, but a close inspection of the plants in question revealed the fact that they had been stopped when about a foot high. Three stems had been trained up instead of one during the summer months, and each of these produced one perfect flower, giving three to each plant, all the lateral blooms being removed. Some may say, why remove any buds or flowers? let all grow. The answer to this depends upon what is the object in view. If for exhibition, then they must be removed; but if for home decoration, then I would only grow a portion of the plants on the thinning-out system, allowing the others to grow naturally, not removing a single bud. Our large span-roofed orchard house, 54 feet by 24 feet, is now filled with flowering plants, consisting of 130 varieties, and very few of them have had any of their flowers removed, so that each stem is clothed with flowers of various sizes instead of being merely furnished with leaves. This gives us an immense quantity of flowers, which can be cut in armfuls without being missed. We also grow a number of plants in the form of dwarf bushes of the Pomponé and large-flowered section. Specimens of Pomponés, when well grown, form beautiful objects. On one occasion I counted the flowers on a plant of Bob in our collection, and found them to number 1400. The plant had been grown to a single stem, and stopped three times during growth. It was raised from a cutting put in the previous winter. It is still matter for regret that there are scarcely any additions to

The incurved section, except those obtained from sports. What is much wanted in this section are varieties of a crimson or purple tint; in a stand of twenty-four blooms, nine-tenths at least are white, yellow, brown, bluish, or lilac. There was one notable addition exhibited rather plentifully this year, namely, Refulgence, the blooms of which are incurved and rich reddish purple. Crimson King, also a new introduction, and certificated by the Royal Horticultural Society, is a deep crimson of medium size, but it belongs to the type with reflexed petals. Prince of Wales and Prince Alfred are usually exhibited to supply dark colours in stands. Refulgence is distinct from either and of good quality. The sport from Prince Alfred obtained by Mr. Orchard, and which gained the award of a first-class certificate, is new and distinct. It is of a bronzy tint with the large size and incurved petals of Prince Alfred; it is named Lord Wolseley. Messrs. Veitch, of Chelsea, are growing seedlings raised by Mr. Salter, and no doubt some of them will be found to be distinct and good; there are at least some richly

coloured forms of the Pomponé varieties, which have at the same time good form in the flowers. Additions to the

Pomponé section are much needed. Varieties with purplish red and crimson flowers of the colour of Crimson King would improve this class. Then there are the Anemone-formed flowers both of the large flowered and Pomponé section, which are much esteemed by some. Prince of Anemones in the latter section is the model of form here; there is an outer row of florets with a centre forming half a ball. There are not yet more than six or eight good flowers in the class; but Lady Margaret, a fine, large white, and Fleur de Marie, also very pure white, are indispensable in any collection of Chrysanthemums. In the Anemone Pomponé class there are some very pretty varieties. One of the most recent additions, although it is quite ten years since I saw it exhibited for the first time, is Dick Turpin; this is quite distinct; the flowers have an outer ray of florets of a rich purplish crimson colour with a yellow disc. One of the best and a model as regards form is Antonius; it has bright yellow flowers, with a high well-formed centre. In all the above classes there is much room for improvement. The difficulty is to get seeds, but this obstacle is not unsurmountable; indeed, it is no difficulty at all. Most of our great nurseries have agents or correspondents in Africa or India, or even in China, and can send plants there to have seeds saved from them. The seed could be sold at a handsome profit, and good new varieties would certainly command a more ready sale now than they ever did. We now come to the

Japanese section; and here no one can complain that there has been no improvement. The new varieties are very numerous and very good. In this section there is no rule to be laid down for the guidance of raisers or exhibitors. The flowers are of all sizes and shapes; the florets are incurved or reflexed, twisted or straight; and last, but not least, they are admired by everybody, and well do they deserve all the care that can be bestowed upon them. The flowers are the first to open and the last to fade. I had not purchased any of the Japanese varieties for three or four years, and was quite surprised to see how far we had been left behind. I copy from my note-book the varieties which I thought should be added to our collection. They were exhibited at the Royal Aquarium and Kingston Exhibition; the names may be useful to those who had not the opportunity of seeing the flowers themselves. They are Père Delaux, Flambeau, Mad. C. Audiguier, Thunberg, Safranot, Mad. Brun, M. Desbreaux, F. A. Davis, Red Gauntlet, Japon Fleur, Agréments de la Nature, Chinaman, Albert, R. Ballantine, Mr. J. Starling, l'Incomparable, Lady Selbourne, Boule d'Or, Parasol, Hiver Fleur, and Comte de Germigny. The cultural remarks will be few. Put the cuttings in at once, each one singly in a small pot, using fine, moderately rich soil. They will strike if placed on a shelf in a cool greenhouse or pit. When rooted, pot on as required, keeping the plants from frost, but taking care that they are not drawn up by being removed too far from the glass or by not getting sufficient air. The glass lights ought to be entirely removed in fine weather, and in May the plants may be exposed freely to the open air without any shelter. The potting material should consist of turfy yellow loam, to which has been added some leaf-mould and a good proportion of rotten stable manure.

The Chrysanthemum is liable to be attacked by two pests, viz., green-fly and mildew, and unless these parasites are destroyed on their first appearance, there will not be much chance of success.

J. DOUGLAS.

Narcissus (Corbularia) monophyllus.—I found this lovely Narcissus some years since growing in tolerable profusion in Kabylie; is not this Narcissus a desideratum in English gardens? The roots I brought over did no good, most probably owing to their being removed in the growing and, indeed, flowering season. If any of your correspondents should receive bulbs of this lovely

species, I should recommend their being planted in short turf; their flowers would, under these circumstances, be seen to the greatest advantage, and the turf is a protection, not only to the roots but to the young growth and flowers. Most of my Narcissus I grow in this way, and when in bloom the grassy banks form lovely pictures.—R. MILNE-REDHEAD, *Springfield, Seedley, Manchester.*

Bugnot's International Pansy.—In THE GARDEN (p. 395) I mentioned some perennials, not only showy now and accessible to almost all, but that will be still more so further on and into the spring. I omitted to mention this strain of Pansies, to which I devote a considerable space, and that I think are deserving of commendation to any of your readers who patronise this beautiful hardy flower—and who should not? I have often tried other strains, but never got so many really good flowers from any other.—W. J. M., *Clonmel.*

Colour in Delphiniums.—Effective, but coarse, is the verdict I have more than once heard passed upon Delphiniums. It is evident that those who hold this opinion can never have examined the flowers attentively, or they would not think of associating coarseness with them. Delphiniums possess much refinement and delicacy of colour, and not even the Gentians can equal them in the wonderful iridescence that some varieties display. In some cases, too, they gleam with a metallic lustre, which almost startles, and in others the delicate blue is seen as it were through a silvery transparent film. The curious forms of some of the blooms, and the strange blending of tints in them, is also a remarkable and almost indescribable feature. I never thoroughly appreciated Delphiniums until I endeavoured to describe a collection of them for THE GARDEN, a task I found impossible to perform satisfactorily, and I really think that no coloured plate could more than feebly portray their beauty.—J. C. B.

Dahlias and Carnations.—In THE GARDEN (p. 416) "Peregrine" makes the following statement respecting Pomponé Dahlias: "These button Dahlias indicate a curious change of taste among the Dahlia fraternity. Lately, cultivators could not get the flowers large enough; now it appears to be how to have them smallest. This is not a healthy sign, as it indicates wholly unsettled convictions on the part of the florists." Indeed! In my poultry yard I have dark bramhams and Sebright bantams, and because I want to get the latter as small as I can, is my taste altered because at the same time I want to have large bramhams? Why, the two flowers are as distinct as can be; and while the florist is just as anxious as ever to have his show Dahlias large, he is equally anxious to keep his Pomponés small. Again, when Mr. Douglas challenges the statement of "Delta" with regard to the shortness of the bloom of the Carnation, he says "Delta's" friend must have had a very poor collection, and must have managed that badly. Now Mr. Douglas, in the first place, could not have known this, and, therefore, had no right to make such an assertion. Moreover, he must have seen that "Delta" was writing of the florists' Carnations. The autumn and winter blooming Carnations are not grown out of doors, and, therefore, to bring them in question was about as relevant as to have compared pot Roses with those grown in the open.—AMICUS VERITATIS.

Lilium auratum in the open ground.—The varying conditions under which this Lily is found to succeed in the open air puzzle even the most experienced growers. With some it only thrives in partial shade, whilst others have told us that it should have full sunshine to maintain it in a vigorous condition. The fact probably is that soil, situation, and climate generally vary so much as to preclude any absolute rule being laid down in the matter, but anyone wishing to know something of the conditions natural to Lilium auratum may gather much from Mr. Maries' notes upon this subject in a late number of THE GARDEN. He there states that he scarcely ever found this Lily growing in shade, but almost always in the full sun and in long Grass from 3

feet to 4 feet high, or amongst bushes. Now, as he rarely found a Lily stem more than 4 feet high, it follows that although the plants were in an exposed situation the roots and nearly all the stem were more or less screened from the sun. This is a natural condition we may imitate, but there exists another not so easily dealt with; growing on hill-sides some 4000 feet above the level of the sea, the bulbs are covered with snow all the winter, so that they are not liable to those periods of saturation which I am convinced do more to undermine the constitution than anything else. One thing is very certain, and that is we can scarcely err on the side of drainage, for Mr. Maries never found the bulbs in more than 3 inches of vegetable mould, lying on pumice, occasionally finding bulbs protruding from the soil. Taking into consideration the high elevation of these natural Lily beds, it would be impossible to conceive anything more perfect in the way of drainage.—J. C. B.

Early Sweet Pea.—Now is the time to sow the first batch of Sweet Peas for flowering in May next year. A sheltered situation should be selected for them, such as a position near a boarded fence on an elevated border, good drainage being essential for early sown crops. As soon as sown put a good coating of sifted coal ashes over the rows or clumps; these not only ward off slugs, but shelter the roots. As soon as they are above ground put stakes to them, and some evergreen branches put against these will protect them from cutting winds, that are more to be dreaded than actual frost. As regards sorts, perhaps nothing is better than a good mixture, but separate colours are now obtainable if needed. Scarlet Invincible, clear white, and even a decided shade of blue and purple are all good, but tastes differ as regards arrangement. If for cut flowers, one must keep the blooms gathered before seed-pods are produced, for if any quantity of these are allowed to mature, they monopolise the whole energy of the plant, and fresh flowers cease to be produced. In spring as soon as the flowers begin to expand, a coating of manure should be put around the roots, and in dry weather liquid manure should be liberally given; exhaustion only causes them to cease flowering so quickly as they generally do; therefore deeply cultivate and well enrich the soil before sowing. J. GROOM, *Seaford Nursery, Gosport.*

Tagetes signata pumila.—In many gardens this plant has for some time taken the place of the yellow *Calceolaria*, which on some soils during dry seasons cannot be depended upon; while for the *Tagetes* the season can hardly be too dry, and the soil is seldom so poor as to prevent it from succeeding admirably. Being a continuous bloomer and the foliage remarkably neat and pretty, it forms a very good substitute for the yellow *Calceolaria* either for massing or for forming lines in ribbon borders, &c. Its only fault is its somewhat irregular habit of growth, as from the same sowing some individual plants will frequently prove coarse or, at all events, much more robust than others, although growing in the same kind of soil and under similar circumstances. This may possibly, to some extent, always be the case. But it may at the same time in a great measure be avoided by the exercise of care in the saving of the seed, which is generally produced in abundance, but should never be gathered promiscuously. It is indeed one of those plants from which the grower should save his own seed, or obtain it from some source on which he can depend in order to secure something like uniformity in the growth of the plants produced from it. To obviate, however, as far as possible the tendency to irregularity, and to secure a superior or improved strain, a single plant possessing the desired properties should be selected from the beds or borders in which they may be growing as soon as its good qualities can be fairly ascertained; all expanded blooms should be carefully picked off, the plant should be raised with a good ball of earth, and either potted or transplanted into a sunny situation, fairly isolated from all other plants of the

same species. It should also be protected from insects by a piece of lace or fine netting, and from this the seed required for next season's use should be gathered. As has already been said, the plant seeds freely, and therefore it will probably be found that the produce of a single plant is sufficient for most establishments; if not, several selected plants may be used for the purpose, but uniformity is most likely to be secured from the produce of a single plant. By following this or some similar practice in the saving of seed from year to year, the strain of this *Tagetes*, or, indeed of any other annual plant, may generally be improved.—P. GRIEVE.

ROSE GARDEN.

TEA ROSES UNDER GLASS.

It seems a grievous waste of force to grow these in unheated houses, or to keep them so cool as to arrest growth and check flowering where heat is available. Many seem to forget that the Tea Rose is naturally an Evergreen, and also an ever-growing, ever flowering-plant. Unless checked by cold or drought, it will flower on and on for ever, until paralysed by exhaustion, crippled by disease, or smitten down by death. In many cases Tea Roses under glass are cribbed, cabined, and confined by artificial and unnatural treatment, and so prevented from developing one-half of their inexhaustible treasures of fragrance and beauty. It is pitiable to see grand promises of bloom in winter nipped in the bud by cold, or checked in their development into mere abortions for lack of water. I wish to raise the cry this wintertide of

Heat for Tea Roses under glass.—To avoid controversy or side issues it may be wise not to dwell on the amount. Comparatively little will keep them growing and also enable their chaste buds to unfold their beauty and distribute their fragrance. But because they will do all this in a temperature of 40° or even less, that is a sorry reason why they should be thus stunted. We ourselves can live on a very spare diet and a mere modicum of warmth, but we can thrive far better on a substantial diet and in a genial atmosphere. It is just so with Tea Roses; give them a temperature of from 56° to 65° all the year round, and note the results in such a profusion and constant succession as to satisfy, if not fill, the most devoted admirer of Tea Roses. But there is latitude for much variety of practice, and even more of opinion, in regard to the heat temperature for Teas under glass; and, provided that sufficient is given to keep them in health and in healthy growth and in flowering condition, no one will have cause to complain. A second cry, almost equally necessary in many indoor roseries, is

More water.—Where the forcible rest theory has been adopted in regard to Tea Roses, drought has been generally brought to the aid of cold in checking their natural tendency to grow. This, of course, is more or less effective in starving the Roses to rest, for water is not only plant food, but the solvent that prepares or decomposes nearly all other forms of plant food, and presents it to the roots in such a state that they can use it. Hence dryness at the roots means literal starvation if carried far enough, as it sometimes is. But even partial starvation not only arrests growth for the time being, but weakens and injures such plants as Tea Roses ever afterwards. Nor is this all. Dryness at the roots offers a direct and powerful incentive to the growth of all manner of fungoid forms of life, and these are among the greatest foes to Rose life and health. The evils wrought by unnatural and unnecessary dryness are, in fact, innumerable and incalculable, and all these may be entirely avoided by giving Tea Roses more heat as well as more water in winter. A third cry, that of

More room, will be gladly welcomed by the whole family of Teas. Why should they not have larger freedom, more liberty, and ramble

about at their own sweet will? Fully fed, freely exposed to sun and air, they will grow luxuriantly and burst forth into fresh shoots in all directions. Why should these be pruned back or thinned out so long as room and light can be found for them? Even trellises are probably a mistake for Tea Roses; they grow naturally into dwarf dense bushes ever and anon crowned or about to be crowned with flowers. With little or no pruning they bloom in continuity rather than in succession. Hardly have the Roses on one shoot began to fade than the buds on another, perhaps many shoots, begin to open, and so on and on throughout the year, where free growth is fostered, food is unstinted, and sufficient warmth provided. Weakly shoots will of course occur, and these should be thinned out. The plants may also be kept within bounds, or in the desired form by skilful pruning when needful. But as a rule loose them from all our hard and fast lines and artificial restraints, and let them go is the best possible practice with Tea Roses. And in order to their going all the further and the faster and producing richer, larger harvests of blooms, it is of vital importance that they should not be stinted of either food, water, or warmth.

D. T.

TEA ROSES ON A SOUTH WALL.

On small plants of Teas on their own roots from one to two years old the following coloured buds were counted this morning (November 17)—the size of the plants are also given: Comtesse Riza du Parc, 3 feet by 2 feet, thirty-six buds; a second plant, 3 feet by 3 feet, twenty-one buds; Madame Camille, 2 feet by 4 feet, twelve buds, many cut quite recently; Rosea alba, 1 foot by 6 inches, six buds; Madame Maurin, 2 feet by 18 inches, six buds; Madame Camille, 2½ feet by 3 feet, nine buds; Niphotos, 1 foot by 1 foot, five buds; Souvenir d'un Ami, 4 feet by 2 feet, twelve buds; Rubens, 4 feet by 3 feet, ten very fine buds. A frost of 12° at night has doubtless checked their progress, though I trust the Roses are safe beneath their thick screen of Yew branches. A popular catalogue suggests the lifting and potting of Tea Roses, and the placing them under glass for the winter, planting them out again next spring or summer. But that would not apply to Roses on walls, and could hardly be necessary for those in beds or borders on dry soils and in warm situations. In all such a thatch of Ferns or other litter, or of evergreen boughs would probably carry the base and a considerable portion of the top safely through the winter, and these break with astonishing force and vigour the following spring. As to Tea Roses on walls, it seems a pity they could not be covered with glass, and a flue run through the wall, or a hot-water pipe along its base to keep the frost at defiance. Under such conditions they could not fail to give satisfaction, and yield an abundance of bloom.

D. T. FISH.

Root disturbance.—Anyone wishing to do so may readily ascertain whether or not transplantation induces root activity. A hardy tree or plant taken up during September or October and laid in again in free soil will, in the course of several weeks, be found to have increased its fibrous roots to a considerable extent. This is very noteworthy in the case of such things as have thrust their roots deeply into the soil, and which do not make many surface feeders. Taken up carefully and laid in directly, fibres issue from the long, wiry, fibreless roots, which often characterise this description of plant. If I were going to transplant old-established Roses, I should prefer to take them up about the middle of September, lay them in by the heels in a sheltered place until the middle of October, when I should find them provided with fresh feeders ready to lay hold of the ground at once. All plant growers are familiar with the practice of shaking the plant out of the old soil and replacing in the same sized pots, an operation which invariably stimulates root action. Merely lifting a suffering hardy plant, too, will often cause it to start away again freely.—J. C. B.

"GIE US A LEAD."

UNDER this title, Canon Hole delivered, a short time ago, an excellent address to working men at the Derby meeting of the Church Congress, from which we extract the following:—

"I'll tell you what sort of doctor I should have liked, had it pleased God to set me to work along with you. Not the man who said to me, 'You're looking sallow and shrunk for want of a little more fresh air and exercise, and I wish you may get it—good morning,' but the man who said, 'You are getting rather thick on the ground here in Derby, 11,000 more souls added to your numbers since 1861, and I have bought some 20 acres of ground for an arboretum for your refreshment and recreation.'* I should have liked as my doctor, not the man who said to me, 'You ought to be ashamed of your ignorance. Why don't you buy a selection of well-bound standard works instead of all that penny rubbish?' but I should have liked the man who said to me, 'I think, friend, you'd be glad if you had the opportunity to increase your stock of knowledge, and I have built you a free library, and furnished it with a variety of books, to be always open for your use, and propose to add to it an art gallery, which I trust will please you and instruct you.'†

"When Sir Francis Crossley presented a park to the working men of Halifax, he said, 'I attribute the great success which has enabled me to make this gift to my fellow townsmen to this circumstance, that when we first passed through the gates of the big mill yonder, my mother said, "If the Lord prosper us in this place, the poor shall taste of it." How could the poor taste of it more sweetly than in a place of healthful rest and recreation? Ought not such places to be multiplied, not only by individual munificence, but by public combination? Surely one of the first anxieties of a government should be the physical, as well as the moral, condition of the people. Surely the commercial man, the employer of labour, must perceive, in his consideration of profit and loss, if he have no higher motive, the prime importance of that power, which health alone can give, to see quickly, and strike strongly, and endure continuous work. How much more, then, should the Christian, who professes to regard all men as brethren, who has been taught that if one member suffer all the members suffer with it, how much more should he strive to brighten the lives and lighten the burdens of the sons of toil? As it is, is there not too much truth in the sorrowful sentence, 'that the right to dwell freely in a grimy street, to drink freely in the neighbouring public-house, and to walk freely between the high-walled parks and the jealously-preserved estates of our landowners, is all that the just and equal laws of England secure to the mass of the population?‡ Well may our poet-laureate ask—

Why should not these great sirs
Give up their parks a dozen times a year,
And let the people breathe?

"Oh," it is answered, "they'll destroy everything." It is not true. Trust them, and tell them you trust them, and they will destroy nothing. Just a fortnight ago I was walking in the grounds of one of the most beautiful homes in Great Britain—New Battle, near Edinburgh, the seat of Lord Lothian, and the gardener told me that the park and the gardens were open to anyone at all times, and that great numbers availed themselves of the privilege, but they did no harm.

"It is told that a clergyman, whose graveyard was sadly overcrowded, except on the north side of his church, which, being damp and drear, was not used for sepulture, went to a woman, who was very old and ill, and, having explained to her that the dislike to the shady side was a mere fancy and superstition, asked her as a favour, and for the example of others, to give directions that her interment should take place in the vacant portion of the ground. The old lady took a few moments for

consideration, and then made answer, 'Well, sir, as you say that one part's as good as another, and that it's of no consequence whatever where we're put, p'raps you'll gie us a lead.' I think that the working man may justly say to some of his counsellors, 'gie us a lead.' Think how few our amusements are, and if they seem to you not only few, but evil, show unto us the more excellent way. 'Gie us a lead' to a public garden, or a bit of garden of our own, a cricket ground, a fives court, a picture gallery, good, cheerful rooms, where we can read book or newspaper, play games, and smoke our pipes, with accompaniments so regulated by rules as to keep all within the limits of becoming mirth.

"Gie us a lead. Could you not come among us now and then, walk, and talk, join in our sports, and make friends? We are told that in foreign countries there are beautiful promenades, where the rich and poor meet together, and listen to excellent music. 'With all our vast expenditure on our army, can't they spare us a band?'

"Three months ago (an ounce of fact is worth a ton of fancies) a goodly number of working men and women paid me the compliment of a visit from Nottingham, twenty miles away. They walked about my garden—the weather was not propitious for games—they had what is called a knife-and-fork tea in our village club-room, and then, by their own wish, we walked to the House of God as friends, and had a short, hearty, happy service."

TREES AND SHRUBS.

SOME OF THE BETTER KINDS OF MAPLE.

THE Maples constitute a most interesting group of trees, equally valuable for the sake of their timber and for their ornamental appearance. Two or three of the species attain the size of timber trees, the others range from the stature of shrubs to that of medium sized trees. Many kinds are very useful in ornamental planting, the elegantly lobed leaves of the finest texture, furnishing, during the autumn, the most exquisite tints of yellow and scarlet; others are interesting on account of their flowers and leaves being produced at the same time. I shall here enumerate the most remarkable species only. *Acer platanoides*, the Norway Maple, is a beautiful tree with handsome, glossy, dark green leaves, for the sake of which it is principally cultivated. The timber is also used by turners, and from the ascending sap a coarse sugar is prepared. Two distinct varieties of this tree are generally recognised; one, the cut-leaved, in which the leaves are deeply and irregularly jagged, and the other, the silver striped, a kind in which the leaves are slightly stained with white. *A. striatum*, the Striped bark Maple, rarely exceeds 8 feet or 10 feet in height, and is remarkable for the bright rosy tint of its young leaves in spring. It is a native of North America, where it forms a considerable part of the undergrowth of the woods lying between Canada and Georgia. The wood is white and extensively used for inlaying cabinet-work. The bark of this tree is longitudinally marked with black and white stripes. *A. saccharinum*, the Sugar Maple, in appearance resembles the Norway Maple; the leaves are, however, more glaucous, and change to a crimson hue during autumn. From the sap, obtained by tapping the trunk in spring, a considerable quantity of fine brown sugar is procured. The wood is hard, but of little value, being readily attacked by insects. The Sugar Maple does not generally succeed well in England—seldom, even when in health, attaining a greater height than 15 feet or 16 feet. *A. campestre*, the common Maple, is a frequent occupant of hedgerows in England, and is spread over the greater part of Europe. Grown in England its appearance is not striking, and its wood is of little value except for the use of the turner. *A. obtusatum*, the Neapolitan Maple, with its reddish purple branches, is a handsome tree. Though perfectly hardy, it is rarely seen in England except in botanical collections. It is a native of Hungary and several parts of Italy. *A. pseudo-platanus*, the Sycamore Maple, is the

largest and most common species. It is invaluable for seaside planting, and thrives upon poor, sandy or gravelly soil where few other trees could succeed. The wood, which is not particularly valuable, is chiefly used for coarse work where lightness and toughness are required. Of this Maple there are many varieties, the principal of which are: The Golden, the leaves of which have a yellow tint: the Red, or Gold-striped, with leaves stained with yellow and red; the Silver-striped, with leaves marked with streaks of white; and the Corstorphine Plane, a kind distinguished by its broad leaves and vigorous mode of growth.

Llandegai, Bangor.

A. D. WEBSTER.

PLANTING AND PRUNING.

FROM long and extensive experience in planting in different situations and soils, I am in favour of autumn planting of fruit and forest trees, and also evergreen shrubs, unless in cold, bleak situations, when the latter are best deferred till spring or early summer. There may be situations where the soil is too wet to admit of early planting, but such is unfit for planting at any season till drained. There is an old saying, which in practice I find to be correct, viz., "Plant a tree in autumn and command it to grow, but in spring you must coax it." Some are of opinion that severe frost will injure early planted trees; this I have proved to be a fallacy. In order to test it I left young trees with their roots uncovered during severe frost, and planted them when thawed, and I found that they sustained no injury. There is more risk from drought in spring planting than from frost in autumn or winter planting. I agree with the views of Mr. McCorquodale respecting pruning of forest trees, with the exception of using a saw for the purpose. Where timely pruning with the knife has been neglected, rendering the use of a saw necessary, I question whether it would not be better not to prune at all, unless it be for the purpose of admitting light and air. A large wound made by cutting off a limb of a tree may heal over, to outward appearance leaving no defect, but when the tree comes to be sawn up for use, the injury to the timber will be perceptible. I do not approve of the fashion of pruning to naked poles; I would have a well balanced tree feathered from bottom to top.

Thornley.

J. J. G.

Scarlet Arbutus.—Under this name Mr. Stevens brings one of the handsomest varieties of the Strawberry tree (*A. Unedo*) we have seen; the leaves are large, unusually broad, and of a deep green, while the branches are covered with a purplish red bark, which sets off the clusters of white flowers to advantage. It appears to be identical with the variety called Croomi.

Cratægus Carrierei.—This was raised by M. Carrière when superintendent of the nurseries belonging to the Museum of Natural History. It is a seedling from *C. mexicana*, which it surpasses in vigour, and profusion of bloom, which opens in spring, at first white, but afterwards becomes flesh coloured. The fruits resemble Cherries in appearance, so large and bright are they, and they are very persistent. A tree covered with red fruit in winter must certainly be valuable in a decorative point of view, and such a tree is this new Thorn, which, moreover, according to Messrs. Baltet, of Troyes, who are distributing it, is very hardy, having withstood the severe winter of 1879 and 1880.

Pruning Cratægus Pyracantha.—It is no uncommon occurrence to see large specimens of the *Pyracantha* in the condition described by "J. F.," indeed it is rare to meet with a well berried tree which has for some time covered the space allotted to it. This is easily understood, as the *Pyracantha* fruits on the wood made the preceding year, so that in order to get plenty of blooms, it is necessary that strong shoots be made yearly, the same to be left quite or almost intact. Now, when, as is often the case, extension ceases for want of space, and hard pruning is practised, no bearing wood is left except perhaps a few

* The Derby Arboretum was given to the town by Mr. Joseph Strutt, in 1840.

† The Free Library built by M. T. Bass, Esq., M.P. for Derby.

‡ Professor Stanley Jevons, "Contemporary Review," October, 1878.

straggling shoots which produce what little fruit is formed under such circumstances. The remedy for this is hard pruning, cutting in a portion of the branches to within two eyes of the base of the shoot every year, so that there is an annual production of strong fruiting wood, which is to be left entire. I should advise "J.F." to start afresh with his tree, cutting it back to within a few feet of the ground, and then the following year again pruning a portion of the branches in hand, which will give a succession of bearing wood.—J. C. B.

BOOKS.

EXOTIC FERNS AND SELAGINELLAS.*

EXOTIC FERNS! What visions of grace and verdant beauty the title of this little handbook calls up to one's memory or to one's imagination, as the case may be, for it is not given to all of us to wander where *Gleichenias* take the place of the common Brake, or where the rarest of tropical Filmy Ferns and Dipteris are as plentiful as Hart's-tongues in Devonshire; or the common Polypody on the gnarled Oak trunks beside a Derbyshire trout stream. Exotic Ferns! *Adiantum pedatum* and stately *Osmundas* by the acre in American woods; *Todea superba* in the moist glens of Oceania; *Matonia pectinata* rampant on Mount Ophir, in Malacca, with *Nepenthes sanguinea* as a near neighbour. Graceful tree Ferns beside Bornean streams or in New Zealand ravines; choice *Davallias* draping wet sandstone rocks; *Acrostichum aureum* in brackish swamps; giant *Platyceriums* on trees high up above one's head; and *Adiantums* and *Lindsaas* carpeting the ground at one's feet, are only a few examples of exotic Ferns. Few plants are more cosmopolitan than these—they are everywhere terrestrial, or epiphytal, clinging or dangling in festoons from trees or rocks, or they compete with scrub and herbage for their share of soil and nourishment. And in our gardens they are most welcome; how welcome may best be imagined by supposing them altogether banished for a week—a single day even; no, we could not well spare Ferns, however common, from our gardens. They represent the canvas—the background on which our fairest of Orchids and Lilies and tropical flowers of many a clime show to the best advantage. No; banish Ferns for a single day, and the total loss in cut fronds alone in our flower marts would come to a grand total; for Ferns are not only of value on their own merits—they enhance the attractions of the choicest of flowers, with which they so readily associate.

It is singular that of all the groups of plants now grown in our gardens Ferns alone make the most pleasing and natural of arrangements. No plant house can be made so natural in appearance as a fernery properly built and properly planted; in a word, no other plants grow so naturally and give such a minimum of trouble culturally as do Ferns when they are planted out in suitable structures. A fernery may indeed be made at little expense; even an old shed may be extemporised if needs be, and the result gained proves to be one of the main attractions of a good garden. Ferns are very accommodating, and coming as they do from such a wide geographical area, they can readily be selected so as to suit all kinds of climates, natural or artificial. We may say this much without entering any plea for Fern culture; indeed, no such plea is needed; they find their way into all gardens, however humble, one may almost say instinctively; no one can be too rich or too poor to grow them—they find their way everywhere. As I write, memory reminds me of those choicest of Filmy Ferns grown by a London surgeon in the very heart of London—of the window cases full of these plants and *Selaginellas* at the City of London Club. There is, or was, in Regent Street a restaurant window filled with fresh, green Ferns, and we all know how attractive and how useful, in an artistic

sense, is the fernery in the South Kensington Museum. Go where we will, a garden without Ferns is an anomaly; they were not created for a day or a season, or to be fashionable for a brief space only—they are beautiful for all time!

Ferns and *Selaginellas* are so welcome and so pleasing, generally and individually, that we welcome any attempt to simplify their culture, to make them more popular, hence we welcome Mr. Sandford's handbook, and wish it all the success it deserves. We feel as if we should like to make a pilgrimage to Dale Park to see the Ferns and Mosses under Mr. Sandford's care. For the nonce, however, the book must content us, and it is a good book, containing plain description of a thousand species and varieties of foreign Ferns and some 600 synonyms. There is also much to the purpose on composts, propagation, insects, and other Fern enemies, and valuable cultural information. To practical gardeners, especially young ones, this book will be of much service. We said the descriptions were plain, but now and then we could wish the author had contented himself with plain English terms. For example, "leathery" is quite as short and as expressive as "coriaceous," and "wedge-shaped" might have conveyed quite as much meaning to a practical reader as to say that small segments are "of a cuneate obovate form." There are numerous errors in orthography; indeed the book bears the impress of having been written by a man who is less acquainted with literary work than with Fern culture; nevertheless, as we have before said, it is a good practical book on a very popular subject, and if a second edition is called for, as we trust it may be, no doubt the author will profit by the hard blows some critics have dealt out to his work. After all shooting a butterfly with a rifle is but poor sport, and our own deliberate opinion is that the few literary errors it contains will not impair its usefulness in the hands of those for whom it is prepared. W.

A book of English names of cultivated plants.—We are now having compiled a list of English names of garden and farm plants, trees, shrubs, Ferns, fruits, vegetables, economical plants, &c., with their Latin equivalents. As our readers may surmise, it will, if fairly well done, be extremely useful to everyone interested in plants, and we shall be glad if such as can will help us with the names of books which may be referred to with advantage. It is proposed to include the English names in use in America and our colonies, so far as these are obtainable. The omission of one work might be a drawback to the usefulness of the book. We do not propose to seek the merely curious or very old, but all those most in use. At the same time our aim is, as far as possible with our present means, to get together something like an English nomenclature of cultivated plants, and which may be a first step in the changes in that way which we hope may come in time.

BOOKS RECEIVED.

- "Siberia in Asia," by Henry Seebohm. (John Murray)
- "Elements of Silviculture," by G. Bagnieris. (W. Rider & Son)
- "The Rose," by H. B. Ellwanger. Rochester, N.Y. (Dodd, Mead, & Co., New York.)
- "The Flowers of Shakespeare," by Viola. (Sampson Low & Co.)
- "The Colours of Flowers," by Grant Allen. (Macmillan & Co.)
- "Profitable Market Gardening," by William Earley. (Bazaar Office.)
- "The Herefordshire Pomona," part V.
- "Fairy Tales," illustrated (Sampson, Low & Co.)
- "Kitchen and Market Gardening," by contributors to THE GARDEN, Wades series (Crosby, Lockwood & Co.)

CATALOGUES RECEIVED.

- Little & Ballantine (Carlisle)—Forest and Ornamental Trees.
- J. Dickson & Sons (Chester)—Floral Trees.
- Fisher, Son & Libray (Sheffield)—Select Roses, and Fruit, Forest, and Ornamental Trees.

NOTES OF THE WEEK.

QUEEN VICTORIA AGAVE.—For our illustration of this Agave, and also for the interesting account (p. 448) which accompanied it, we are indebted to Mr. William Falconer, Botanic Garden, Cambridge, Massachusetts, whose signature was inadvertently omitted last week. We have seen some of the seedlings referred to by Mr. Falconer, and have no doubt of their being the true Queen Victoria Agave.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—Mr. Cutler informs us that an addition of eighteen pensioners on the funds of this institution will take place on January 11 next, the largest number that has ever been on the books at one time. The annual collection in aid of the Pension Augmentation Fund for 1882 will finally close on the 30th inst. The amount received up to this date is £478 8s. 7d., being £83 4s. 9d. less than the amount received last year. The committee earnestly trust this sum will be made up before the day of closing the fund, and that in a very few years they will have the satisfaction of announcing their ability to raise the pensions £4 each.

HARDY CACTI.—Being an admirer of this interesting, but much neglected class of plants, I was greatly pleased with the plate of *Echinocereus gonacanthus* and Mr. Loder's description of it in last week's GARDEN. But let me ask, in how many private collections is it to be found? Might they not be counted on the fingers of one hand? and as to nurserymen, probably only one or two possess it. Why is this? The answer is it does not pay nurserymen to grow plants for which there is little or no demand; but such plates as that to which I have just referred cannot fail to improve matters in this respect. Mr. Boller, Woodfield Nursery, Harrow Road, is the only one in the trade who grows Cacti largely. There I saw quantities of *Echinocereus gonacanthus* and many other quaint forms of Cacti, all of which justly claim attention.—X.

YORK HORTICULTURAL FETE.—The exhibition to be held in June next will celebrate a quarter of a century's work in the promotion of horticulture by the committee of this society, it having been established in 1859, and has always been in a prosperous condition. During that period it has paid upwards of £10,000 in prizes, and has divided upwards of £700 amongst the charities of York. A circular is now being issued by the committee to the leading members of the nursery and seed trade, inviting special aid in the way of extra prizes to supplement the liberal schedule issued by the committee. Vegetables have hitherto had but little notice; therefore an excellent opportunity is offered for extra prizes in this class. The committee is anxious to make this twenty-fifth exhibition the most remarkable the society has yet held.

GHEENT INTERNATIONAL EXHIBITION.—The following is a copy of a resolution passed by the Syndical Chamber of Belgian Horticulturists, Ghent, with reference to an intended congress of horticulturists to be held in Ghent during the months of March and April, 1883—Resolved: That in order to give to the representatives of horticultural industry of all countries the occasion to extend mutually their commercial relations and discuss their common interests, an international meeting of horticulturists be held at Ghent in April, 1883. The programme will be published in due time. As this meeting will coincide with the great quinquennial international flower show, organised by the Royal Agricultural and Botanical Society, interesting entertainments will be offered to the congress members and excursions organised to the different horticultural centres of Belgium.

MARKET VIOLETS.—A well-known cultivator, who resides within six miles of Charing Cross, and whose place is yet fairly well into the country, complains that, owing to the prevalence of fogs now, it is very difficult to get Violets to do well in the open ground. These visitations of heavily-charged vapours are destructive to the leafage, and

* A manual of Exotic Ferns and Selaginellas (256 pages with index). By E. Sandford, London H. T. Infeld, .60, Fleet Street, E.C.

as without ample leafage there are no substantial crowns, of course the bloom is very poor indeed. In writing of what plants will thrive around and in London hardly enough stress is laid upon the destructive effects of fogs upon vegetation; and whilst some, especially those who reside in elevated and favoured localities, are prepared to prove that certain plants ought to do well in towns, yet sad experience shows that those which will so thrive constitute a very limited number indeed. But it would seem that the effects of the fogs upon Violets are not confined to the immediate vicinity of London. Throughout the valley of the Thames Violets are very largely grown, as is pretty well known, but for the past ten years a really good Violet harvest has not been known. Of course there has been plenty of flowers seen in the markets, for, let the season be what it may, the market is usually the last place in which scarcity exists. It is when the vast breadths of Violet beds are looked over year after year that the comparative lack of flowers is seen. The richest show of Violets I ever saw was on a large extent of fine plants that ran between lines of Spruce Firs. It certainly was some years since, but then the Firs were removed. Still I think the shelter given to the Violets had much to do with the results, for anyone who has noted Violets in their common habitats cannot fail to have observed that where clustered under the shelter of a warm hedge or on a sunny sloping bank, they are most robust and full of flower. It is well to plant on sloping banks beneath hedges or under the shelter of any kind of fence, as a flat unprotected position now too often entails failure.—A. D.

PROLIFIC CROP OF CAMELLIAS.—One of the most extraordinary crops of Camellia flowers we have seen is that this season in the Camellia house in Mr. Peacock's garden, Sudbury House, Hammersmith. At present there are some fine large bushes of the old double white and the lovely fimbriata profusely laden with flowers and buds in various stages of expansion, and the flowers are not only numerous, but exceptionally large, some of the fimbriata variety being nearly 5 inches across. These are the earliest, but other sorts will shortly be in bloom. The secret of this remarkable yield of bloom is the periodical dressings of artificial manure which the plants have had for the last few years. The manure used is that prepared by a patent process from fecal matter collected in Blackburn and other towns, and evidently suits the Camellia, a fact which the rich, healthy tone of the foliage and the heavy crop of bloom well exemplify.

KITCHEN GARDEN.

KEEPING BACK CAULIFLOWERS.

AT this season there are few vegetables more acceptable than white, tender, well grown Cauliflowers, but those who planted many of them to come in during October, November, and December may now find that there are hundreds of them ready for use together. Many of these may be valueless at present, but by and by when severe frost sets in the supply may be brought to an end, and it will then be wished that some of those so plentiful now had been kept back until wanted. This should now be seen to, and may be effected in various ways. It is useless trying to keep the heads from forming, a practice which may be carried on until frost or bad weather stops their progress. The best way is to allow them to come in now as quickly as they will and save the heads afterwards. So long as frost does not occur they may be allowed to develop full sized heads, but a few degrees of frost soon blackens them, and makes them decay prematurely. When there is any indication of its approach the plants should be gone over and the leaves turned down over any which are just forming. Those further advanced may be cut and taken indoors; at no time should any of them be left out until they become too old or unfit for use. In dry weather all the outer leaves may be gathered up over the head and tied at the top with a

slender Willow or piece of old matting. This acts as a kind of thatch, and both protects and keeps the head back for a time, but in damp weather moisture soon collects inside the closely tied-up leaves, which together with the head begin to decay. Dryness and coolness are the two points to secure in keeping back Cauliflowers. In a place where an atmosphere of this kind exists, heads cut now may be kept until Christmas. There are several ways of treating them. I have lifted the plants up bodily, and placed them close together in a shed, one holding up the other, but this is too close packing; a better way is to cut the heads with a few inches of stem attached to them, remove nearly all the leaves, and place the stems in moderately moist sand in a cool room or shed. We generally fill some of our cutting boxes with sand and place them in these. They are not put so close as to touch each other, but they hold about a dozen each, and can be shifted about conveniently as may be desired. So long as the atmosphere is dry it is surprising how well they will retain their colour, and the sand prevents them from shrivelling. A dark shed is better for them than a very light one, but in any case ventilation is the most important item. Another plan practised with much success is to cut the heads, as in the previous case, but not to trim off any leaves; merely tie round the stems a piece of matting with which to hang them up to the roof of an open shed, head downwards. In a few days the leaves will become flaccid, hang down, and protect the centre from light, but further decay will not follow for weeks, as the constant circulation of air in the shed will keep them snug and dry, and from the position in which they hang nothing can in any way injure them. Of all plans of preserving them I am most in favour of this one; they shrivel up very little, as the weather at this season is hardly ever of a very drying description. Lately we have been hanging up a quantity of heads in this way, and hope to keep adding to the stock. Thus a few weeks' frost will not give us any concern as regards our supply of Cauliflower.

J. MUIR.

A trial of Potato sets.—This season's trials of the productiveness of different sizes of Potato sets at the New York State Experimental Station show the following per acre yield of small plots planted side by side in drills 3 feet apart and 1 foot distant in the hill:—

Kind of.	Salable.	Small.	Total.
Single eyes cut deep	152 bush.	39	191
Ordinary cuts	127 bush.	75	202
Whole Potatoes	83 bush.	75	158

Besides the increased return, it is stated that the quality from "single eyes cut deep" was "superior," while that from the other sets was "but ordinary."—*Scientific American*.

Jerusalem Artichokes.—At this time of year these add variety to the list of vegetables in season, and the plants themselves require about the smallest amount of attention of any vegetable that is cultivated; in fact, I believe their freedom from disease and heavy cropping habit militate against their being in greater request than they generally are. I find this Artichoke to be a sun-loving subject, and when planted in open, sunny positions, in rows at least a yard apart, so that light and air can have full play, it is astonishing the quantity of tubers that a few plants will mature. It does not need manure, but light friable soil, in which the tubers are more even and altogether better than when in rich ground. As a rule, in private gardens the Jerusalem Artichoke is consigned to out-of-the-way corners, where nothing else will grow, and from want of sun the roots only get half matured, and not nearly so well flavoured as those grown in suitable places. The Jerusalem Artichoke is really a very wholesome and good vegetable when well grown and above all well cooked. Tomatoes were at one time quite as little cared for as the tubers of this Artichoke, but now everyone eats Tomatoes. In nothing is prejudice more apparent than in the selection of what we eat. This Artichoke is still at a discount, while many far less nutritious and digestible vegetables are much in request.—JAMES GROOM, *St. field, Gosport*.

PLANTS IN FLOWER.

SERICOGAPHIS GHIESBREGHTIANA, from Farnborough Grange, is uncommonly fine, and shows that Mr. Crook well understands its culture. The spikes of it which he sends are nearly 6 inches long, and densely furnished with long, bright red blossoms, which render it so gay in a stove during the dull winter months.

ASTER REEVESII, among the stragglers of the Michaelmas Daisies, is even now in good flowering condition. It is dwarf, very twiggy, and produces an abundance of tiny white blossoms. Amongst other places in which we have seen it about London is the Hale Farm Nursery, Tottenham, where it still looks quite fresh and cheerful notwithstanding the proverbial dreariness of the season.

AGATHÆA CÆLESTIS.—This blue-flowered composite seems again to be becoming a favourite. It is of easy culture, and, like the Paris Daisies, it may be had in bloom during winter; indeed, it is a blue counterpart of them. In a cut state it is very useful, as the blooms can be cut with long, clear stems, which greatly facilitate the grouping of them in vases and similar receptacles. It is now in flower in No. 4 greenhouse at Kew, where it is made free use of during winter.

ACACIA PLATYTERA.—This old-fashioned New Holland plant may now be seen embellishing the conservatory (No. 4) at Kew. In this house there are some fine specimens with their tall flattened stems and branches profusely laden on their edges with tiny balls of bright yellow blossoms. The small amount of attention which this plant requires, together with the fact that it remains in flower for several weeks together at this dull season of the year, makes it a valuable plant for greenhouse decoration.

IPOMÆA (MINA) LOBATA.—Flowers of this singular and pretty species of Ipomœa have been sent to us by Mr. W. Melles, Sewardstone Lodge, Chingford, who raised it from seeds sent from Mexico. It is a twining plant, having long, slender stems, sparsely furnished with trilobed leaves. The flowers are in racemes springing from the leaf axils. These racemes are from 6 inches to 9 inches long; at the upper part they are forked, and each fork bears thickly set flowers in one-sided rows. Each flower is about three-quarters of an inch long and tubular. In a young state the flowers are bright red, but turn to a bright yellow by age. The flowers more resemble those of a Libonia in appearance than an Ipomœa. It was formerly placed under the generic name of Mina, but now it is merged into Ipomœa. A faithful illustration of it is given in the *Botanical Register*, vol. xxviii. tab. 24.

MUSA COCCINEA.—This Musa is noteworthy for two reasons: firstly, from the fact of its flowering when but 4 feet or 5 feet high; and, secondly, from the brilliant colour of its inflorescence. A specimen of it in the Victoria house at Kew, has the principal stem terminated by a cluster of bright crimson-scarlet coloured bracts, which contrast well with the vivid green of the surrounding foliage. In order to grow this species it is not necessary to give it so much room as is needed for some of the others; on the contrary, it may be grown in an ordinary stove.

ROLLISSON'S UNIQUE PELARGONIUM.—This Pelargonium, once a universal favourite, is now almost forgotten; yet owing to its autumn and winter flowering properties, and the fact that besides its showy blossoms its leaves are sweet-scented, it is very valuable at this season of the year. A plant of it in No. 4 greenhouse at Kew is just now one of the showiest therein, and as its trusses of flowers are not too large, they are very useful in a cut state. The other forms of the old Unique are also worthy of more attention than they receive; fragrant-leaved Pelargoniums mixed with cut flowers are always acceptable.—H. P.

GOMPHIA DECORA, a Brazilian shrub, has for some time past been an ornament on the side stages of the Palm house at Kew. It has elegant

foliage of a pale green colour, and each slender twig terminates in a raceme from 3 inches to 6 inches long, of bright yellow blossoms, each about the size of a sixpenny piece. As a winter flowering stove shrub it would, we think, be valuable, especially if it could be grown well with the view of inducing it to flower freely in November and December. It was introduced some ten or twelve years ago. We lately saw it in Mr. Bull's nursery, Chelsea.

WINTER-FLOWERING SALVIAS.—From Mr. Crook, gardener at Farnborough Grange, we have received some fine spikes of nine distinct kinds of Salvia, all valuable and beautiful winter-flowering plants. Among them are *S. Bruanti*, a fine variety of the old *S. splendens*, and also a variety with red and white striped flowers called Mons. Issanchou, *S. ianthina* Hoveyi, *S. Pitcheri*, *S. rutilans*, and *S. involucrata* Bethelli. We have lately said a good deal in favour of these plants for greenhouse decoration in winter, but not more than they deserve. The variegated ones are, however, not so effective as those that are self-coloured.

HELLEBORUS ALTIFOLIUS.—In the Hale Farm Nursery, Tottenham, are no fewer than from 2000 to 3000 plants of this handsome Christmas Rose in flower at the present time. It is gratifying to know that such a grand hardy plant as this is now likely to become less rare than it hitherto has been. It is without doubt the finest of the varieties of *H. niger*, and habitually flowers some few weeks before Christmas. This variety is also known under the name of *H. niger maximus*, but whether it be a distinct species or a mere variety of *H. niger*, is of little moment to cultivators so long as they know that it is a distinct and handsome plant invaluable in winter.

CHRYSANTHEMUMS AT PLYMOUTH.—At the exhibition of Chrysanthemums held the other day in the Guildhall, Plymouth, there was a magnificent display of cut blooms, especially those shown by Mr. C. J. Prideaux-Brune, Prideaux Place, Padstow, and the Earl of Devon, Powderham Castle. Some of the exhibitors spoiled the effect of some good blooms by putting paper collars fantastically cut under them; this was especially noticeable in the case of some white Japanese varieties, in which the beauty of form was completely destroyed. The groups of Chrysanthemums arranged for effect were good, that exhibited by Mr. J. H. E. Rundle especially so; some of the groups were overcrowded.—CORRESPONDENT.

IMPATIENS SULTANI.—Of this beautiful new Balsam, figured recently in *THE GARDEN*, there is an extremely fine specimen now in flower in one of the stoves at Kew. It is quite 3 feet through, forming a dense bush, each branch of which is furnished with at least half-a-dozen expanded blooms, and before these decay others succeed them. It is, therefore, very showy, and the colour (a rich rosy magenta) tells strikingly amidst its surroundings. The plant in question is only about five or six months old, from a cutting, and is now growing in a 9-inch pot. This Balsam is certainly one of the most valuable additions to the stove we have had for years. It not only is a perpetual flowerer, but is a plant of extremely simple culture.

SALVIA BTHELLI.—The more we see of this beautiful winter flowering Sage the more are we convinced of its great value for embellishing the greenhouse and conservatory during the dull months. We have never seen it so fine as we did last week at the Westminster Aquarium, where it was shown by Messrs. Cannell, Swanley Nursery, who grow it and about half-a-dozen of the other showy Salvias to perfection. This display of Bethelli was admired by everyone; the spikes were from 6 inches to 9 inches long, and the colour, a bright rose-purple, was set off to advantage, surrounded by Ferns and other handsome leaved plants. The other kinds of Salvias shown by Messrs. Cannell were *S. rutilans*, the fine apple-scented Sage; *S. Pitcheri*, with lovely turquoise blue flowers in long dense spikes; *S. Bruanti*, even more brilliant than the well-known *splendens*; and the curiously striped variety named Mons. Issanchou.

STERNBERGIA LUTEA is one of the few hardy plants brave enough to open their flowers in November and December, and on this account well worth growing along with autumn Colchicums and Crocuses. In Mr. Ware's nursery, at Tottenham, it is beautifully in flower; also *S. angustifolia*, probably only a variety of *S. lutea*, from which it differs chiefly in having much narrower leaves. Both have golden blossoms as large as a common yellow Crocus, and these spring up from amidst long evergreen foliage, which, being of a rich deep tint, makes a fine setting for the flowers. The Sternbergias are quite hardy, and thrive well in any light garden soil in a warm exposure.

WINTER FLOWERS AT CLAPTON.—At Messrs. Low's nursery, Clapton, winter-flowering plants, which are grown there in perfection, are now in great beauty, thousands of Heaths, Solanums, Carnations, Bouvardias, &c., being in bloom. Several large houses are filled with bushy plants of all the best Bouvardias, covered with bloom and buds about to open, and these are in themselves worth a visit. At Clapton, as at other places where these plants are grown in quantity, the old varieties are the favourites; therefore, Hogarth, elegans, jasminiflora, Queen of Roses, Daviseni, and Humboldtii corymbiflora constitute the majority. Few plants can compare with the Bouvardias grown at Clapton as winter flowerers.—J. O'BRIEN, *Harrow-on-the-Hill*.

GREVILLEA PREISSI.—This is a pretty free-flowering greenhouse shrub, the branches of which are slender, and clothed with light, delicate foliage, reminding one somewhat of that of the Southernwood. The flowers are borne in terminal clusters, their colour being pink and the prominent style of a deeper hue. There are some plants of it in flower just now in No. 4 greenhouse at Kew, where, indeed, it is seldom out of blossom. The Grevilleas are among the easiest of plants to grow, and, owing to their free-flowering propensities and the curious shape of their blossoms, they are very interesting. The species just named is also known as *G. Thelemanniana*, and of others mention may be made of *G. ericifolia*, linearis, elegans, acanthifolia, and *G. rosmarinifolia*, which in Devonshire grows into large bushes in the open air and flowers profusely.

WINTER CARNATIONS AT SLOUGH.—Besides Chrysanthemums, the Royal Nurseries, Slough, contain at the present time a wonderfully fine collection of tree or perpetual flowering Carnations, a class of flowers to which Mr. Turner has for some time past devoted a good deal of attention. This collection occupies several houses entirely set apart for it, and in all of them, but particularly in the show houses, there is a beautiful display. The importance of this class of Carnations can scarcely be over-rated, as they are so valuable for affording a continual and abundant supply of bloom in winter, and what more beautiful or sweeter flowers are there than Carnations during the dull months, a period during which their value is greatly enhanced. The collection here includes a large proportion of new sorts, most of which have been exhibited at the winter and spring meetings of the Royal Horticultural Society, and not a few have been awarded first-class certificates. In so large a collection there is naturally a wide range of colour which varies from pure white through yellow and pink to the deepest reds and richest crimsons. A representative selection of the older sorts should comprise *A. Alegatière*, red, medium size; Annie Williams, bright rose; Cardinal, scarlet, large and good; Cassandra, buff ground, very heavily edged with scarlet; Dauntless, purple, striped with scarlet; Hermann Stenger, rose, flamed with cerise; La Belle, white, a full flower, large petal, profuse bloomer; Lady Crewe, primrose, slightly marked with rose; L'Hermine, pure white, fine; Mazeppa, salmon, striped scarlet; Miss Jolliffe, pale pink, dwarf habit, and remarkably free flowering, fine; Mont Blanc, pure white; Osman Pacha, bright scarlet, large, smooth, and of fine form, robust habit; Prince of Orange, yellow, edged with crimson; Rose Perfection, very bright rose, smooth, large, and full, vigorous habit, and free flowering;

Scarlet Nonpareil, bright scarlet; Souvenir de la Malmaison, bluish-white, very large and full, fine; Sunbeam, cream ground, edged with deep pink; The Moor, dark crimson; The Queen, pure white, large, and very fine. The new varieties, the majority of which have been raised at this nursery, as, indeed, have most of the foregoing, include Amazon, buff ground, edged with bright scarlet; Coomassie, buff ground, striped and edged with bright red; Firefly, bright scarlet; Gloire de Nancy, pure white; Heather Bell, pale pink, a large full flower beautifully fringed; Meteor, bright scarlet; Mrs. George Hawtry, bright yellow self, large and fine; Mrs. Maclaren, crimson bizarre, large, and beautifully marked; Reverse, scarlet, a large full flower, dwarf habit, and vigorous grower; Rosalind, buff ground, heavily edged with bright red; Warrior, deepscarlet, large full flower; Worthington Smith, a fine deep scarlet, good broad smooth petals, flower large and moderately full.

STREPTOCARPUS BIFLORUS.—On seeing two large and beautifully flowered specimens of this plant in the temperate house at Kew this week, the thought struck us that surely it is a plant not widely known, or we should oftener see it than we do in conservatories at this season. The plants in question are grown in large pans (several plants in each), and the whole surface is completely covered with large mauve-tinted blossoms, not much smaller than those of ordinary Gloxinias, to which the Streptocarpus is related. For several weeks past these plants have been the chief attraction of the western octagon of the temperate house, the atmosphere of which seems to suit them admirably, for we have never before seen better grown or finer flowered plants than those just noticed are. This plant may be readily raised from seeds, which are produced abundantly, and the seedlings flower the same year if sown in spring. It may be also propagated by means of leaves in the same way as Gloxinias. A good free soil, plenty of light, and a genial greenhouse temperature are all the plant requires besides the usual waterings.

CHRYSANTHEMUMS AT WINDSOR.—The Chrysanthemums, which number about 2000 in the Royal Gardens, at Frogmore, are this season exceptionally fine, and well sustain the high reputation for superior culture, for which these gardens have long been remarkable. In every case the plants have produced flowers of the highest excellence. The collection is arranged at one end of a large new span-roofed house, and a very effective display it makes. Noteworthy among the plants, and particularly useful in a decorative point of view, are numerous pots containing from six to nine plants each of Pomponé varieties, propagated late in the season, and in this way dwarfed to dimension scarcely exceeding 9 inches. The collection includes the following incurred varieties, viz.: Alfred Salter, Angelina, Ariadne, Aureum Multiflorum, Barbara, Beverley, Bronze Jardin des Plantes, Emily Dale, Empress of India, George Glenny, Golden Empress of India, Mrs. G. Rundle, Venus, Progne, Miss M. Morgan, Nil Desperandum, Mrs. Halliburton, Mrs. Heale, Hero of Stoke Newington, Jardin des Plantes, Lady Talfourd, Prince of Wales, Princess of Wales, Prince Alfred, Queen of England, Golden Queen of England, Guernsey Nugget, Cloth of Gold, Mrs. W. Shipman, John Salter, Mr. Corbay, Mr. Howe, and others. Amongst Japanese varieties were: Double White—Chang, Comte de Germiny, Delicatum, Cœur Fidèle, Cossack, Elaine, Duchess of Connaught, Kämpfer, Thunberg, Ethel, Fair Maid of Guernsey, Fulgore, Fulton, Golden Dragon, James Salter, Lady Selbourne, Lord Beaconsfield, Marquis of Lorne, Rex rubrorum, Mary Major, Triomphe du Nord, Nuit d'Automne, Nagasaki Violet, Peter the Great, M. Crousse, Madame Bertie Rendatier, La Frisure, Meg Merrilees, Sarnia, Rosa Bonheur, and many others. Amongst Pompones were: Bob, Cedo Nulli, Golden Cedo Nulli, J. Forsyth, Marabout, Madame Marthe, Model of Perfection, Miss Julia, Purple Pomponé, Nelly, Brunette, Maiden's Blush, and La Nymphe, all of which were profusely laden with bloom.

INDOOR GARDEN.

NERINE FOTHERGILLI.

IN THE GARDEN (p. 339) we gave an account of the wonderfully fine display made by this plant in Baron Schröder's garden at The Dell, Egham; we also added a few notes on Mr. Ballantine's mode of treatment, and now we give an illustration of one of the fine specimen plants of which we then spoke. As may be seen, the pot is full of bulbs and there are sixteen spikes, ranging from 1 foot to 2 feet high, and surmounted by a large, dense umbel of flowers of a sparkling scarlet-vermilion colour. Surely such a fine old plant as this ought not to be so neglected. Subjoined are a few remarks on the culture of Nerines by Dr. Cam, of Hereford, a most successful grower of these plants.

Most of the Nerines have now blossomed for this season with the exception of one or two varieties, namely, *atro-sanguinea*, which is just coming into flower after having developed a full crop of leaves, and *flexuosa*, which is classed as a winter-flowering variety, although it usually flowers with me in August. On our care and treatment of

sun and watered as often as the top soil shall become dry, and where they will remain until their leaves have ripened off and faded, when they are returned to their former house. Those varieties which are deciduous are placed on a top shelf, kept dry, and exposed to the sun. The evergreen kinds are placed in rather a shaded part of the house and occasionally watered. Towards August the deciduous ones are examined, and those which indicate the growth of leaf or flower are removed from the shelf to the stage and judiciously watered. In this house both the deciduous and evergreen varieties remain the rest of the year. I trust these remarks may be useful to those of your readers who have not been very successful in flowering these cool greenhouse bulbs.

HANGING BASKETS AND EPERGNES.

THOSE popular floral receptacles of modern times, called hanging baskets, are at once so unique and beautiful, and have become so universally used, that any suggestions tending to impart new ideas regarding them are very generally appreciated. This must plead my excuse for offering the following hints, intended more especially to



Specimen of Nerine Fothergilli. Drawn in Baron Schröder's garden, The Dell, Egham, in October last.

these plants during the next few months will depend the prospect of their flowering next year. Those plants which may have filled their pots with roots, so that the fibres have grown through the upper soil and the opening in the bottom of the flower-pots, should be shifted at once into a pot one size larger, and their leaves should be loosely tied up to a stick to prevent them from breaking off at their base, but perhaps it would be better to do this before they are shifted. The soil I use is a rich turfy loam to which some sharp sand and small bits of charcoal have been added. In this the bulb should be planted about two parts deep, after which an inch or so of clean loam should be added, which may be renewed whenever it shall become Moss-grown or sour and always on first starting the bulb after its rest.

The main object now is to induce the plant to develop as good a crop of leaves as possible, say, half a dozen at least. On this development, should the bulb be a matured one, will chiefly depend the production of its future blossom. At this time of the year my plants are placed on the stage or middle shelf of an airy and light greenhouse, where they get no sun to speak of for the next four months, and where the temperature seldom falls below 50°. So long as they shall continue to throw up new leaves from their centre, they are freely watered with a weak solution of guano. About the month of March they are removed to another house where they are fully exposed to the

aid those not blessed with extensive means to purchase the costly receptacles now offered in our floral stores. Some years since, among a lot of treasures sent me by Mr. Peter Henderson, were the first *Fittonias* and *Gymnostachyums* I had ever had the good fortune to possess, and, charmed with the rare beauty of the foliage, I felt anxious to cultivate them in the manner best calculated to display it. This, after many experiments carried on through successive months, which largely increased my stock, I found to be pendent receptacles and epergnes, one entire mass of beautiful foliage, displayed on every side, and which have proved so satisfactory that I feel no hesitation in recommending this mode of growing such plants to others.

The baskets used for this purpose are of several varieties—ordinary wire baskets of graceful form, Cocoa-nut shells perforated with half-inch holes, and common flower-pots treated in the same manner, perforated with holes larger or smaller, according to the size of the pots. Such baskets when planted, and their contents in growing condition, appear, as has been said, enveloped in rich foliage, to produce which it is necessary to insert cuttings or small established plants head downwards through the holes in the bottom and sides of the baskets before filling in the soil. The central plant should be first inserted, disposing the others around it in regular order, and using fresh green Moss to pack firmly between them, so as to

keep the soil in its proper place. I prefer the soft, cushion-like variety found on the trunks of trees for this purpose, not only because of its close felt-like appearance as it continues its growth, thus presenting a bright, fresh groundwork of perpetual green, but also because it is better adapted to keeping the soil in its place than the loose, coarse varieties, which, though stronger, soon present a brown unsightly appearance. After surrounding each cutting with the Moss, and thus covering the bottom and sides of the basket, the whole cavity must be filled with loose, friable soil, for which nothing is so good as Cocoa-nut refuse, mixed with good loam and clean sand; the upper surface should be filled with a number of rooted cuttings, placed 2 inches apart, using a dibble for making the holes. This finishes the operation, and the basket copiously watered with a fine Rose, is then hung in a warm, shaded spot, keeping it constantly and uniformly moist with tepid water. This is best effected by plunging the basket in a large vessel of water. During the growing season these baskets appear like one mass of living beauty; the brilliant foliage of the *Fittonia gigantea*, with its network of rosy crimson, and *F. argyrea*, entirely overlaid with a groundwork of rich green, form solid masses of luxuriance, the unique beauty of which can only be realised and appreciated by ocular demonstration. Where a round wire basket is used a massive globular specimen is produced, which suspended in proper position is wonderfully imposing. *Gymnostachyum Pearcei* will perhaps be still more admired thus treated, its elegant metallic green foliage covered closely with a network of intense rosy carmine, presenting a charming appearance when trained carefully to the wire-work of the basket. Before closing, I cannot forbear speaking of this class of plants as

Ornaments for the table, a feature on festive occasions every day becoming more popular and meeting with the attention which it so justly demands. I use for the purpose shallow pans of various sizes, according to the table and occasion, and the long sprays, thickly covered with rich foliage, soon completely hide the sides, and droop from the upper tiers in long festoons. A charming stand for the centre of a table is thus made: Four pans, ranging in size from 14 inches diameter and 4 inches deep, to a small one 6 inches diameter and 3 inches deep. These must be placed one within the other in progressive manner, each one elevated from 2 inches to 4 inches above the one below it. A few pieces of broken crocks are strewn over the bottom of each pan; the remaining space is filled with fibrous soil and silver sand, into which rooted cuttings or established plants are thickly set round the edges; the stand is placed in a warm corner and kept uniformly moist. For this purpose I have found *Fittonia argyrea*, *F. gigantea*, *Gymnostachyum Pearcei*, *G. Verschaffeltii*, and the well-known *Saxifrage*, *S. sarmentosa*, to be very beautiful in the upper pans, and especially for the hanging baskets. —*Gardeners' Monthly*.

LILY OF THE VALLEY, ENGLISH AND IMPORTED.

Few plants are more highly prized than Lily of the Valley, the flowers of which are favourites with every one, and deservedly so, as not only are they deliciously fragrant, but they are unrivalled for their matchless purity and for working up in bouquets. The common English kind is very lovely, but it is excelled by a variety from the Continent, which has much larger bells and longer and stouter flower-stalks, and is, therefore, a most desirable sort to grow. Those who would have beds of it and plenty for forcing another year will find the present a good time to start, as the roots being now on the move they may be pulled apart and increased to almost any extent. The best way to begin is to buy the large clumps, as these consist of numbers of leaf crowns, each of which may be made to form separate plants if broken off with a portion of the large root attached. One of the most suitable places to grow Lily of the Valley is between tall rows of Apple trees, as it is a plant that requires shade, it being found naturally

in woods, where its creeping rhizomes spread along just under the surface of the ground after the manner of Spear Grass. Besides the requisite shade, another thing of great importance to the welfare of Lily of the Valley is the rich vegetable matter it is so fond of, which may be afforded it in the shape of decomposed leaves and hotbed manure, and a good dressing of these should be worked into the soil and well mixed up. The readiest way to do this and to plant Lily of the Valley is to mark out beds about a yard or so wide, throw out the top 3 inches of earth, and then dig in the manure and leaf-mould, when the plants may be laid regularly over the surface at a foot or so apart and covered by casting the soil over them that had been laid on one side. To act as a mulching and as a further protection and nourishment to the plants, it is a good plan to top-dress the bed with rotten manure and let it remain for the summer, by doing which a uniform degree of moisture is maintained and the ground kept cool and shaded. Treated in this way, Lily of the Valley grows very strong and develops fine crowns, and it is only from such as these that flowers can be had. Plants that have been used for forcing, although not so good as others, need not be discarded, as they will do for making beds, and should be turned out of their pots with as little disturbance as possible. A capital situation to grow Lily of the Valley where only a few are required is close along the foot of a north wall, where, if the ground is prepared after the manner already described, it will be found to do wonderfully well. S. D.

PLANTING OUT GLOXINIAS DURING SUMMER.

THIS is a method of cultivating the Gloxinia during summer that may appear novel and not a little strange to some, but it is one practised with considerable success by Mr. B. Hooke, The Towers, Hillingdon. Though Mr. Hooke has been a grower of Gloxinias for forty years, he has never before until the past summer raised any from seed, and he did this to increase his stock of corms. The seed was sown in February in a temperature of about 60°, and in this way some 500 plants were obtained, all of which did well. The seedlings were taken from the seed pots as soon as large enough and pricked out into square seed pans, and when large enough were potted into small 3-inch pots. When some 300 plants had been treated in this way, Mr. Hooke, finding he had another 200 left of the smallest and most insignificant of the batch, was not a little puzzled what to do with them, having potted off all he had occasion for. Having, however, a span-roofed house about 30 feet in length, which had at the back a border 3 feet in height from the ground and 4 feet in width, this was selected for the accommodation of the remaining seedling plants.

At the back of this border is planted *Bomarea conferta*, which in six months almost filled the roof of the house. In this border the remaining Gloxinias were planted out, and though they were placed there from out of the seed pans without any intermediate shift, in less than a month they were in point of size far in advance of those growing in pots. Those in pots commenced to bloom sooner than those planted out, but the latter flowered finer and better, and continued to do so up to October 20, and if fire-heat had not been applied there is reason to believe the plants would have kept in bloom some weeks longer. Not only was there a fine, generous growth of foliage, but the flowers were produced with wonderful freedom, and they were also of very fine quality. They formed a sight at once unusual, striking, and remarkable.

The main point of importance to be noted in connection with these planted-out Gloxinias is, that no artificial heat whatever was applied after they were placed in the border, and the moral of this very successful experiment is to show that the Gloxinia will do as well, if not much better, under cooler treatment than is generally given to it. Those who go to nurseries to inspect a collection of Gloxinias in April and May have to endure

confinement for a time in a house heated to a high degree of temperature, where these beautiful flowers are examined under trying conditions.

Mr. Hooke has a four-light cold frame to be planted with early Potatoes to come into use at the end of May. The seedling Gloxinias to be raised in January or February next will then be pricked out from the seed-pans into the Potato frame after 6 inches or so of a suitable compost has been added. It certainly is a novel and startling idea to plant out Gloxinias in a cold frame to follow Potatoes, but this Mr. Hooke intends to do next year, in full confidence that they will succeed to the utmost of his expectations. R. DEAN.

A SELECTION OF CAMELLIAS.

IT is at this season of the year that cultivators of plants add to their collections. If anyone were disposed to order a selection of Camellias they could scarcely do better than obtain the following twenty-four varieties: White—Alba plena, one of the finest; Fimbriata, very double, well formed, and finely imbricated, each petal being beautifully fringed; Centifolia alba and Ninfa Egeria, finely formed and very pleasing. Of pink flowered varieties, Eugénie de Massau, vivid pink, veined slightly with crimson, and sometimes bordered with white, finely imbricated; Augustina superba, pale rosy pink, very free blooming; and Lavenir, clear pink. Of rose coloured varieties, Marchioness of Exeter, fine rose, large and full; and Vicomte de Nieuport, very fine. Red and crimson flowered varieties will be found in the following: Beali, one of the best crimsons, very free; Belle Jeannette, Comte Bontouria, Imbricata, bright scarlet-crimson; L'insubria, Mathotiana, very deep rich crimson, one of the very best; Madame Lebois, bright red, fine shape; Reine des Fleurs, vermilion-red, extra fine; and Rafta, clear bright crimson. Of striped or flaked flowers the following: Bonomiana, white striped and banded with rosy carmine; Comtesse Lavinia Maggi, blush white, with bold streaks of bright rosy carmine, extra fine—this variety will sometimes sport to a fine rose coloured form; Lucrezia Gazzarini, white, striped with rosy pink; Souvenir d'Emile Defresne, white, striped with vermilion, very handsome shape; Anguste Delfosse, blush, striped with rich carmine; and Adelina Benvenuti, a charmingly flaked variety.

The varieties now obtained should have large, well-filled buds, and the plants should be flowered in the pots in which they are had from the nursery. The best time to repot is when the young growths begin to grow, as it is regarded as most natural to give fresh nourishment to the young wood at the time when it can be used with the greatest advantage, even though it may be at the sacrifice of a few flowers. After the plants are repotted it is best to give a little artificial heat, and the roots and foliage alike should be freely supplied with water. Then comes the hardening process and the placing of the plants in the open air to thoroughly ripen their wood and swell up their flower buds. Amateur gardeners with limited accommodation frequently find considerable difficulty in getting Camellias to flower. The plants grow well at the proper season, they set their buds, but at the flowering time they fall. It is probably a matter of proper watering, or dryness or otherwise of the atmosphere. Too little or too much water is hurtful, and probably other circumstances operate to prevent the satisfactory blooming of the plants. Probably Camellias do best when planted out, but amateurs rarely have any wish to cultivate them in this way. R. D.

Poinsettias dying off.—Can anyone inform me as to the cause of some Poinsettias in my possession losing their roots, and consequently dying off? The plants in question are potted in a mixture of about three parts good loam and one of stable manure, with a little broken charcoal and half-inch bones, and they are in 5-inch pots. During August they were grown in a cool frame, and whilst there two went off in the way just named; from the end of that month they have

been grown under ordinary stove treatment, and since then a dozen more of the best plants have died. The roots seem to be attacked by some fungus, as they die off with a kind of dry rot. Plants affected sometimes die in a few days after the disease has set in, whilst others live on and make a few new roots, upon which they exist in a very unhealthy state. I have still about a dozen plants treated exactly as those above-mentioned, and these are in the most luxuriant health and are developing bracts of large size.—W. L.

Pleroma Benthami.—Is this a showy plant like *P. elegans*? I obtained young plants of it from a friend who says it is new.—F. S. [*Pleroma Benthami* is not a new plant; that is, it has been in cultivation before. It was brought by the collector, Gardner, from the Organ Mountains in 1841, and was figured in the *Botanical Magazine* in 1843 from plants flowered in the Glasgow Botanic Gardens. Somehow it failed to hold its own, disappearing altogether until its re-introduction last year, when plants of it were raised at Kew. These plants have been distributed, and no doubt yours came from that source. It is a shrubby species, growing to a height of about 2 feet. The stems are four-angled, the leaves hairy, long petioled, and prominently nerved. The flowers are borne in erect, terminal racemes, eight or twelve flowers together, each flower measuring about 2 inches across. In colour they are a deep blue-purple, with a large patch of white in the centre of each. Gardner called this the most beautiful of the genus, and certainly its beautiful and freely-produced flowers are quite equal to those of *P. elegans* or *P. macrantha*, while the dense, compact habit of the plant is a strong point in its favour. It is said to prefer a boggy soil, and as it is found growing at an elevation of 3000 feet, a warm greenhouse in winter and a cool house or even out of doors in summer ought to suit it in this country.—B.]

Forcing bulbs.—Where ordinary Dutch bulbs, such as Tulips, Hyacinths, &c., are required for early flowering, one sees various plans employed for forwarding them, and amongst others that of keeping them close as soon as potted, forgetful of the fact that root action must be in full sway before the flowers will advance. For early flowering the chief point is to pot early; then to place the pots out of doors, and cover them with coal ashes to prevent damage by slugs, and also to keep the bulbs in a more uniform state as regards temperature and moisture than when exposed. Treated in this way, by the middle of November the pots will be full of roots and the tops just starting—that is, if they were potted early in September. When introduced into the forcing house most progress is made when the crowns are kept in darkness; therefore at that time they may be placed anywhere underneath the stage, and should have another pot inverted over them, as they can then be examined at any time without inconvenience. Lilies of the Valley, on the other hand, flower without any signs of root action; therefore they may be introduced into heat as soon as potted; indeed, when required to bloom before Christmas such a course is absolutely necessary, and for that purpose well ripened crowns must be obtained (those large, single ones from Germany are the easiest to force), and they cannot be had thoroughly ripened much before November. A pretty subject for forcing, and one with which there is but little difficulty, is the Siberian Squill (*Scilla sibirica*), the bright blue flowers of which are very effective during the dull season. It requires similar treatment to that usually given to Tulips; indeed, it forces just as easily as the early Duc Van Thol section of that showy genus.—H. P.

BERTOLONIAS AND SONERILAS.

LIKE Sonerilas, on which a few notes were given in THE GARDEN last week (p. 442), these pretty foliaged plants—jewel plants, as they are sometimes called—have been turned to good account by the hybridist. M. Van Houtte, whose success

with these plants has been quite equal to that with Gesneraceous plants, has recently added several distinct and beautiful kinds to his already long list of hybrid Bertolonias. There are few plants of its kind more universally admired than the now well-known *B. Van Houtteana*. It would indeed be difficult to find any plant which would exhibit Nature painting better than this richly-marked plant. It seemed at one time almost im-



Sonerila margaritacea.

possible to procure a richer coloured variety than this, and yet this has been effected, *B. Gibsoniana*, a new one, being marked in precisely the same manner as *B. Van Houtteana*, but surpassing it in richness of colour. It is indeed a striking plant—perhaps a little overdone for some tastes. *B. Hrubyana*, another new kind, is a white-marked form of *B. Van Houtteana*, whilst a third new variety, *B. Rodeckiana*, is like *B. Hrubyana*, with a tinge of purple added. It seems impossible to say where these curious freaks in leaf colouration are to stop. The love for ornamental-foliaged plants, so strong a few years ago, and which does not appear to have weakened much, was gratified with beautifully variegated *Dracænas*, *Crotons*, *Caladiums*, &c., forms which, before their appearance, seemed quite beyond all reach. Smaller plants, too, were found to yield to skilful hybridisation, and Bertolonias and *Sonerilas* were greatly improved. *Bertolonia guttata*, a dark-green leaved kind; *B. maculata*, almost similar to it; *B. marginata*, and *B. margaritacea* were the only Bertolonias in cultivation some twenty years ago. To-day

but all of them grow freely and colour well if properly treated. A moist corner in a warm stove, or a case where plenty of moisture can be kept up, is what Bertolonias like. Singularly enough, if kept in a dry atmosphere the leaves decay rapidly, and this is likely to prove misleading, as it does in many similar cases. Weak, delicate plants often appear to damp off through too much moisture, whereas the real cause of the evil is too dry an atmosphere. Bertolonias love moisture, and they die off without it. They are surface rooting plants; therefore pans or pots half filled with crocks should be used for them. A light leaf-mould and peat mixture with plenty of sand in it is the material in which their fine roots love to ramble. Cuttings root freely, especially in the spring. The leaves, too, if pegged down on to a moist soil will produce young plants. Seeds also germinate freely, and often yield a break from the parent form. B.

PROPAGATING.

Gynura aurantiaca.—This new, fine-foliaged plant, unlike many other subjects that are densely covered with hairs, is very readily struck from cuttings. In spring I had one plant of it, and from it I have struck a great number, so that the difficulty of increasing it cannot be urged against its use as a bedding plant, for which it has been recommended lately. My plant of it being small, it was placed in a stove temperature, and as soon as of sufficient length the top was taken as a cutting, which rooted in a few days in a close case, and it in turn was soon ready for decapitation. The parent plant in the meantime had pushed forth three shoots; these, when large enough, were taken, so that our stock rapidly increased. When struck, I removed the young plants to cooler quarters, as they lose much of their beauty in heat, the charming purple, velvet-like appearance being much less pronounced than when grown cool. Moreover, a disease often attacks the leaves if in a high temperature, while in a lower one they are proof against it. I kept the original plant in heat, and have been taking cuttings from it the whole of the season. The disease just referred to seldom attacks the shoots when small, and as soon as large enough they were taken off, rooted, and placed in a lower temperature. Cuttings of this plant strike just as well taken from plants that have been grown in a greenhouse, but of course the rate of increase is not so rapid.

Leea amabilis and Jasminum gracilimum.—These two stove plants, both of comparatively recent introduction, are in no ways difficult to strike from cuttings, the first named rooting quickly, and the Jasmine, though somewhat longer in emitting roots, is generally a safe subject. Of both I take the young growths as soon as sufficiently advanced, putting those of the *Leea* singly in small pots of sandy soil, and those of the other, which are much slighter, about six around a 4-inch pot. They were then placed in a close case with a gentle bottom heat, in which they rooted satisfactorily, the principal thing to guard against being not to allow the *Leea* to flag, it being very liable to do so under the influence of sun and air.

Cyperus laxus variegatus.—Besides being capable of increase by division, this useful plant may be propagated in the same way as its better known relative, *C. alternifolius variegatus*, viz., by cutting off the heads and pegging them down in pans or pots of light soil, or, indeed, by inserting them in the Cocoa-nut fibre of a bed in which other plants are growing. So treated, young plants will be produced from the axils of the leaves, and when sufficiently advanced, may be potted off, at which time they will be found to have pushed forth ample roots of their own. The object being to keep the variegation perfect, use soil that contains but little stimulating material; that is to say, equal parts of peat and loam, instead of nearly all loam, in which the *Cyperus luxuriatus*, but in such it frequently to a great extent outgrows its variegation. The green form

of *C. laxus* may be increased readily from seeds, but, of course, that method cannot be employed in the case of the variegated kind.

Hibiscus schizopetalus.—Like all the stove forms of *Hibiscus*, or, indeed, nearly the whole of the *Malvaceæ*, cuttings of this root without any difficulty, whether they be made of the young growths or of the older wood. The first, however, strike quickly, and, as growth is so rapid, young shoots are easily obtained. If kept close they will root well in about a fortnight, and soon afterwards their tops may, if required, be taken off and made into cuttings.

Senecio pulcher.—The merits of this plant as an autumn flowerer are greater than many imagine, and it may be readily increased. In order to obtain a stock of it, take up a strong plant in spring, or if in a pot turn it out, and remove all the strong roots; these, if cut up into pieces about an inch long, dibbled into pans of sandy soil, and placed in a frame, will all start into growth, pushing up young leaves from the upper part and roots from the lower, and when sufficiently advanced they may be potted off, and, after establishing themselves in small pots, planted out. I may add, however, that it is by no means necessary to limit the operation to the spring, although that is the best time; at other seasons more care is necessary, and besides, when struck early in the year they become established before winter. T.

IVY AS A DECORATIVE PLANT.

At this season of the year when deciduous shrubs and trees have either lost or are fast losing their leaves, the different varieties of Ivy look more brilliant than ever. Their rich green matured foliage becomes even greener than in summer, and it is during the latter part of October and the greater part of the following month, if the weather be at all mild, that their globular trusses of flowers are unfolded. During the present season most of the varieties of this plant appear to be flowering in even more than usual profusion. To the Ivy belongs in an eminent degree properties possessed by comparatively few families of plants, one of which is its power of being able to cling for support to whatever objects come within its reach, be they ruins, rocks, wood, or living trees; and if such are absent, it will content itself with densely covering the surface of the soil. The poet has truly said of it that it will "climb the loftiest height, or deck the lowliest grave." It will also even lay aside its clinging habit and assume an arboreal or tree-like form of growth. This it never fails to do as soon as it has overgrown the objects to which it clung; and it is when it has fairly assumed this form that it flowers and fruits most abundantly. Excellent illustrations of this may now be witnessed among the ruined, but lofty columns and buttresses of the church of St. Edmund, Bury St. Edmunds. The mortar or cement, by-the-by, used in the construction of these columns, &c., must have been tempered on a principle very different from that of more modern times, for although they have borne the blast of many centuries, the mortar is still as hard and impervious as the flints it encases.

Immense globular bushes of Ivy studded with innumerable trusses of very pale green flowers, which will ere long be transformed into as many trusses of glossy black berries, may here be seen surmounting comparatively slender columns at altitudes of from 80 feet to 100 feet; there is also a yellow-berried variety, and both this and the black-fruited kind are found to be exceedingly useful for decorative purposes, more particularly at Christmas-tide, when they harmonise well with the Holly and the Mistletoe. It is also found that when cuttings are taken from those parts of the plants which have assumed the tree or bush-like form they continue to retain that shape, and thus make useful plants for pot culture or for other decorative purposes, as they can be grown in the form of standards, pyramids, or as dwarf bushes. Most of the varieties of the Ivy are also suitable for the purposes of forming margins to flower-beds



Bertolonia guttata.

we have literally dozens of forms, many very beautiful, and some pretty good even as regards flower. The best and most distinct are those already mentioned and *B. superbissima*, a richly coloured white-spotted kind; *B. Mirandæi*, *B. Legrelliana*, *B. albo-punctatissima*, and *B. Gladstonei*. Bertolonias are natives of the dense moist forests of Brazil. Their hybrids are in some cases delicate, and not quite so easily managed as the species,

of considerable dimensions, and as edgings to coach roads, drives, &c.

The common Ivy (*Hedera Helix*), a native of Britain, is found to be exceedingly useful for the purpose of covering the soil under ornamental trees in pleasure grounds or elsewhere, as this plant will grow and thrive where Grass cannot be made to live, and a Cedar or other ornamental tree rising from the centre of a circle of dark green Ivy has a fine appearance, and this may, if desired, be enhanced by surrounding the circle of dark green with a margin of some of the silver variegated varieties now to be had. For festooning ruins or concealing unsightly objects of any kind it is, no doubt, advisable to allow this plant to grow free and unconstrained; but where it is desired to cover the walls of a mansion or other building with green foliage (and portions of the walls of some of the finest mansions in the country are thus clothed with the happiest effect) it should be kept close to the wall. For this purpose there is possibly no better variety than the *Hedera canariensis*, or what is called Irish Ivy, a native of the Canaries, distinct from the British species, *Hedera Helix*, and its yellow-berried variety, *H. H. chrysocarpa*, but equally hardy, and of more rapid growth. These will grow to any desired height, and will submit to any amount of cutting in. There are also various other species and varieties of rapid growth suitable for this purpose, such as *H. algeriensis*, *H. caenwoodiana*, *H. cordata*, *H. dentata*, &c., together with new variegated varieties of some of the above of very great beauty; but, unfortunately, some of them are deficient in clinging power, and when growing freely are apt to revert to the original green colour. This, however, is said not to be the case with a new and remarkably beautiful variety, which has been named *H. hybernica marginata*.

Soil.—Although Ivies are by no means particular as to soil, yet in order to induce them to grow away freely it is desirable that this should be of fair quality; and as soon as the plants have fairly covered the walls which they are intended to clothe, or even before this has been quite accomplished, they should be annually cut, or rather clipped in, as closely as possible; and the best or proper time for performing this necessary operation is during the month of April, or when all danger from injury by severe frost may be supposed to have passed, for although all the varieties of Ivy may be said to be quite hardy, still severe frost will inflict serious injury upon the most hardy of plants when in a mutilated condition. It will be found that the plants will in a very short time after being clipped put forth abundance of fresh green leaves, all of which they will retain throughout the season, and thus the litter from the gradual shedding of leaves during the summer will be avoided, which would not be the case if the old leaves were allowed to remain upon the plants. By following this plan the foliage is annually renewed, and the practice has long been proved to have no injurious effect upon the health of the plants. This annual clipping is absolutely necessary where strong growing sorts are used, otherwise their increasing weight acted upon by strong winds would be sure to cause them to separate from the comparatively smooth surface of a brick or stone wall. In cases, however, where some of the more delicate variegated kinds are used which are of slower growth, and which adhere very closely to old ruins, walls, or other objects, less clipping will be necessary. It has already been said that some of the more recently introduced variegated kinds, although exceedingly ornamental, do not possess in a great degree the power of adhering to walls or other objects, but this objection does not apply to such kinds as *H. elegantissima*, a pretty silver variegated variety of British Ivy, and one which clings closely to whatever it comes in contact with. The foliage of this plant is beautifully marked, and it is admirably suited for clothing comparatively low walls, and it is not at all inclined to revert to the normal green colour.

An Ivy winter garden.—In addition to the various decorative purposes for which the

numerous species and varieties of Ivy may be used, a collection of the same, or a winter garden of Ivies, may be made to form an appreciable and by no means an uninteresting adjunct to a garden establishment. To accomplish this a suitable site should be selected, and the soil, if not moderately rich, should be improved by having additional material added to it; and the plants may be arranged according to any desired plan or design. Strong stakes, or portions of the stems of trees, should be fixed firmly in the soil, some of which may be allowed to take the form of irregular arches, &c., while rough pyramids may be formed of the roots of trees or other materials, and on these the plants should be allowed to grow, arranging them in accordance with their known power of development—that is, planting the stronger growing sorts upon the larger supports, and the more delicate kinds in suitable situations, and on such supports as they will be likely to speedily cover. Such a garden or arrangement would be very little trouble to keep in order, and would be interesting at all seasons of the year, but more particularly so during the autumnal months and throughout such mild, open winters as we now not infrequently experience.

P. GRIEVE.

GARDEN FLORA.

PLATE CCLXIV. WINDFLOWERS.

*With a coloured plate of Anemone palmata alba.**

TURNER, who wrote on the Anemone in 1568, quaintly tells us that “it maye be called in English ‘Rose Persely,’ because there groweth a floure like a single Rose in ye middle of this herbe, which is very lyke Persely in the leaves that are aboute the rote.” Gerard, a few years later, mentions twelve kinds as being then (1597) in cultivation. At present we have thirty or forty species in our gardens, and the varieties, both single and double, of what Turner calls “Rose Persely,” and which was doubtless *A. coronaria*, are simply innumerable. But Anemones are welcome at all times, and we can scarcely have too many of them. “Coy Anemone, that ne’er uncloses her lips until the’re blown on by the wind,” is one of the few flowers which engirdles the whole year with its blossoms. In wide range of colour it is likewise remarkable, some of the seedling varieties of *A. coronaria* and *A. fulgens* being unapproachable in vivid brilliancy by any other open-air flowers. Even at this season (November 14) we are cutting flowers and buds from a bed of *A. coronaria*, the result of seed sown on April 3 of the current year, and on warm, sandy soils, and especially near the sea, this flower amply repays careful cultivation from seed. The main point is to secure seeds of a good strain, and to sow early in March on soil well enriched by cow manure. The vivid scarlet and purple forms of the Crown Anemone are especially effective when contrasted with the snow-white flowers of the large autumn-blooming Japan kind, which even now opens its flowers to the winter’s sun.

All the Windflowers are beautiful, even our wild wood Anemone, which opens its snowy stars among the Bluebells and Primroses, rising from a carpet of herbage and fresh wood Moss. Of this there are two varieties with blue flowers: *A.*

* From a drawing made in the Hale Farm Nursery, Tottenham, in June last.

Growers or introducers of new plants will oblige us much by early intimation of the flowering of new or rare species, with a view to their representation in our “Garden Flora,” the aim of which is the illustration in colour, and in all cases where possible life size, of distinct plants of high value for our gardens.

memorosa cœrulea and the kind called *Robinsoniana*. First in the year, however, comes the lovely *A. blanda*; even now I see its buds peeping, and one remembers the lovely blue haze which the turquoise-tinted *A. apennina* makes on the short turf beneath the sweeping Lime tree branches at Straffan, and on the slopes at Belvoir, and in the woods at Cliveden. With the last our own golden *A. ranunculoides* may also find a place. Then there are all the Hepatica group, Anemones also, and forming most cheery tufts of rose and blue in the early spring, say in *Crocus* time; nor must we forget *Adonis vernalis*, still less *A. pyrenaica*, both welcome flowers of spring. When we come to *A. fulgens*, and *A. Pavonia*, and *A. stellata*, what visions of colour come to us from the vineyards and corn-fields of Southern France and Italy.

The Anemone as a genus contains but few really weedy species. True, some few are by no means gorgeous, and even lovers of Windflowers have refused to rob me of *A. decapetala*, and one or two others, say *A. sibirica*, for example. These are, however, exceptions; there are a few real gems amongst the rarer kinds. The white *A. alpina* and its delicate sulphur form (*A. sulphurea*) are of this choice class. So are also *A. narcissiflora* and *A. thalictroides*, the last a dainty little fairy-like flower, far too rare even in the best of gardens. When we come to the Pasque flower (*A. Pulsatilla*) section we find quite a little group of beautiful kinds. *A. vernalis*, *A. Halleri*, *A. patens*, and *A. Pulsatilla* itself, with its lilac, mauve, claret, purple, and white varieties, are all too rare. *Anemone sylvatica* when well grown is a great beauty, its buds drooping so gracefully—Snowdrop-like—over its dense green leaves, and *A. dichotoma*, a summer blooming kind with solitary flowers, also pure white and as big as a shilling, is well worth a good place; but the gem of all this race is *A. alba*, a kind all too seldom seen with its pure white cups thrown up on stalks a foot or so in height, each bloom being 2 inches or 3 inches in diameter. In a short account like this one cannot hope to mention all the Windflowers in cultivation, but most of them are fully described in *THE GARDEN*, Vol. VII., p. 423, where most of the types are also indicated by neat little wood engravings.

One of the rarest and most beautiful of all varieties is that represented so gracefully and faithfully in the accompanying plate. It is a white form of *A. palmata*, a golden flowered plant from the Mediterranean region. The white variety is especially beautiful. The late Mr. J. C. Niven mentioned it as “a rockwork gem which should be planted thereon in deep turfy peat or light fibrous loam with leaf mould; level spots suit it best where it can root deeply and spread into firm tufts.” Such a lovely flower is well worth a little extra cultural attention. Its deep-reaching black rootstock dislikes frequent removal; a warm, sheltered, not shaded, spot, where it can establish itself permanently, is to be desired. A double flowered form of the yellow type used to be grown here, but it is now very rare.

Culture.—Anemones generally may be increased by seeds; this is especially easy in the case of the woolly seeded section, of which *A. coronaria* is the type, but those of *A. sulphurea*, *A. Pulsatilla*, and others which bear a tuft of long awned seeds do not vegetate so quickly. Even when sown as soon as ripe, which is the best plan, they frequently remain a year or two in the soil



before they germinate. *A. japonica* and its pink and pure white forms are readily increased either by simple division, or by cuttings made of the thick roots inserted now in boxes of light sandy earth. *A. vitifolia* grows very freely from seeds, and is interesting as a representative of many beautiful Indian Windflowers, which are as yet to be seen only on the Himalayas, where they approach the snow line, displaying their beauty along with Primroses and Violets far up above the zone of giant Lilies and big-leaved Rhododendrons. Rich as are our gardens in Anemones already, one must needs long for those lovely Indian species of which travellers and artists give us glimpses at times in their books and pictures. F. W. B.

BUDDING AND GRAFTING.*

THIS paper must not be considered by any means to be original or even exhaustive; the subject is so vast, so full of interest, and so imperfectly understood, that I can only skim over the surface by a recitation of some facts that have come under my own observation and that of others from time to time, leaving it to others for general discussion. I have selected this subject mainly from a desire to direct attention, especially of young gardeners, to the importance of correct observation and research, a careful noting of facts as they may occur. It is in this way, and in this way only, that the great truths of Nature can be elucidated.

The art of grafting seems to have been known from the very earliest times, but as far as can be gleaned the principles appear to have been very imperfectly understood. The practice seems to have been to engraft the wild into the garden tree to promote fruitfulness, &c., the contrary of that now practised. We also read in old books absurd stories of Roses becoming black by being grafted on the Black Currant (this is even vouched for by some to the present time), and that blood-red Oranges derive their colour through being grafted on the Pomegranate; and Virgil it is who speaks of Plum trees bearing Cornels, and Apples, Pears, &c., and in Columella it is asserted that the Vine may be grafted on the Fig—a declaration the impossibility of which had to be formally proved in the *Jardin des Plantes*, Paris, by the director, M. Thouin, not a great many years ago. It is a universal law of Nature that no plants will engraft on each other which do not belong to the same Natural Order. Even species which are distantly related cannot be united to each other. We cannot graft an Apple on a Plum or a Rose upon a Thorn. For any organic union to take place there must be a great similarity in the organisation and secretions of the plants to be united. That similarity exists between the Apple and the Crab, and between the Peach and Plum, consequently they take on each other. It does not exist between the Apple and Plum. If, then, there is this physiological impossibility of uniting plants of the same Natural Order, the belonging to which necessarily implies a great similarity of structure and constitution, how can it be possible in the case of plants of different Natural Orders, which necessarily imply a great dissimilarity of structure, &c.? Mistletoe, being a parasite, is an exception. Animals of different species mix not together, and what is true of animals is true of plants. The merely

Mechanical operations of budding and grafting need not be here discussed—the physiological principles to be studied are the same. The cutting, or portion cut off forms the bud or scion, as the case may be, and the rooted plant on which it is worked the stock. The operations in both budding and grafting are performed whilst the sap is in motion, or, in other words, when the tissues are in a forming state. It is these tissues which are formed by the cells of the cam-

bium, which lies between the surface of the albumen and the inner bark coming in contact that effect the union. In grafting, be it noted that wood will not join to wood however carefully fitted, neither will bark to bark, the bark being a part already formed; not even the inner bark, although nearly all gardening books that treat of the subject say "it is on the junction of the inner barks that success depends." This is true only to the extent that if the inner barks are fitted the substances immediately below will be also in contact. Grafting may also be performed on the roots of plants, pieces of the roots being used, for that which hinders the growth of pieces of root into young branches is merely the want of buds. The difference between the internal organisation of a root and a branch is very trifling. Mr. Knight was the first physiologist who showed the possibility of grafting on roots, an account of which was given to the Horticultural Society in 1811, and he at the same time suggested the possibility of the practice being applied to scarce herbaceous plants, Dahlias, &c. It is now much practised for Clematises, Roses, Pæonias, and similar plants. The direct object of either budding or grafting is to multiply a given species or variety more readily than it could be done by any other means. If this, however, were the only purpose of the cultivator, the stock that is most readily procurable would be obviously the best. Thus it was the ordinary practice of nurserymen to take the common Plum as a stock for Peaches and Apricots, the wild Pear and the Crab for Pears and Apples, and so on. Mere propagation is, however, not the only object of the grafter; it is to secure a permanent union between stock and scion, so that the new plant may grow as freely as if it were on its own roots under the most favourable circumstances.

The influence of the stock upon the scion is manifested in a great variety of ways, arising chiefly, but not entirely so, from the stock supplying a greater or less amount of vigour to the scion than it would obtain on its own roots. Many plants, such as the Apple and Pear, bud or graft freely, but are difficult to strike from cuttings. Others, also, that are naturally delicate become strong by being worked on robust stocks. The choice of stocks whereon to graft a given plant is therefore one of considerable importance, and the propagation of stocks for specific purposes is now, instead of being left to chance, a speciality of many nurseries. The time has gone by for using promiscuous stocks for our fruit trees, and the planter now—with the knowledge there is of stocks and the enormous influence which they exercise—should be particular in obtaining those that are most suitable for his requirements. Some pomologists, notably in America, maintain that grafting has to a certain extent extended the varieties of our fruits, and is made to account for the great variations that are so observable in some varieties. Bearing on this part of the subject I have collected from various sources well-authenticated examples or records of certain influences as illustrations.

A.—Stocks that induce early flowering—*i.e.*, impart a tendency to flower soon.—1. In 1878 I grafted in the gardens at Chiswick corresponding stocks of the French Paradise, Doucin, and Crab Apple stocks with Blenheim Orange Apple. The following year those on the French Paradise and Doucin flowered freely, and every succeeding year. Those on the Crab did not flower until the third year. In the four years the number of flowers on the French Paradise was 189, on the Doucin 254, and on the Crab 23. There were two examples of each, and all in very good health. 2. Pears grafted on the Quince flower much sooner than do those on the Pear stock. 3. Seedling fruit trees, which frequently grow to a great size and are years old before fruiting, come into bearing much earlier by being grafted than if allowed to do so on their own roots. Mr. Rivers was thus enabled to fruit his seedlings much earlier than he would otherwise have done. 4. A scion taken from a young tree and grafted on a mature tree bears sooner than if

left to itself. 5. The Catillac Pear always bears more profusely grafted on a branch of a large tree than by itself.

B.—Stocks that retard flowering.—1. Grafting the Pear on the Mountain Ash is practised in Nassau, and is said to retard the blossoming of the trees, thus enabling them to escape spring frosts. On the other hand, Lindley states that on the Mountain Ash the Pear bears earlier. 2. The Court Pendu Plat Apple, which is so well known for its late-flowering habit, is recommended by many as likely to prove an excellent stock for retarding the flowering of Apples in spring.

C.—Stocks that alter the character and the quality of the fruit.—1. Pears grafted on the Quince and on the Thorn are often very different in quality from those worked on the Pear stock; generally more gritty and drier in texture. 2. There are cases reported where a different kind of Apple has started from a grafted tree. 3. A gardener at Grenoble grafted the Pears Deux Yeux and St. Pierre on the common Hawthorn. The fruit proved very similar to Haws. 4. Mr. Knight mentions two trees of the Acton Scott Peach, the one growing upon the native stock, the other upon the Plum. That growing upon the Plum produced fruit much larger in size, redder in colour, with coarser pulp, and of superior quality to that of the others. 5. Muscat Hamburgh Grape grafted by myself on a coarse late Spanish variety produced fruit so entirely different and inferior from the original variety that the members of the fruit committee were unable to recognise it. It still maintains the same character. 6. Black Hamburgh Grape grafted by myself on a small variety named Blussard Noir produced small bunches and berries similar to those borne by the stock, and very inferior. 7. Gros Guillaume Grape grafted at Chiswick on the Frankenthal produced bunches and berries so large and so resembling Frankenthal as to be mistaken for that variety. This influence is not continued. 8. Mr. Thomson, Drumlanrig, records that the Gros Guillaume Grape grafted on the Muscat of Alexandria bears berries superior and fruits more freely than grafted on the Black Hamburgh. 9. Mr. Fenn, late of Woodstock, grafted Ribston Pippin Apples upon Blenheim Orange. The fruit produced was, both in quality and appearance, intermediate between the two varieties as exhibited before the fruit committee. I procured grafts, worked them at Chiswick, and submitted the produce to the fruit committee again, when the minute record was "distinct, but inferior to both stock and scion." 10. In the "Theory of Horticulture" it is recorded of a Mr. Billington that he budded a Bergamot and a Swan's Egg Pear on a Jargonelle, which produced fruit much larger and better in quality than he had ever before seen it. Those budded on the Hawthorn produced fruit not half the size, and quite gritty. 11. Joseph Bailey of Dedham, U.S.A., states that if he wants a pleasant Porter Apple he grafts on a sweet variety. The Porter is a sour Apple.

D.—Stocks that promote a greater hardness and vigour.—1. The Muscat Hamburgh Grape has been found to fruit and grow more freely, with a less tendency to shank, &c., when grafted on the Black Hamburgh. 2. The Apricot succeeds better on its own roots or upon seedling Apricot stocks than when worked on the Plum. 3. Peaches worked on the Plum are far more hardy and vigorous than those worked on the Almond; the latter suffer from cold, and have that affection termed "the yellows."

Certain stocks alter the habits or growth of plants.—1. Pears grafted on the Quince do not grow so strongly and are more fruitful than those on the Pear stock. 2. Apples worked on the French Paradise stock do not grow so vigorously as those worked on the Doucin, and those on the Doucin are not nearly so strong-growing as those on the Crab or free stock. 3. Cherries do not grow so strongly when worked on the Mahaleb stock as they do when grafted on the wild Cherry. These are all termed dwarfing stocks. The *Acer eriocarpum* is said in Loudon's

* Read at a meeting of the North of Scotland Horticultural Association by A. F. Barron, Chiswick.

"Horticulturist," when grafted on the Sycamore, to attain double the height of that raised from seed. The common Lilac attains a large size when grafted on the Ash. 4. Mr. Fairchild's experiments in 1721 on grafting the Evergreen Oak on the common Oak, and the Cedar of Lebanon on the Larch, rather prove the converse, both scion and stock retaining their natural character.

Certain stocks enable us to grow plants in uncongenial soils.—1. The Quince roots, for example, extend near the surface, and thus avoid a wet or cold subsoil. The Pear roots are sent down into the deep cold soil. For wet or moist heavy soils, therefore, it is found practicable to plant Pears worked on the Quince, and on dry shallow soils those worked on the Pear. 2. The French Paradise Apple is also a surface-rooter, hence its use in damp soils is to be recommended. 3. In strong calcareous soils it has been found that what are termed the dwarfing stocks for fruit trees do not succeed. M. Dubreuil, of Rouen, found that not the Plum, but the Almond was suitable for the Peach; not the Paradise or Doucin and Quince for Apples and Pears, but the Crab and wild Pear, &c.

Influence of the scion on the stock.—The fact that the scion exerts a certain influence over the stock is fully more remarkable than that of the stock influencing the scion. It demonstrates that the scion supports the stock as much as the stock does the scion, and that the sap flows in every direction. The branches are, in fact, as necessary to support the root as the root is to support the branches. 1. The French Paradise Apple in the gardens at Chiswick invariably dies when about five or six years old; but when grafted with other varieties of Apple this tendency to die is averted, the grafted trees living to indefinite periods. The peculiar power of the buds of variegated plants inoculating the stock on which they are budded has often been demonstrated. 1. The best known instance is that of the variegated white Jasmine being budded by Mr. Anderson, of the Physic Garden at Chelsea, upon one branch only of a plant of *Jasminum revolutum*, which is green. Slight variegation appeared the first year, which increased year after year until the whole plant was variegated, although the branch which was first budded was cut away the second year. 2. Mr. Noble mentions the grafting of a golden variegated Weeping Ash on the common Ash. In four different cases the stock had thrown out variegated shoots. 3. Mr. Symes records the budding of a number of *Acer Negundo* with the variegated variety. The variegation affected the whole of the stocks both above and below the point of insertion. Twenty-seven Ash stocks budded with the *Aucuba*-leaved variety, all of which grew and looked well for a time, the next spring the majority fell; only three grew. Two-thirds of the number were more or less inoculated with the variegation of the *Aucuba* below as well as above, where they were budded. 4. Mr. Fish states that in the case of a purple Beech, grafted about 4 feet from the ground, at the base of the bole a tuft of shoots with copper coloured leaves appeared, and another at 15 feet above. 5. M. Carrière records the working of the variegated form of the *Pittosporum Tobira* on the green-leaved form. Though the graft did not grow, the contact was sufficient to cause the production of a variegated shoot below the graft. 6. *Passiflora Ruddiana* and *Passiflora Imperatrice Eugénie* were both grafted by M. Lemoine, of Nancy, with a variegated scion of *Passiflora quadrangularis*. The graft was inarched, so that the stocks were not cut away above the graft, but allowed to remain. From this branch above the graft branchlets were produced bearing variegated leaves. The grafts did not grow well. 7. A golden-leaved *Laburnum* was budded on a green-leaved *Laburnum* as a stock. The buds were inserted at 2 feet or 3 feet from the ground. In the course of a few months not only did some of the green-leaved stocks produce golden variegated branches below the point of union, but golden suckers were thrown up from the root. 8. The

variegated variety of *Castanea vesca* had been grafted standard high on the common Chestnut. The graft took, but from some cause died; subsequently, however, a young shoot with well-marked variegation broke out from near the base of the stem. 9. The well-known blotched Breadalbane Ash was produced from buds taken from a yellow-leaved Ash in a Highland glen budded into the common Ash. 10. A Mountain Ash, upon which was budded a variety with variegated leaves, commenced to push forth young shoots from the main body of the stem below the point where the bud was inserted. In every instance these had variegated leaves. 11. A Potato scion set into a Tomato plant induced the latter to set small tubers in the axils of its leaves, as are seen sometimes on the tops of Potatoes. The grafting of an Artichoke plant into a Sunflower caused the latter to form tubers underground. 12. Fruit growers in America have noted that the scions affect the roots of the stocks. If, for example, part of the same row of stocks be grafted with Bartlett and Onondago Pears, they can be distinguished by their roots. 13. The curious *Cytisus Adamii* or purple *Laburnum* is a well-known example—three distinct sets of flowers, all mixed on the same plant. This is, no doubt, a common *Laburnum* inoculated with a purple *Cytisus*. A fine example of this used to exist in the gardens at Crathes Castle, Banchory. Numerous other well-authenticated examples of this strange influence of the scion over the stock might be given, but my object is attained in pointing out that it does exist. This inoculation of the stock with the peculiar properties of the scion must not be confounded with that of "sporting," because each of these are, or have been, the direct result of the budding or grafting, and, indeed, they are true reproductions of the scion in many cases. It may be noted that in the majority of instances the buds inserted either did not grow or very soon died out after being worked, so that the potency of the contact seems to be all the more wonderful.

Peculiar results observable in budding and grafting.—The vagaries of grafting and budding, if I may so term the peculiar preferences that particular varieties of fruit have for one kind of stock, are very remarkable, and in the present state of our knowledge quite inexplicable. For example, amongst Peaches it is well known in nurseries that the varieties *Grosse Mignonne* and *Bellegarde* take freely on the Brussels Plum stock, but will not take on the Muscle Plum. Other varieties, however, do so freely, and what is termed the Brompton Plum stock suits them all about equally well. Amongst Plums, Mr. Bunyard, Maidstone, says the Belgian Purple, although of the Orleans class, will not succeed on the same stocks as the Orleans, but does well on the Muscle and Damask stocks. Rivers' Czar will not do on any but the Muscle. Damsons do not do well on common Plum stocks. Wyedale Plum does not take freely on the Muscle, but fruits early—the first year instead of the second. Amongst Pears the *Marie Louise*, for example, and many others will not succeed on the Quince. These varieties, if to be grown on the Quince, must be double worked, *i.e.*, worked on some variety that is itself worked on the Quince. The *Beurré d'Amanlis* is often used for this purpose. Some years ago I made a number of experiments in grafting Pears on all sorts of stocks, such as *Crataegus coccinea*, *C. oxyacantha*, *C. acerifolia*, *Cotoneaster frigida* and *laxiflora*, Portugal Laurel, Quince, &c. The variety *Winter Nelis* appeared to take freely on all, whilst *Marie Louise* only succeeded on *Cotoneaster frigida*. A Pear may be grafted on an Apple, or a Cherry on a Plum; indeed, I have done so, but they do not live beyond a year or so. The Orange takes better on the Lemon than on the Orange, and the little Kumquat will only grow on the *Limonia trifoliata*. The well-known *Rose Maréchal Niel* will not grow on the *Manetti*, I am informed by Mr. Lane, whilst on other stocks it grows freely. Mr. Noble, of Sunningdale, informs me that he uses the *Aucuba japonica* as a stock for *Garrya elliptica*. What affinity is existent here? Some trees it would seem have constitutions fit

for anything almost; others are most fastidious—vigorous enough in their own nature, but attempt to alter that ever so little, even by the application of an uncongenial stock or scion, and it produces sickness and death.

Grafting Conifers.—A discussion was raised a few years ago on the merits of grafting Conifers, especially those belonging to the *Abies* and *Pinus* sections, the practice being generally condemned as not being calculated to produce good or lasting trees. Magnificent examples to the contrary—*Abies nobilis* and *Picea Pinsapo* 50 feet high for example—may be seen in Mr. Anthony Waterer's nursery at Knap Hill; and in Mr. Noble's nursery at Sunningdale may be seen an avenue of several scores of *Abies Nordmanniana* 30 feet in height—all perfect examples and all grafted on Silver Fir.

Potato grafting, &c.—A few years ago much was written and many experiments made on grafting Potatoes, and several graft hybrid Potatoes were supposed to have been raised, but I much doubt if such were the case. In some cases, probably, the cellular tissues of the Potato did unite, but there was little or no action between the stock and scion. An instance is recorded in the "Theory of Horticulture" of grafting the white Silesian Beet upon a root of red Beet. A complete junction was effected, but it was a mere junction of cellular matter; each grew and retained its peculiarity "without any interchange of contents through the sides of the cells in contact."

HELIOtropISM IN SUNFLOWERS.

In August last Mr. Meehan exhibited to the Academy of Natural Sciences of Philadelphia flowers of *Helianthus mollis*, and remarked on the popular fallacy regarding Sunflowers turning with the sun. The original Sunflower, connected with the Ovidian stories of Clytie and Phœbus, was the European Heliotrope, and even that did not turn with the sun in the modern popular sense. It simply grew where the sun loved to shine, and the plant did not flower till the sun had reached its summer solstice. The tragical part of the mythological story is founded on the fact that the plant continued to open its flowers as the sun declined, or, as Ovid might say, its affection for its beloved was in proportion as the lover fled from her to his winter quarters. The *Helianthus* was named Sunflower, simply because the flowers resembled the sun, and there is no relation between it and the Sunflower of mythology. Yet there are peculiarities worth noting. Travellers across the American plains, where Sunflowers abound, have often observed a great proportion of flowers facing one direction, but there were always some in other directions, and these exceptions seemed to prevent any generalisation as to special points of the compass being favoured more than others. He has growing in his garden plants of *Helianthus mollis*, from seeds gathered by him some years ago from near Odin, Illinois, and the flowers always seemed to have, to a great extent, a general southern leaning, but until this season he had not thought to make exact figures early enough to be satisfactory. This season he found the first flowers open on August 7. The upper portion of the flower-stalk is curved, so that when the flower opens, some quarter of an inch of stem is at right angles with the lower portion, and the face of the flower is exactly horizontal. It was subsequently found that the flower remained in this horizontal position till the last disk-floret had expanded, occupying about three days, when the whole head commenced to occupy an erect position, taking about three days more to fully accomplish the matter. Commencing to open on the 7th of August, by the 11th there were sixty-eight flowers expanded, all facing exactly south-east on opening; but on the evening of this day, three were found which had changed around to north-east, with a slight tendency up from the horizon. On the 14th there were seventy-three flowers open, twenty-one of which faced north-east. On examining the matter

carefully, the inclination to the north was found to be due to a slight spiral or uncoiling growth during the advance from the horizontal rest to the erect position. All do not do this, but uncurve rather than uncoil. While this accounted for the northward advance, often as much as 90° in a number of flowers, it still left the reason for the original facing of the flower to the south-east among the many problems of plant-life yet to be solved. He referred to the several reasons offered in explanation of polarity in the leaves of the Compass-plant, pointing out the unsatisfactory character of all of them.

GARDEN DESTROYERS.

THE ROSE GALL-FLY. (RHODITES ROSE.)

VERY nearly allied to the gall-flies of the Oak is the Rose gall-fly, which forms the curious Moss-like tufts on Roses, and more commonly on Briers,



Fig. 1, bedeguars on Rose stem and leaf; 2, filaments from ditto; 3, grub of Rose gall-fly; 4, Rose gall-fly; 5, side view of body of ditto.

called bedeguars, which were formerly used in medicine. At present this insect has scarcely earned the unenviable title of a "garden destroyer," as it does not appear in sufficient numbers to cause any appreciable injury to Roses. Still, it must always be borne in mind that it is quite possible, and not unlikely, that it may become more numerous, as its relative *Cynips Kollar* (which forms the marble galls on the Oak) did. This insect was very rare in this country until about thirty years ago, when it suddenly appeared in great abundance in Devonshire, and is now common all over England. If the Rose gall-fly was to increase as rapidly, it would prove a great annoyance to all Rose growers. I therefore recommend all lovers of Roses (and who is not?) to destroy these galls whenever they find them. During the summer cutting them off and throwing them on the ground will be quite sufficient to kill the grubs, but later in the season it will be safer to burn them, as if they grubs are full grown it is quite possible the might survive, and become perfect insects. It is certainly a very curious fact that grubs which

are so much alike in form and habits should be the cause of galls which vary so much in general appearance. In my article on the gall-flies of the Oak in THE GARDEN of October 14 I pointed out how very much most galls differed from one another, even those found on the same parts of the tree. The Rose gall is no exception to the rule; it is a very singular structure, composed internally of a number of cells packed close together, from whose outer portions spring a quantity of long branched hair-like filaments. Why the gnawing of the grub should cause the tissues of the leaves and stems to assume these strange forms is at present a mystery.

These galls or bedeguars are very pretty objects, of a pale green colour, tinged in places with red. When young they are soft, but become quite hard after they leave off growing. The large galls contain a number of cells, but little ones such as are shown on the midrib of the leaf (fig. 1) contain only one. Within each cell is a maggot. The Rose gall-fly, unlike its relative of the Oak, produces only one generation in the course of the year, and the fully developed offspring are of both sexes, and resemble their parents in every way. Anyone, however, trying to rear the perfect insects from the galls may be surprised at finding two very different-looking insects produced, which may be accounted for by the fact that a small parasitic insect, one of the Chalcididae (a family very nearly related to the Ichneumonidae) often punctures the galls and lays its eggs in the gall-fly grubs. The grubs from these eggs destroy the original occupants of the gall, undergo their transformations within it, and leave it in the spring, when they are often mistaken for the real gall-flies. They may, however, easily be distinguished from them by their bright metallic colouring.

The gall-flies remain in the galls until the spring, when they emerge, and soon set to work and puncture the stems or leaf-stalks of various Roses and Briers, depositing an egg in each puncture. As soon as the grubs are hatched they begin to feed and the growth of the gall commences; it probably does not attain its full size until the flow of sap in the plant comes. These galls vary in size from a small one, containing only one cell, to a ball 2 inches or even 3 inches in diameter, containing a dozen or more cells. The filaments with which these galls are covered are not simple, but are branched or feathery (fig. 2). The gall-fly (fig. 4) is about a quarter of an inch long, and measures 4-10ths of an inch across its expanded wings; its head, thorax, and antennae are black; its legs are long and reddish yellow in colour; its body is smooth, shining, and reddish yellow towards the base, gradually becoming black towards the apex. On the underside of the body (fig. 5) is the ovipositor, the internal mechanism of which much resembles that of the Oak gall-fly. The grub (fig. 3) is about 1-10th of an inch in length, and is smooth and tapering, but the segments are very clearly defined; it is quite white, with the exception of a pair of reddish brown jaws.

G. S. S.

Cyclamens infested by grubs.—Cyclamens appear to be very liable to the attack of a kind of white grub, and I would advise your correspondent who complains of his bulbs having suffered to shake them quite out of the old soil by the end of May, washing the roots so that every particle of mould is cleared off, leaving the base of the corms clean. Then lay them in a cold frame, using very light, sandy soil, and keeping it just moist. In the course of a month fresh roots will be produced from the old ones, and direct from the underside of the corms, when they may be potted. By treating them thus, any eggs or larvae which may be in the old mould will be got rid of, and the plants will be free for the season. I am not sure, but I think this grub is the larva of the "June bob," as it is called here. It is about half an inch long, and is in other respects much like the May-bug grub. It also attacks Strawberries in pots; I once had a fine lot entirely ruined by it,

as many as a score of grubs being found in a pot. —J. C. B.

CHRYSANTHEMUMS AT SLOUGH.

THE Chrysanthemum is again the flower of the season, and one of the proofs of its universal popularity is the numbers of special shows of it that take place during November. Probably nowhere does its cultivation receive so much attention as in the neighbourhood of London, and nowhere is it better understood. At shows a good opportunity is afforded to see the different varieties in perfection, but then they are as a rule "dressed." To see them in a natural state, a large and well grown collection must be visited, such as that now to be seen in the Royal Nurseries, Slough, where Mr. Turner has a wonderfully fine exhibition of Chrysanthemums, comprising an extensive collection of varieties, represented by admirably grown plants. This collection occupies three or four spacious houses, one of which is filled with tall plants, and another, the principal one, with plants ranging from 2 feet to 4 feet in height. This house is about 100 feet in length and span-roofed. The plants are arranged in solid masses on either side of a central path, and by an ingenious contrivance of stages the flowers are arranged so as to form an uniform slope from the back downwards, so that each variety may be closely inspected. Such broad masses of rich and varied colouring constitute a fine sight. Considerably more than 200 distinct varieties may be found here—a number which will probably be largely augmented next season, for some thousands of seedling plants have been raised here this year from seed saved abroad. Out of such a large number as this new and distinct varieties cannot fail to be secured, and their flowering is looked forward to with interest. There is still room for really distinct and beautiful sorts, particularly of the incurved type. Among the most noteworthy of the

New Japanese varieties are Constance, deep maroon-crimson, narrow florets tipped with gold, a showy and excellent variety, good habit and free flowering; La Charmeuse, extremely floriferous, bright reddish purple, fading to almost white, a valuable sort for cutting from; Hiver Fleur, large silvery pink, becoming darker with age, very free in growth and flower; Madame B. Rendatler, a large, shaggy flower, the long, narrow petals being of a nankeen-yellow, shaded red; Madame Audiguier, very large, deep rose flower, the petals of which are peculiarly twisted, very free in flower and growth; Père Delaux, a rich deep crimson, gold-tipped, large flower; Mons. Richard Larios, deep rose-purple shaded white; Eclatante, a rich crimson, large flower, good in habit and very free bloomer; Cité des Fleurs, a large velvety amaranth flower, florets long and narrow; The Cossack, a very fine dwarf-growing sort, with large, spreading flowers of a rich crimson. The best of the

Older Japanese sorts include James Salter, a well-known pink variety; La Nympe, delicate rose and large and free, never grows tall; La Frisure, a shaggy flower of a pale rose-pink, floriferous and good grower; Red Dragon, crimson tipped with gold, florets very long and narrow; Mons. Charles Hubert, bronzy crimson, shaded with yellow, large and fine; Gloire de Toulouse, very large flower, narrow florets, deep purple, fading to a lighter hue, a very fine sort; Soleil Levant, a splendid yellow, large flower; Orphée, very deep crimson, a beautiful variety; Meteor, a large, shaggy flower, bronzy yellow, one of the best; Bouquet Fait, with beautiful large flowers of a delicate rose-pink; Nuit d'Hiver, a large, bronzy yellow flower; Bismarck, of a similar hue to the preceding, but with broader florets, very fine; Oracle, a very large, rosy purple flower; Dr. Audiguier, in the way of La Charmeuse, but of a much deeper hue, very fine.

Among large flowering kinds the following should be included in a good selection: White Globe, Empress of India, and Queen of England. Among the finest white or light-coloured

sorts, White Venus, a pure white with broad florets; White Beverley, one of the best. Among yellows, the finest are Golden Beverley, Chevalier Damage, a very bright yellow and very free; Mr. Bunn, Mrs. Dixon, Jardin des Plantes, George Glenny, and Aurea multiflora. Other excellent kinds are Barbara, a soft bronzy yellow, good shape; Prince Alfred, a fine, large purple sort; Novelty, a very large light flower; Caractacus, delicate blush; Mr. Corbay, deep red, a sport from Prince of Wales; Princess Beatrice, delicate rose-pink; Refulgence, the deepest of all the purple sorts; Cassandra, blush white, tipped with rose; Hereward, rosy purple; Lady Hardinge, rose-pink, tipped with blush; Beauty, a deep blush, very fine; Mrs. W. Shipman, fawn coloured, and Bronze Jardin des Plantes. W. G.

COLOUR IN THE FLOWER GARDEN.

I THINK "G. J." (p 177) is rather hard upon mixed borders. My own opinion is that hardy plants, including annuals and roots, like Lilies and Gladioli that are put out annually, are now quite sufficient to furnish our gardens satisfactorily without the aid of "bedding out" in any

The ordinary mixed border as usually seen is not the "uninteresting and annoying" spectacle "G. J." would have us believe. There is always a wealth and variety of foliage about it that takes off the sameness. "Large effects" from colour are out of the question in a border of moderate dimensions, unless you restrict your selection to fewer species and varieties than gardeners are willing to do, keeping even to the real good things only. The plan I have suggested would make the difficulty I have mentioned apparent, and would show that the introduction of "large masses" of colour in borders of moderate extent would not do. Nor would I select only the subdued contrasts of American Azaleas, German Irises, Auriculas, and Polyanthus as a guide for laying out a garden. Nature furnishes far more vivid hues and more striking contrasts than these in abundance both among hardy plants and exotics, and it surely cannot be said that Nature has thus made a mistake, or that such are inadmissible in the garden. I may also add that there is far more of the mere bedding-out ring in your correspondent's article than is agreeable. If the advice given be correct, there can be no objection to bedding out as has been practised hitherto, provided we arrange the colours properly. The one set of

should recommend had already been prepared, and is given in the annexed plan. My practice has been more in the production of such combinations than in the writing of the "columns of matter" that "S." deprecates. I do not advance remarks on colour arrangement as "general and vague principles," but as the practical result of what I have worked out with my own hands. "S." writes: "Principles must be reduced to practice in some shape or other." I beg to differ entirely, and venture to affirm that, at least to the propounder of principles, practice must come first, and plenty of it, with much care and labour, and that only as the result of practice, well digested and assimilated, can one venture to propose certain principles as trustworthy.

I did not "select only the subdued contrasts of American Azaleas, &c., as a guide for laying out a garden," but pointed out that for persons who had not made a special study of colour harmonies, such families of flowers would be useful to refer to as studies. I did not use the expression "uninteresting and amazing," as quoted.

Why are large effects of colour "out of the question in a border," even of moderate dimensions? and why is the desire for them attributed to a hankering after bedding-out? So I wondered



Section of a hardy plant border, showing the arrangement of the principal plants. Bulbs and numerous other plants of small growth are not indicated in the plan, though intermixed with the larger masses.

shape, and their distribution in distinct groups and masses of an informal pattern would, no doubt, be the best way to display them; but when you come to deal with plain borders, it is another matter; and with a fair knowledge of the materials at one's disposal in the shape of hardy plants, I confess I cannot see how, by "G. J.'s" plan, such borders are to be furnished and a place be found for the variety of good things we possess, and a good and long display kept up at the same time. It is all very well to lay down general and vague principles, and say a garden should be painted like a picture, &c., but we have not got the paints so conveniently at hand as the artist has, nor can we compound them as he does to his liking. This is the very reason why the old bedder out, to do him justice, confined himself to so few varieties. He did not possess the sizes and colours to suit his purpose, and "G. J." is in the same difficulty. It will be found difficult to give a plan of a border with the plants marked on it in the harmonious manner described. In a transition period like the present such plans as that of the reserve garden lately given in your columns are most acceptable to many people, and "G. J." will do more by an example in that way than by columns of matter. Principles must be reduced to practice in some shape or other.

plants is no more objectionable than the other if it be true that "splendid harmonies of rich and brilliant colour, &c., should be the main rule" in setting out a garden, and that "one of the most important points in the arrangement of a garden is the placing of the flowers with regard to their colour effect." This has always been the creed, pure and simple, of the bedding-out fraternity, and "G. J." seems only to be attempting in another way, and with a greater variety of materials, what the bedding man has been aiming at all along. I do not think that the study of colour harmonies in the laborious way indicated is a matter of so much importance as it is made out to be, and besides there are many obstacles to its fulfilment.—S.

I am at a loss to understand why "S." takes me for a bedder-out. I have no sympathy with the system, am glad to perceive its decline, and should wish to see its extinction. A solitary instance that gave me pleasure from its beautiful colouring was quoted at p. 177. Certainly I am "attempting in another way" (quite another way) "what the bedding man has been aiming at." Yes, aiming at, but never hitting, because he went the wrong way to work, viz., the best use of the best flowers; but is not this the true definition of all good gardening? An example of a border arranged as I

while looking at a group of Tritomas 6 ft. high, with over a hundred flaming flowers, flanked by early yellow Chrysanthemums and Rudbeckias on the one side, and by a group of Acanthus, followed by pale primrose-coloured Sunflowers, on the other. Is this bedding, or anything like it? Of course my hundred Tritoma flowers would make too large a group in say a little villa garden; the sizes of groups must be in proportion to space; but then my border is some eighty paces long by 14 ft. wide, large enough to accommodate good sized clumps of the best hardy flowers. The principle of harmonious colouring, as I advised it, will produce the large effects in another way than by actually having large groups of the same plant, because the "effect" is spread over the whole of one mass of harmoniously coloured flowers, if the mass is well composed and combined. This is the very reverse of bedding, with its rigid blocks and patterns of colour. How to arrange the groups of plants may be best learnt by a careful study of Nature. Purely natural forms of flower grouping must not be looked for in fields and hedges, because of the many artificial conditions brought about by cultivation, but rather in old woods, riversides, and moorland. There may be seen the "large effects"—a straggling mass of Forget-me-nots, a bed of Bulrushes, a pool of

white Water Lily, a copse carpet of Primroses, Anemones, or Hyacinths, a stretch of grey and purple Heather, a bank of Gorse or Broom, an old Alder bed full of glowing Marsh Marigolds—these are the useful natural lessons to be learnt by heart, and then not copied or exactly transcribed into our gardens, but interpreted in such a way as may best suit our space and means. This has been a valuable part of my own training, and I can confidently recommend it to others. Let "S." accept my assurance that behind my "bark" there is some "bite;" let him come and be bitten (in the pleasanter sense), and claim the welcome offered to all good gardeners, next June or any time between April and October inclusive, and see for himself that a flower border with "large effects" and "painted like a picture" is not only possible, but eminently practicable.—G. J.

SEASONABLE WORK.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

THE sharp frost (12°) on the morning of the 18th has brought down the remainder of the leaves, a few Oaks excepted; therefore, we shall now have a general clear up. The leaves will be saved; the best, *i.e.*, the driest Oak and Beech, will be stacked for forcing purposes, and the remainder for rotting down into leaf-soil. Contrary to the general practice, we also clear cut all the leaves from Rhododendrons and other shrubby clumps, for the simple reason that were they left we should be pestered with sweeping up whenever there was the least wind, and so we prefer to mulch the clumps as soon as cleared out with the mould from leaves stacked two or more years ago, and my plants that have been recently moved receive a treble portion by way of protection to their injured roots, and no doubt, also, the extra warmth thus assured aids new root formation. Advantage is taken of dry frosty mornings to wheel this material to the desired spots, and also to stack up fresh leaves, and to wheel manure and soil to plots that are being prepared for planting, as we have always some of this on hand; and though we would prefer to discontinue moving shrubs after December has commenced till February, necessity often compels us to keep on all through the winter whenever the weather permits, and hitherto, by taking extra care not to allow the plants to be out of the ground longer than is absolutely necessary and staking and thickly mulching them as soon as planted, we have found winter planting to be just as successful as autumn or spring. With one exception only, *viz.*, Hollies, all kinds of trees and shrubs may be successfully transplanted throughout the winter. Hollies we have also done, but cannot recommend the practice, at least not as compared with plants moved during April and May.

Pruning and clipping.—As with planting, so with pruning shrubs and cutting hedges we are compelled to be heterodox, and do them whenever an opportunity occurs, without reference to the season, and at the present time are busy clipping Yew screens, Holly and Privet hedges, and cutting straggling shoots off Rhododendrons that are growing under the shade of large trees that in such positions develop this kind of growth, and to keep them in anything like compact form they need such attention every year. Common and Portugal Laurels are being pruned into form, and upright-growing shrubs, such as Junipers and Irish Yews, are being drawn together with tar cord to prevent wind and snowstorms from breaking off any of the outside branches. Some few Conifers, especially the strongest-growing young plants, need to have some of the uppermost branches stopped, and the points pinched out, that the plants may grow into a good shape. The leaders should be preserved from injury from birds perching on them by tying straight sticks to the stems, the top of which should be a foot or so above the top of the trees. The above constitutes the bulk of our outdoor work at the present time.

Indoors.—There is much to do in the way of picking off the dead leaves of Pelargoniums,

dusting Verbenas with sulphur to destroy mildew, and fumigating others that are attacked with green fly. Violas, Gnaphaliums, Calceolarias, and other kinds that are planted out in cold pits are being surfaced with Cocoa fibre for the double purpose of keeping out frost and rendering it unnecessary to water them for some weeks to come. Seeds of the following kinds of succulents, if sown now, will make good plants for next season: *Echeveria metallica*, *E. glauca metallica*, *E. secunda glauca*, *Sempervivum tabuleiferum*, *S. canariense*, and *S. Donkelaari*. The propagation of other kinds by leaves or offsets may go on all through the winter.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Ferns.—The adaptability for cutting which Ferns possess in a great measure depends upon the way in which they have been grown. *Adiantums*, such as *A. cuneatum*, *A. gracillimum*, *A. trapeziforme*, *A. formosum*, and *A. farleyense*, with the common and crested drooping forms of *Pteris serrulata*, are mostly in demand for cutting, but if these are grown under conditions of too much warmth and atmospheric moisture, with an insufficiency of light and air, they invariably flag when cut, a state it is needless to say that renders them useless. In growing these Ferns with a view to using them in a cut state, very little shade should be given, and none during the autumn and winter months, with no more moisture in the atmosphere than is consequent upon the evaporation of such water as percolates through the soil after watering, and from that which is unavoidably spilled about in the operation, plenty of air admitted daily and the plants kept well up to the glass. The favourite *A. cuneatum* in the London market is now much better liked when it possesses the pale greenish yellow shade, such as the half matured fronds have, than when of a darker colour. This may usually be secured by subjecting the plants to quite cool treatment when the fronds are about half grown, which invariably has the effect of arresting their much further development, and in a great measure fixes the light tint. Previous to use, all Ferns should be cut and immersed overhead in water for several hours, the water thus absorbed doing much to prevent their flagging. *Adiantum formosum* is the best of the species for lasting long without drooping, and is very useful for mixing in the larger arrangements of flowers, such as Vases, &c. The same may be said of the best large drooping-crested forms of *Pteris serrulata*, which in large stands have a fine effect. Plants of *Adiantum* that have been hard cut during the summer and have been induced to make growth late in the season should now have plenty of air and be kept at an ordinary greenhouse temperature for some weeks before the fronds are cut for use. It seems strange that the elegant *Gleichenias*, such as *G. spelunce*, *G. rupestris*, and *G. semi-vestita*, are not more generally used for cutting, as there is nothing that can be mixed in this way with flowers that has a more beautiful effect, in addition to which they last for a long time when grown cool.

Echmeas and Billbergias.—The summer flowering Billbergias and the nearly allied *Echmeas* of the fulgens and miniata section, that usually commence growth as soon as they have done blooming, should be kept on growing through the winter, placing them at the warmest end of the stove, but at the same time keeping them well up to the glass. In their native countries these plants are mostly of an epiphytal character, growing on the stems and branches of trees where they necessarily get more light than if low down on the ground. To grow them so as to secure the full amount of flowers, the plants need plenty of light at all times. For general use they are best cultivated in small pots, with not more than two or three crowns in each; the bright coral-red branching flower-stems of *A. fulgens* and its allies, lasting as they do for several months, rank them amongst the best small plants for general cultivation where there is enough warmth to grow them well.

Cyclamens.—To insure as long a season for these as possible the plants should be divided and kept in two different temperatures; those that are flowering or fast approaching this condition produce the finest blooms when accommodated with the temperature of a warm greenhouse, say 45° to 50° by night, and a little warmer in the day, but with this they should be kept well exposed to the light with air every day. Give particular attention to keeping down aphides which, if allowed to remain undisturbed even for a short time, do irreparable mischief to the leaves and advancing flowers. Those that are intended to succeed the earliest blooming lot should be kept quite cool, so as to retard the expansion of the flowers as long as possible.

Epacris.—These, if grown in sufficient quantities and well managed, will be extremely useful, lasting individually for many weeks, and being equally adapted for cutting as for ordinary decoration on the plants. They will bear more warmth than Heaths, but unless where they are backward in blooming and flowers are required at once, it is better to keep them quite cool. Their time of flowering is best regulated by the way they are managed in respect to growth. Those that were late in completing and maturing their wood will come into bloom later as a matter of course. To still further retard those that are wanted to last until spring they should be kept as cool as consistent with the exclusion of frost; this they will bear without any injury, as a low temperature with them has not, as in the case of some plants, the effect of inducing the appearance of mildew. But *Epacris* are very impatient of the least approach to over-watering, and never should have it applied until the soil has got so dry as to be dangerous if it is longer withheld.

Epiphyllum truncatum.—Plants of this, although individually so effective when in bloom, are unfortunately not of long duration in the individual flowers; consequently it is not well to have many in at once. With this view only a few should be put into heat at a time at intervals of two or three weeks, and on no account should they be hurried on too fast, otherwise their fugative tendency will be increased; and with all soft textured flowers like these it is particularly essential that there is not too much moisture in the atmosphere of the house or pit where they are brought on into bloom. Large flowered *Epiphyllums* and the Cactus family generally should at this season not be located in a cold, damp house, and care ought to be taken that the soil is not too moist; the condition best described as between slightly moist and quite dry suits them best when cool and at rest, otherwise the comparatively few roots which they make are liable to perish. These large flowered species bloom naturally later than the *truncatum* section; nevertheless they will bear forcing if required early, and with this intention, if there is any likelihood of a scarcity of flowers during the early months of the year, they may be put in heat and brought on slowly, being careful not to give much water at the roots until the heads of the plants have got into a plump condition, which they soon will through the moisture absorbed from the atmosphere of a forcing house.

Myrtles.—These are most useful in the winter season, and if the plants have been well managed so as to make their growth early and get the wood well matured by being stood out in the sun through the summer, they force well. Independent of their appearance when in bloom, they are very serviceable for cutting, their pretty flowers and neat foliage being very effective combined with other things of a more showy character. The miniature variety, *Jenny Reitenbach*, is one of the best for bouquets.

Monochætums.—The comparatively short-lived nature of the flowers of these pretty plants is compensated for by the profusion in which they are produced. In a conservatory kept continuously above a greenhouse temperature they are particularly adapted for standing on side tables, brackets, or shelves, as when well managed

in small pots—to which when confined they are most useful—they literally become a mass of flowers. Plants brought on in intermediate warmth will do good service in a conservatory kept at a temperature such as above indicated, and for this purpose they should be forwarded in succession.

FLORAL DECORATIONS.

J. HUDSON, GUNNERSBURY HOUSE.

Sweet-scented flowers.—The supply of these will now have to be obtained from the stove, forcing-house, greenhouse, or cold pits, out-door sources being closed, with the exception, perhaps, of a few Violets in favoured localities. Amongst stove plants, the flowers of the old, but still desirable, *Franciscea Hopeana* emit a delicious perfume; so also do those of *Clerodendron fragrans* fl.-pl. Amongst stove climbers *Jasminum gracillimum* can be strongly recommended for its fragrance as well as for the freedom with which it flowers. It will take the place during winter that the *Stephanotis* occupies in summer. *Gardenias* may likewise be had where stock is grown on the bedded-out principle, provided a high temperature can be maintained. Amongst greenhouse plants, *Daphne indica alba* and *rubra* are two old established favourites, too well known to need recommendation; the only thing to be regretted is that they are not better adapted than they are for purposes for which cut flowers are wanted. I do not see why they should not be grown bedded out like *Gardenias*, with just sufficient heat to exclude frost and damp. In this manner they will perhaps grow more freely than they generally do under pot culture. *Bouvardia jasminoides* and *Humboldtii corymbiflora* are both excellent, a few blooms only of the latter kind being sufficient to perfume a room. Carnations may also be recommended, though the fragrance is scanty at this season of the year. *Jasminum grandiflorum*, though generally classed as a greenhouse plant, thrives best in a temperate house, and yields a profusion of sweet-scented flowers throughout the winter. The forcing house or warm pit will give us early kinds of bulbs, such as the Paper-white and double Roman Narcissus and White Roman Hyacinths as well as the old but valuable *Azalea indica alba*, the fragrance of which though faint is pleasing. *Heliotropes* grown in a slight heat will give out more of their well known perfume than if kept warmer. We find *White Lady* to be one of the best for pot culture. A good supply of *Mignonette* is always valuable; sown in frames or pits during the summer, an abundance may now be reckoned on. Violets are at all times ever useful; they do not, however, succeed under the influence of London fogs and smoke. The sweet-scented section of *Pelargoniums* will yield foliage that will help to spare Fern fronds in many instances. In arranging any of the aforementioned flowers, it is not at all necessary to have a large quantity of any given kind; specimen glasses and small vases will be best for most of them. These do not require much room, and are therefore more available than larger ones for the boudoir, the writing table, and last, but not least, the sick room. Small quantities at a time and frequent renewals will be found in the long run to give the greatest amount of satisfaction.

ORCHIDS.

J. DOUGLAS, LONFORD HALL.

East India house.—The different species of *Phalenopsis* are the most important occupants of the warmest house, and will require to be well looked after. I have already alluded to the importance of carefully attending to their requirements as regards water, and also watching them at night in case any marauders should attempt to eat the young spikes. I omitted to mention *P. Ludemanniana* in the last calendar; this is a very desirable species, and should be grown even in small collections. It is very prolific, forming frequently young plants on the flowering stems; these speedily push out roots, even when they are of small size; the stems ought to be bent down, and the young

plants be pegged to the surface of the baskets or pans. In a few years a plant of this species very soon becomes of large size. A rather desirable *Orchid*, *Oncidium phymatocidium*, succeeds well with us in this house; it is now making its growth, and must not be allowed to become too dry, although much water is not required. This *Oncidium*, like some others, does not do well until the roots grow freely over the pots or baskets, and instead of watering the compost much, the water must be applied to these overhanging roots with a syringe or through a fine rose. *O. Lanceanum* requires very similar treatment. We have grown a good sized specimen of the latter for seventeen years or more, and it grows well and flowers freely every year. *O. phymatocidium* does not flower every year, but it remains in good health and makes good growths annually. It is evident we have not hit the right treatment for it, as it is remarkably free in its native country. I am trying it suspended near the roof when completing its growth. *Odontoglossum Roezli* seems to succeed best with us in the cool end of this house. They are now making remarkably good growths, a sure sign of a plentiful bloom next season. This species seems to be much like *O. crispum* in its thirst for water; it takes it in plenty all the year round. The plants seem to succeed best when the *Sphagnum* is quite green on the surface, and when the plants are of large size they may be broken up, and each part be potted singly in small pots. They take one year to start well into growth, but after that they make quite as strong growths as usual. *Aerides crassifolium* likes to be suspended in shallow pans or baskets from the roof of this house; see that thrips do not get on to it. They are very fond of getting into the centre of the plants, where they speedily change the colour of the leaves, and debilitate the plants. Do not let the insects remain on the leaves an instant after they are observed.

Cattleya house.—The *Miltonias* are a class of plants that should be grown in every collection, and although they are natives of Brazil, they succeed best in the *Cattleya* house, in the warmest end. They may, if necessary, be repotted at this season, as they are starting into growth. At this time large specimens may be broken up, and in potting them the stems connecting the pseudo-bulbs should be pegged down to the surface of the compost. There are some species that have not this characteristic. These should be potted in peat and *Sphagnum*, with a liberal proportion of charcoal and crocks amongst the drainage, much the same as *Odontoglossums* are potted. *Miltonia candida* and the still rare variety *grandiflora* are even yet in flower in a rather cool house; they would flower in September or October in a warmer house. Look out now for slugs attacking the spikes of *Odontoglossum hastilabium*; these will be pushing out from the recently formed bulbs. This species is liable to damp off during the winter; it will therefore not require much water at the roots, although the compost should not become what may be termed dry; but it would not be safe to water it as freely as *O. crispum*. *Oncidium crispum* and *O. Forbesi* will also be in flower; they remain longest in good condition when kept rather dry at the roots. If any of the plants have young roots pushing from the base of the bulbs, these must also be carefully watched, as they are peculiarly attractive to slugs. It is not well to delay repotting the *Pleiones*; as soon as they go out of bloom they should be repotted, as they start into growth at once, and fresh roots are also formed. If there is any delay in potting them these young roots may be broken off, which may be injurious. All our plants were out of bloom on the 13th of November, and were parted out and repotted, with the exception of *P. maculata*, which is yet in bloom, and they cannot be potted until the flowers are gathered or die off. The proper way to gather the flowers is to pull them out carefully by the hand; the stems will readily part quite at the base. The bulbs are evenly distributed over the surface of the pots or pans, and after they are repotted place them near the glass. *Cattleya Warneri* is now starting to grow from the base of the old bulbs. The plants have hitherto been kept

rather dry, and there is no need to give very much water to them as yet; indeed, all *Cattleyas* should be kept rather dry, taking care to water them before any injurious effects are apparent. One may err on the side of over-dryness, although not so likely as in that of giving too much moisture.

Cool house.—Referring once more to last week's instructions as to temperature, for many species 50° is the best minimum, although, as has been previously stated, it may drop frequently to 10° lower than this for many species. The higher temperature does best for such as *Oncidium anthorhynchum*; if the pots are placed near the glass in baskets so that its drooping spikes of pretty rose-coloured flowers sweetly perfumed are seen to the best advantage, this *Orchid* seldom fails to please, as it flowers so freely. There is also a white form, which is rare, and therefore valuable. They are both in flower now. *Oncidium cheiroporum* will flower well and remain a considerable time in beauty if it has the higher temperature, and its rich yellow flowers, densely placed on pendulous spikes, form a striking contrast to the rose and white flowers of the other species. The delicate white flowers of *Masdevallia tovarensis* are also charming us with their modest beauty. This species, rare for so many years, may be grown now in any collection, as from being the dearest it is now the cheapest species we have. It should be placed at the warmest end of the house, and although the plants must not be kept dry, they should do with little water, as I fancy all *Orchids* remain in flower longest when water is not too freely distributed either over the roots or in the house. The *Odontoglossums* in growth require plentiful supplies of water even in winter, and there are some few species that must be watched in case of the roots being eaten at night. *Oncidium macranthum* is one liable to be injured in this way. The flower-spikes of this are also showing now, and are peculiarly liable to be eaten. Indeed, the house altogether will require much attention, for there are scores of different species of *Odontoglossums* in flower or showing spikes now, and it is very trying to one's patience to go in and see a vigorous spike half eaten through of some choice species or variety. Some of the *Masdevallias* are also showing their flowers now, the buds being in various stages of development. Any small plants that are required to form good specimens as soon as possible should not be allowed to flower at all. The *Masdevallias* are so floriferous, that in many cases plants are checked and crippled in their development by being allowed to flower too freely in their early years. Air should be admitted with caution when the winds are cold and drying, as they are at present.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Vines.—Where very early thin-skinned Grapes take precedence of late ones and pot Vines are not forced, the first house of permanent Vines, which was closed about the middle of this month, must be fairly at work by the first week in December, when, in order to economise fire-heat and to insure an even break, particularly where the Vines are young, the preparation and introduction of fermenting material, consisting of hard-wooded leaves and short stable manure, must be reduced to a system. If an open shed is at command, this will be found the best place for the reserve, as heavy falls of rain and snow, already too prevalent, can then be received with impunity. As the buds show signs of swelling gradually raise the temperature by day, but until after the shortest day let the heat range about 50° at night. Keep every part of the house nicely moistened with the syringe, and syringe the rods frequently when fire-heat is on. At other times set moisture and ammonia at liberty by turning the leaves, and take in fresh supplies as may be thought necessary.

Mid-season houses may be pruned and got ready for shutting up as soon as the Vines are clear of foliage. If insects of any kind have been troublesome remove all the loose bark, scrub the

old spurs with strong soapy water, stop all suspicious holes and cracks with pure Gishurst, and paint with a solution of the same, 8 ounces to the gallon of water, thickened to the consistency of cream with sifted loam. On the other hand, Vines which have not been infested may be passed over with a good washing, as nothing is gained by dressing where there is nothing for the dressing to destroy. Of all the insects with which the Grape grower has to contend, the mealy bug is most to be dreaded, as it too often springs into life year after year where the most careful attention has been devoted to its destruction. Spirits and oils of various kinds have been used, and all of them kill where they touch, but it generally happens that some escape, and the only way in which they can be successfully exterminated is by careful watching and searching in the spring, when every bug may be destroyed as it emerges from its winter quarters by dressing the place with Gishurst compound or methylated spirits of wine.

Late houses.—If the laterals and extension growths have not been removed, take them off at once, as they hold moisture and keep the sap in motion. Remove the ripe foliage as it parts freely to the touch, but not before, as many late Vines often carry their foliage well into December. In damp or foggy weather keep the front ventilators closed, and give a chink of air at the apex with just sufficient fire heat to expel moisture. On bright, dry days create a circulation of air by opening the top and bottom ventilators for a few hours, warm the pipes to set it in motion, and shut up in time to prevent the temperature from descending below 45° after the heat is turned off. Get all external borders well covered with Fern litter, and place lights or shutters over all where the Grapes are intended to hang until after Christmas. From this time forward the bunches must be looked over twice a week, and if Gros Colmar do not keep well in the low temperature which suits the other kinds, cut and bottle them, and place them within the influence of warmth from the pipes in the Grape room or Muscat house.

Orchard houses.—A fall of 5 inches of snow followed by 14° of frost convey unmistakable proofs that the time has arrived for getting all pot trees now standing out of doors well plunged to protect the pots from injury by the expansion of the soil. When thus taken care of the general stock may remain out in the open air until the middle or end of January, when they will be the better under glass. Meantime steps must be taken for cleansing, painting, and preparing the interior of the house particularly where it is or has been used for soft-wooded plants like *Chrysanthemums*, which sometimes leave an unwelcome legacy behind them. The general pruning having been performed early in the autumn, shortening back and washing will, as a matter of course, be deferred until the time arrives for housing, but on no account allow the last named operation to be neglected, as the work is quickly performed, and careful washing with strong soap water is quite as beneficial to young wood, be it ever so free from insects, as sponging is to plant foliage. A few words may here be said with regard to shortening back, as serious mistakes are sometimes made by cutting the dormant trees into shape, when shy kinds like the *Noblesse*, which only make terminal wood buds, lose some of their most promising shoots by their removal. Practical men who know that it is always safe to prune to a triple bud can make no mistake; but the amateur, whose great delight is centred in the performance of his own knife work, will do well to wait until the buds begin to swell, or if he leave it until the fruit is set no harm will be done. Where pot Figs are grown in the cool orchard house they need not be removed from beneath the glass, as a severe winter like that of 1880-81 might render them useless, or nearly so, for the following season. If Strawberry plants intended for this house are removed from the open air, set them on the floor in preference to placing them on shelves.

Hardy fruits.—The country having been deluged with rain, all lifting and planting operations, for some time suspended, will have to remain in arrear until the ground is again in good working order. On high and dry soils a few weeks will make a marked improvement; but on cold, heavy clays, in many places still full of water, further progress will not now be possible until after the turn of the year. In this neighbourhood a great number of large orchard trees have been severely damaged or uprooted by the heavy gales and snowstorms of the 24th ult., and we are now busily engaged in the clearance of the wreckage, in cutting back the mutilated heads, and in getting out old roots preparatory to filling up with young trees when opportunity serves. This operation will not, however, be attempted for some time to come, as a great deal of the soil in old plantations will require exposure to the action of frost before it is again fit for working in with fresh compost.

In one of my preceding papers I drew attention to the importance of getting the pruning and nailing of fruit trees pushed forward during the prevalence of mild weather, as, independently of the fact that the men can do more work, the ground will be clear of refuse and ready for the reception of manure when weather suitable for wheeling sets in. If not already done, now is a good time to unnailed all the Cherries preparatory to pruning and washing with a strong solution of Gishurst compound or any other insecticide most in favour. When dry tie the shoots together in small bundles, secure them to stakes, and wash the walls; if old and full of nail holes, with strong brine, lime water, or the composition recommended in my last paper upon hardy fruits. These precautions this season are extremely needful, otherwise the myriads of black and brown fly which, owing to the low vitality of the trees, made such persistent attacks upon the enfeebled growths, will again appear in increasing numbers. Where labour is equal to the demand, the same treatment applies to Plums, Apricots, and in some cases to Pears, but where the latter are quite free from scale they may be nailed in without delay. When pruning old trees it is a good plan to thin out the spurs and to scrape the Moss and Lichens off the branches for the twofold purpose of letting in warmth and air to the fullest extent and increasing the size and quality of the fruit. Trees on the Quince stock soon become one mass of spurs, and unless annual attention is paid to this operation, the fruit on many of the kinds becomes small and gritty; further, the root run being limited, mulching with good rotten manure is an important factor in the production of fine fruit; but as this annual dressing would soon raise the borders inconveniently high, the difficulty may be got over by casting the old mulching over the border to be forked in for vegetable crops and by replacing it with fresh from the frame ground. The best time to do this is early in autumn, and if within reach, the remains of an old Melon bed, soil included, will be found a suitable material for the purpose. Notwithstanding the fact that Peaches and Nectarines are holding their leaves a long time, the growths are clean and kind, and the blossom buds are fairly prominent. If it is the practice to unnailed the trees every winter, the sooner it is done the better, as nothing more in the way of ripening must be expected from the elements, and removal from the walls does not render the young growths more liable to be injured by severe frost. Get Raspberries staked and tied ready for mulching, but defer cutting off the tops until the buds begin to swell in the spring. Untie Figs, rub off the half swelled fruit, and tie the shoots together in bundles. Have protecting material ready, but do not apply it during the continuance of mild weather.

Paris Daisy insects.—With me a great drawback to the enjoyment of these pretty plants is the presence of the larvæ of a leaf-burrowing insect, in such quantities that a great part of the foliage is disfigured by their tunnels. The only cure I can find is picking off the affected leaves and destroying them, but when one-half of the number on the plant are thus affected, the cure

becomes worse than the disease. It appears to be local; in some places the beauty of the plants is quite spoiled, while in others they are untouched.

H. P.

FRUIT GARDEN.

WHEN TO PLANT VINES.

It seems strange that Vines should form an exception to most, if not all, deciduous plants in doing best planted in the spring; yet so it is, and the reason of their greater success then is owing to the quick way in which they start without loss or injury to the roots, from which they suffer if interfered with or disturbed in the autumn. This is not to be wondered at when we think of the numerous coils of them there are in a pot, and how they are twisted and interlaced; and however careful anyone may be, it is almost impossible to unfold and spread them straight out without straining or causing some harm, which they must suffer from after, for, lying dormant as it were for months, they have no chance to heal and right themselves in the quick way they do when they start off into growth. If the Vines could be planted with leaves on, the case would be different, as they would then get hold of the border before winter; but under the present system of planting at that season it is almost impracticable, as to have the roots outside it is well-nigh impossible to get the tops through an ordinary hole in the wall. With leaves on the Vines, and the wood tolerably firm and ripe, it is surprising what liberties may be taken then, and I should not hesitate to lift any old ones in the autumn and clear away all the soil in a border. This I have done on more than one occasion when they have not been satisfactory, and given them fresh turfy loam, and the work has been carried out from beginning to end without the foliage flagging or the loss of a leaf. To have undertaken such a job in the spring would have been very risky, as the least scratch or damage to the bark of the main roots would have caused them to bleed, and the Vines, instead of breaking strong, as they did, would have been feeble and slow in recovering the shock. The way we managed was to have plenty of mats at hand to cover the roots as they were worked out and laid bare, when we kept them wet by frequent syringing, and the atmosphere of the house in which the Vines were in was kept moist in the same way, and by bedewing the foliage each morning and evening. During the operation, and for some time after, the house was kept quite close and shaded, and within a month the Vines had got such good hold that they would bear all the air we could put on and the fullest exposure. Now, if young Vines could be treated in something after the same manner, there can be no question but that early autumn would be the best time for planting; and where there are new houses to be stocked, or where the borders are partly inside, there is no reason why they should not be, and where it can be done a season may be saved, as the Vines would be established at once and a long way ahead of any spring planted. What tells against these latter very much is the severe heading back they generally receive, which is a great mistake, as the more shoots and leaves they have the more roots they make and the quicker they get hold of the border. By leaving moderately long rods, it may always be seen which shoot is the strongest and the best for leading up, when the others can be stopped and tied out and kept free of laterals, and it will be found that the extra foliage they have will be a great help in assisting to swell and increase the size of the canes. Much as may be said in favour of stocking vineries from eyes started in turf, there is no comparison whatever between Vines obtained in that way and those a year old, as with the latter, if healthy and well grown, as they generally are when obtained from our leading nurseries or managed by experienced gardeners, we have a plant at once and something to begin with; whereas when only a single eye is made use of, the future Vine is in embryo, with its roots to form, and must re-

main months in the rear. That they may do well in isolated cases I am free to admit, but they must be nursed on with great care without having a check, and at best it is late before such Vines can be planted, as the buds must be started somewhere in heat, and not be put in the border till the weather gets warm, by which time young Vines from pots, if well treated, will be some way up the rafters. Vines to be planted in spring should be obtained now, and cut back to something like 3 feet, so as to afford time for the pores to dry and close to prevent bleeding—to make sure of which it is a good plan to touch over the cut with white lead or styptic, and after this is done, the pots should be plunged in a sheltered place where the Vines will be safe and snug for the winter. About the middle of March will be the right time to shake them out and put them in the border, which should be done by carefully spreading their roots out in the several directions most favourable to them, and covering them at about 3 inches or 4 inches deep, and if they then have a mulching, the Vines will be in a fair way to do well. S. D.

THE DUKE OF BUCCLEUCH GRAPE.

IN the face of my assertion that I never exhibited this Grape at Manchester in a basket, and that I exhibited it there and at other places as a bunch or bunches, "J. S. W.," relying on a slip of memory made by "Cambrian," maintains that I did exhibit it in a basket at Manchester, and that I never showed it in bunches anywhere, thus, in a matter of fact, charging me with falsehood. This having found a place in *THE GARDEN*, I hope, notwithstanding your note to "J. S. W.'s" last letter, you will, from a sense of justice, allow me to reply to him, and to put in evidence of the truth of every assertion I have made. I am represented by "J. S. W." as not being the man to exhibit this Grape always in baskets if I had a single bunch of it fit to exhibit, the truth being that six or seven times I got prizes for single bunches of it, and never put it up for competition as a basket but once, which was in Edinburgh, where prizes were offered for baskets of Grapes, and never, even for exhibition but once, and that was in Glasgow, when I at same time showed a bunch of it for competition, as will appear further on. In the report of the great show held in Manchester in September, 1873, as given in the *Journal of Horticulture* (p. 189), we read, "For the best seedling Grape not in commerce the first prize was nobly won by Mr. Thomson, of the Tweedside Vineyard, Galashiels, with the Duke of Buccleuch, a truly grand Grape in every way." The *Gardeners Chronicle*, in its report of the same exhibition, says, "Mr. Thomson has a first prize for his new Grape, the Duke of Buccleuch, which was shown by him, as well as in several fruiterers' collections, in excellent condition." This will be found on p. 1212, Sept. 6, 1873. Those referred to as being shown in fruiterers' collections are the baskets "Cambrian" helped to pack and took to Manchester, and in regard to which he has fallen into a mistake which at this date is not surprising. He remembers that I exhibited the Grape at Manchester, and he remembers the baskets, but not the box containing the two bunches, on a board of which I took charge myself.

That "J. S. W." may have no excuse for utilising "Cambrian's" mistake, I have asked Mr. Bruce Findlay to look up the entries for the show in question, and say whether I exhibited the Duke of Buccleuch as a basket or as bunches on the occasion, and I send you his letter; he writes: "In reply to your note, I have to say that in the year 1873 you exhibited here two bunches of the Duke of Buccleuch Grape." With regard to "J. S. W.'s" statement that I showed two baskets of the Grape in Glasgow in 1872 "with an odd bunch added to the last only," I refer your readers to the schedule where a prize is offered for one bunch of a new Grape, and to p. 482 of *The Gardener* for 1872, where they will read, "One bunch new Grapes, any sort, 1st, Mr. Thomson; 2nd, Mr. Moncur, Rockfield, Dundee; 3rd, G. G. Smith;" and at p. 480 of the same number they will further read, "The first prize for the finest new

Grape was awarded to Mr. Thomson for his Duke of Buccleuch. He showed a basket of it just ripe, and one that had hung in a ripe condition since July 1, and one bunch that was also ripe at the date named." This was the bunch for which the prize was offered. The baskets were sent that I might give all who wished an opportunity of tasting it and seeing it in quantity. I expect many will be curious to know how an odd bunch can be added to a basket of Grapes and retain its individuality. In the schedule of the Carlisle show for 1877, prize No. 20 is for two bunches of the Duke of Buccleuch, and at p. 484 of *The Gardener* for that year we read, "Messrs. Wm. Thomson and Sons, Tweed Vineyard, won in the Duke of Buccleuch class with medium-sized bunches, and very fine regular berries." I never exhibited a basket of this Grape at Carlisle. At the Edinburgh show in 1878, *The Gardener*, p. 471 of the October number, reports, "One bunch Duke of Buccleuch, 1st, Wm. Thomson and Sons." On August 6, 1878, we sent two bunches of the Duke of Buccleuch to the Royal Horticultural Society's meeting, and at p. 432 of *The Gardener* of that year we read, "Messrs. Thomson and Sons showed examples of Grape Duke of Buccleuch, about the merits of which so much has lately been written in the horticultural press. As shown on this occasion the bunches were of perfect form, and the berries almost as large as Green Gage Plums; no one could say but that it is the noblest looking white Grape in cultivation."

No man that ever sent out a new Grape or new plant of any kind has taken such precautions that the public should not be deceived in regard to it as I did in the case of this Grape. I sent two bunches of it to the fruit committee of the Royal Horticultural Society, with the request that they would make no award to it till they sent Mr. Barron at my expense to see it growing here and report on it. Mr. Barron came here and examined it carefully, and reported that out of 250 bunches which he saw hanging, "there was a singular uniformity in the appearance of the whole, both as regards the growth of the plants, general productiveness, size, colour, and general appearance of the bunches and berries. I could detect no spot or other blemish on the berries." So much for "J. S. W.'s" assertion that no bunch was ever seen without its being spotted. After Mr. Barron's report a first-class certificate was awarded to the Grape, and constantly since that date it has been in the prize collections of Grapes at the leading shows in the kingdom. The Johnstons, McIndoes, Hunters, and Kirks are not the men to rely on faulty Grapes, and they have proved the Duke to be one of the six best in cultivation.—WM. THOMSON, *Tweed Vineyard, Clovenfords*.

[In order to close this discussion we have submitted a draught of the above to "J. S. W.," who replies as follows: "I am content to let this discussion stand as it is before the public—Mr. Thomson's version v. "Cambrian's," my own, and the reports of the papers to which I am referred in connection with Mr. Thomson's admission that his bunches at Manchester were shown "in a box," not on an open tray like the others. It is the way his bunches were shown that is the question, and I spoke of the exhibits I saw only. It did not occur to me to look for his exhibits except at the time he was bringing the Duke out and had a main interest in the stock, but I have looked up the October *Gardener* for 1879, and I do not find Mr. Thomson's name mentioned there as an exhibitor of any kind." We decline to publish another word of a personal character on this or any matter in which our respective correspondents write to us. The public are only interested in the facts as to the character of the Grape. Nor where discussion is unpleasant can we allow it to spread to other matters than the one in dispute.—ED.]

Strawberry Pelissier.—It would appear that this variety, of which mention has lately been made in *THE GARDEN*, is to a great extent a per-

petual bearer, fruiting again not only in the autumn, but also in summer, a fact which should render it popular. It is probable that this Strawberry has some of the Perpetual Pine nature in it, as this latter kind was also raised in France, from whence we may in the course of time obtain a large fruited, perpetual bearing variety. The French growers are more alive to the importance of maintaining a good supply of this delicious fruit through the summer and autumn months than we are, and they will probably succeed in obtaining a large fruiting kind having the same perpetual bearing nature as the little alpine. It is a pity that English raisers have not turned their attention to this matter. We have an abundance of good varieties, but not one of them can lay claim to the title of perpetual bearer.—J. C. B.

VINE BORDERS.

Soil.—In reply to "T. B." (p. 415), allow me to say that the Vine will grow in almost any soil pervious to water, but the compost which suits it best is a sound, rich, turfy loam from a well-drained old pasture. If this can be obtained, to two-thirds of loam add one-third of old lime rubble or charred garden refuse, and 12 per cent. of crushed bones; do not chop or break the soil very small, but turn all over together when dry, protect from rain and it will be ready for use at any time when the weather is fine.

Making the border.—If "T. B." has not already made his border I would advise him to make it piecemeal; 6 feet in width will be quite sufficient to start with, and the remainder of the area may be filled up as the roots extend outwards. As I have recently been charged with being too curt in my replies to correspondents, I will here explain the advantages which are gained by making a border piecemeal. The cost of making it in sections extends the expense over several years. A narrow border lies warmer and drier than a wide one, and consequently takes more stimulating liquid when the roots require feeding. A 6-foot border will grow good Grapes for several years, and fresh food can be given from time to time as the roots require it. The roots are obliged to run through and through and ramify in the narrow border, and it is a well-known fact that a border well filled with healthy roots is less likely to get sour and out of order than a wide one, through which a few roots would travel the first year, and then descend into the drainage. When the time arrives for making the border, strain a line along the centre of the area, and place 9 inches of broken brickbats or clean broken stone upon the section nearest the front of the house; cast a little rough rubble on the surface, and the foundation will be ready to receive the superstructure. Procure thin sods of turf, similar to those recommended for the staple of the border; place them grass side downwards all over the drainage. Use the same kind of turf for the front or retaining wall, raise it 9 inches or a foot in height, then wheel in a quantity of the compost; add more turf to the wall, and so on until the border is a few inches higher than the intended level. If the compost is in good condition the border may be made at once, or it may be deferred until spring, as planting need not necessarily follow close upon this operation; indeed it is well to get the compost in some time in advance, as it then has time to settle, and strangling the rods or getting the roots too deep is avoided.

Planting.—Young Vines may be planted at any time from February to September, but the best time for this operation, particularly where there is no internal border, is the spring, as the roots winter better in pots after this time than in the border. If this year's Vines are to be planted, say in March, select short-jointed, well-ripened canes, cut them back in December to lengths that will admit of their passing through the apertures in the front wall; place them in a cold house or against a west wall, and cover up the pots with tan or litter to protect them from frost, and to prevent the roots from getting too dry. When the buds begin to swell, select a dry day for

planting, turn off the surface of the border to the depth of 4 inches, turn out the Vines and shake all the soil away from the roots; then introduce the points of the rods, spread out the roots evenly and regularly all over the surface, and cover up with the compost previously removed. If the compost is very dry a little water may be given to settle it about the roots, and a good mulching will complete external operations. When the Vines begin to grow rub off all the buds but two, and allow them to run up the rafters.

Varieties.—As "T. B." does not say how his vinery is heated or name the time when he wishes to have his Grapes ripe, it is useless for a stranger who knows nothing of his requirements to attempt a leap in the dark; but if he will forward details further information can be given.

W. COLEMAN.

COVERING OUTSIDE VINE BORDERS.

THAT there is no rule without exception is forcibly illustrated in comparing the notes on this subject in *THE GARDEN* (p. 401) with my own experience. There it is stated "that root covering (manurial heating) forms a necessary part of the details of early forcing." With me such is not the fact; indeed, I have long since discarded the practice, and now look upon it as not only unnecessary, but positively injurious—a conclusion warranted by the increased vigour of the Vines and more highly finished fruit ever since the practice was abandoned. That for early forcing inside are preferable to outside borders, few, I think, would be inclined to dispute. I myself certainly think them the best, but it so happens that with one of our earliest houses there is no room for choice in the matter, as it is quite impracticable to have the border inside, and the Vine roots are therefore entirely outside. The Grapes are required to be, and always are, ripe at the beginning of May to succeed the Lady Downes preserved in the Grape room, and yet the only covering the border receives is an autumnal mulching of rotten manure, over which is placed—simply to keep the frost out—9 inches in thickness of ordinary stable litter, and this is all the attention the border receives, either as to removal of litter or watering, till after the fruit is ripe. Contrast this with all the labour connected with the preparation of manure and applying it—work said by "J. C. C." to be necessary, but after personal experience of both plans, I can assure him, that if he will be bold enough to make the experiment, he will discover how greatly he is in error.

The "equability of temperature of roots and tops" is doubtless a very desirable condition, but how to attain that state is a difficult problem to solve, and in attempting to do so by the cumbersome and expensive means of hotbeds, more Vines are ruined than from any other cause—I mean through the over-heating and consequent destruction of surface rootlets perhaps just at a time when the energies of the Vines are taxed to the full. A far better root-warmer—or rather a preserver of warmth still in the ground—is to cover up early Vine borders about the middle of October with a foot or 18 inches in thickness of leaves, Bracken, or straw. If all who are sceptical would but try this plan once, I have no fear of their reverting to the hotbed plan of warming Vine borders.

Anent the equability of temperature of root and branch, "J. C. C." seems himself to be somewhat under a cloud, as he writes, "I like Vines that are to be forced in November to have all the autumn rains and early frosts (equability this) that may occur up to the time when artificial heat is applied to the branches, and even then a sufficient covering of dry leaves a few inches thick and some wooden covers or corrugated iron to keep off the rain are all that is necessary the first month or until the Vines break." Such a covering I have repeatedly proved to be indeed all that is necessary, but that the internal temperature and that of the roots under such conditions can be anything approaching the same mean, I beg leave to doubt;

and the advocacy of such a procedure by one who, in the preceding paragraph, so strongly insists on the necessity of a fermenting bed to warm the border distinctly shows that he himself is, to say the least, in a state of uncertainty on the subject, and the sooner he resolves to get out of "Fog-land" in this matter, by entirely discarding the practice, the better it will be both for his Vines and those portions of his garden that may now lack manure.

W. W. H.

EARLY PLANTING.

I QUITE agree with what Mr. Crane says (p. 407) respecting this, as my experience in the matter exactly coincides with his. Some time ago I had occasion to move some Roses, and as I had at the moment no place in which to plant them, they were laid in by the heels, and now on taking them up I find they have made innumerable fibres. This is not a solitary instance, as I have seen the same thing happen again and again, and I always find that the earlier in autumn a deciduous tree or shrub is planted, the sooner and better it starts. If I could have my way, I should like all the work of planting I have to do with over by the middle of November. It is so this year, as we have been busy moving Peaches, Plums, and Pears, most of which have still some leaves on them, and they have been a great help in assisting them to form fresh roots. What I object to is to see or find the bark shrivelling, a thing to be guarded against, as when that becomes contracted the action of the sap vessels is in a great measure stopped, and it is a long time, if ever, before they assume their proper condition again. To prevent all risk of shrivelling, we always make a practice of having all ready for the reception of the trees before they are up, that is, we get the holes dug where they are to be planted, and fresh turfy loam chopped up, and near at hand, and ready for use. In this way the trees are not out of the ground many minutes before they are in again, and I have often moved them in full leaf without any flagging or showing the least signs of distress. When transplanting very early, and at all in fear of this, we always make a practice of giving a good watering before finally filling in the pits, and keeping the tree syringed daily for a week or so after. This maintains the foliage fresh, and the buds then go on swelling and plumping up just as well as if nothing had happened. Late planted deciduous things always start feebly, and no wonder, for the buds are called on to move before the plants have rooted sufficiently to feed them, and the result must be what we invariably see, weakly flowers and shoots. As to leaving till February what planting cannot be done in early autumn, I must differ from Mr. Crane, and say get it over, if possible, before the turn of the year, provided the weather is favourable.

S. D.

TEMPERATURE FOR VINES.

I OBSERVE that "J. S. W." seizes on a clerical error into which Mr. Fish fell while describing our large vineries here, and turns it to account against the temperatures recommended for Vines in my book on "The Vine." Mr. Fish wrote that there were three rows of pipes round each side of our large vineries. He should have written three double rows; there are in fact twelve rows in every house, four rows having been added within three years to all our large houses. The temperatures he gives are what are marked on the boards suspended in these large late vineries for the guidance of the men, and are not such as we keep our Muscat houses at; they are lean-tos and much more powerfully heated. The temperatures to which "J. S. W." alludes were given for Vines that were to produce ripe Grapes in March or April, as is clearly stated at p. 33 of the ninth edition of my book (in first edition I say April). To produce ripe Grapes in March is one thing, and quite a different thing to produce them in September. I gave temperatures necessary when Grapes had to be forced with all the speed they would admit of, as anyone must know

to be necessary for the production of such early Grapes. For vineries that were to come on during autumn I gave no directions as to temperature, deeming it to be unnecessary.

Tweed Vinery.

WM. THOMSON.

Orchard houses.—I have grown in pots under glass a collection of Pears, the fruits of which are admitted by all who have seen them to be excellent specimens of their respective kinds. They are large, clear skinned, and good in flavour. Some keep birds and wasps off their fruit by covering their trees with muslin, but that is a bad way, as the leaves get damaged and soon fall off. A better plan is to put the fruits into muslin bags, an operation harmless as regards the trees, and one by which the fruits are equally well protected.

—W. WEIR, *Foxholm Grove, Dorking.*

[Specimens of these fruits were sent to us, and fully bore out all that is here said in their favour; they were large, well-coloured, handsome in shape, and in every way unusually good dessert Pears.]

Mulberry trees.—"F. S.," Tunbridge Wells, should have no difficulty in getting a Mulberry tree to fruit freely as a standard. Autumn is the best time to plant, but Mulberries, like all other fruit trees, may be planted at any time when the ground is in good condition up to the end of February. If the ground is wet let it be well drained; take out the soil 2 feet deep and place three or four barrowloads of old lime rubble at the bottom of the pit, which may be 6 feet in diameter. Plant in good sound loam, but avoid the use of manure, as it is by no means improbable that grossness is the cause of the twelve-year-old tree not fruiting. Stake firmly to prevent wind waving, and mulch with short manure to protect the roots from drought. The length of time you will have to wait for fruit depends in some measure upon the quality of the tree at the time it is planted. An ordinary nursery tree will begin to bear in about four years, but a tree which outlives generations improves with age, and is never more fruitful than when gnarled and thickly studded with short spurs, which invariably ripen well.—W. C.

Figs.—In reply to "M." (p. 415) permit me to say that it matters little whether he rubs his half-swelled Figs off now or leaves them to fall in the spring, as, practically speaking, the trees in our climate have done with them for ever. When our winters are unusually mild, it is no uncommon thing to see well ripened shoots swelling off winter fruit the following summer, but nine times out of ten fructification is imperfect, and the Figs drop when they should commence the last swelling. In my own practice I always rub off all the fruit both indoors and on open walls after the leaves fall, and depend upon the embryo Figs barely perceptible at the base of every leaf near the extremities of the shoots. Upon well-managed trees these are always more than sufficient for the first crop under glass, and spring growths produce sufficient for the second. In this part of England trees on walls never produce more than one flush of fruit, and large healthy trees cast thousands of half-swelled fruit every winter because our seasons are too short and cold for them to ripen.—W. C.

Standard Gooseberries and Currants.

—One of the greatest difficulties which attend dwarf bush fruits is that of preserving them against the attacks of birds when ripe, and one cannot but feel surprised that the greater facilities which standard trees offer for so doing should not induce fruit growers to plant them more freely. Raised on stems some 3 feet high, the fruit is more easily gathered and the extirpation of insect pests facilitated. However carefully dwarf trees may be netted, it is almost a matter of impossibility to exclude the feathered tribe, the blackbird especially, who is sure sooner or later to discover a weak point in the defence. In the case of standards, if the net, when brought under the head of the tree, is gathered together and tied to the stem, the most artful and determined bird in existence will be baffled. I think, too, the fruit keeps better on standards. It will,

moreover, be evident that the standard form as applied to these fruits has other advantages than those above cited. Thus, for instance, where hardy flowers are grown for cut bloom there will be space and light for them between the trees. Christmas Roses, Violets, Primroses, bulbous-rooted plants, such as Daffodils, Hyacinths, &c., would find comfortable quarters there, many of them being more happy in the partial shade they would get thus situated than in the open. Herbs, too, of many kinds, especially Parsley, may be grown there, thus occupying the ground to the best advantage. It is obvious that this cannot be done where these fruits are grown in the ordinary manner. In Germany standard Gooseberries are much in favour, and some nurserymen supply them grafted, but whether on a nearly allied species, as is often done in America, or merely on a strong-growing variety I do not know, but in any case grafted plants would be preferable. At the same time it lies within the reach of everyone to easily form both standard Gooseberries and Currants.—J. C. B.

Figs.—In reply to "M.," allow me to say that Figs on trees now, unless the fruit is very small so as scarcely to be seen, are perfectly useless, as whether indoors or out they are sure to drop off, and it is only waste of time to rub them out, for they do no harm to the tree, the tendency of Figs being to grow too strong than otherwise, and the rubbing them out does not encourage others to form. If the plant is out doors against a wall, it will be advisable to draw the branches together a bit, and cover them thinly with straw or Bracken, either of which may easily be lashed over them by running string from staples or nails driven in the joints of the bricks. This covering will ward off severe frost, which in sharp winters kills young Fig wood and destroys all chance of a crop. If grown as standards or bushes the heads may be bundled together and protected in a similar way, and have a mat run round to hold the straw or Bracken together. The best way of growing Figs out-doors where the district is not favourable is to have the plants in large boxes or tubs, so that they can be taken in and kept in sheds or other similar buildings, and plunged or stood out again in the spring. By doing this they can be placed in hot, sunny spots, and good crops obtained where others fail in the open.—S. D.

Spring v. autumn planting.—Much has been written on the advantages of autumn planting of fruit trees, and doubtless that is the best time to plant the majority of deciduous trees, but a case of successful spring planting came under my notice this year which I think worth recording, as showing what may be done by careful planting and autumn root-pruning. A mixed Peach and Nectarine house was started in December; all went well until the middle of February, when it was found from some unaccountable cause that a Nectarine tree had died. The loss would have been serious had it been irreparable, but fortunately a number of trees had been root-pruned the previous autumn, and it was decided to plant one of these, a Nectarine tree, in the place of the dead one. On carefully lifting the root-pruned tree it was found at the extremities where the old roots had been cut that a number of rootlets were ready to start off into growth. The tree was planted in its fresh quarters and was kept by syringing as moist as could safely be done consistent with the setting of the other trees then in full bloom. The result was most satisfactory; scarcely a bud dropped, almost all the flowers set, and a good crop of highly coloured, fair sized, and finely flavoured fruit was ripened in July. The secret of the success was doubtless the autumn root-pruning. The tree was in capital condition for lifting, the young rootlets being just in a fit state to at once start off to supply food for the tree.—J. D.

Packing Vine cuttings.—"Vineyard" will find powdered clay the best medium for packing Vine cuttings for a twenty days' transit. Moderately damp Moss is also good during cold weather, or when the Vines sent do not pass through a very warm zone. Close packing, but not hermetically sealing, is essential.—SYLVESTRIS.

Peaches v. Pears on open walls.—Mr. Allan, who has substituted Pears and other hardy fruits for Peaches, will probably find many imitators. The labour which Peach trees in the open occasion is frequently out of proportion to the value of the crop, and is often the cause of other important work being neglected. It would not so much matter if success could in any way be guaranteed, but the best of skill and care cannot always successfully combat the enemies and adverse circumstances which assail the Peach. What can be more wearisome than the continual replacing of trees which either die off or become so shattered in health as to cease to be fruitful. Of the two, Pears are the most valuable, and the substitution of them for Peaches converts a precarious crop into what may be made an almost certain one. Peaches on walls and Pears in the open is one way of courting total failure, but Peaches under glass and Pears on walls will gladden the gardener's heart and content his employer. Mr. Allan says that "the new Peach house just mentioned will produce more fruit in one season than we were ever able to gather from the whole wall, leaving 192 feet of space for the growth of Pears of the finest quality." This needs no comment, but it would be instructive if he were to tell us what the difference in labour now is compared with that formerly. There would, I think, be a considerable balance in favour of the glass house.—J. C. B.

Grapes for a cool house.—"W. L." (p. 389) wants to know the best black Grape to grow along with Black Alicante, Gros Colmar, and Royal Vineyard. I would, without hesitation, recommend to him Lady Downes, which, all things considered, may be said to be among the best, if, indeed, not the very best, of late Grapes. As to his Royal Vineyard variety, the fruit of which he says never grows larger than Peas, the blooms evidently have not got fertilised. He will most likely find that the berries contain no seeds. It is just possible that the plant fails to produce pollen, or if it does it is in some way defective, and to remedy this the pollen of any other variety which may happen to be in flower at the same time should be applied to the bunches when the blooms are fairly expanded. This is easily done by means of a small brush, or by merely drawing the bunches of another variety gently through the dry hand, when it will generally be found to be covered with pollen, and then passing the bunches it is desired to fertilise in the same way through the pollen-covered hand. Should this be found to be ineffective, the variety in question will form a good stock for any other sort. It might be grafted with Buckland Sweetwater, Pearson's Queen, Mrs. Pearson, Muscat of Alexandria, or, indeed, any desired variety of any colour.—P. G.

—I would recommend "W. L." to introduce Alnwick Seedling, a black Grape that would succeed well along with Alicante and Gros Colmar. He would find it to be a very late keeping variety, and in every way excellent. In a house planted four years ago, all with Alnwick Seedling, I have this year a very fine crop; nothing could be more satisfactory. It may be well to add that no artificial means was used to fertilise the bloom. The bunches are nevertheless even and compact, the berries large and regular in size, and not a small stoneless one is to be found in the whole house. No Grape can be better coloured, and its flavour is good if not used before January and following months. Before that time most Grape eaters would condemn it, but it only requires length of time to bring it to perfection. "W. L." does not seem to succeed well with Royal Vineyard. Perhaps his failure arises through want of a free circulation of air and deficient fire heat when the Vine is in bloom. He would possibly succeed better if he maintained a temperature of 70° to 75° or even 80° when in bloom, fertilising with pollen taken from Alicante, and using a brush made of swan's down. At the same time I fear that "W. L." will not find Royal Vineyard a Grape to succeed in a late house planted with Alicante and Gros Colmar. Royal Vineyard I have grown for years, and my experience tells me that it requires length of season in order to develop its

full flavour. As a white Grape I would recommend "W. L." to introduce Golden Queen or Trebbiano, two valuable varieties for late houses; he would find them to do well by the side of those already planted, namely, Alicante and Gros Colmar. If I intended to plant one Vine only I should plant Golden Queen, which with me this year is all that could be desired. The berries look like lumps of gold, and I feel sure that when the time comes for them to be placed on the dessert table they will be appreciated.—H. A. M., *St. Vincent's*.

The common green Holly.—If a tenth part of the care so often lavished upon exotic evergreens were bestowed on the Holly, our gardens would gain thereby. This year the bushes and trees in hedgerows are laden with berries to an almost phenomenal extent; even trees standing in shady woods are bearing full crops of fruit, but wherever they stand in the open the berries are so numerous as to render them quite brilliant objects. Nothing in the winter season can compare with a Holly tree full of berry, and even when adverse seasons rob it of that charm, its glossy, deep green foliage always commands admiration. It is not in all places that the variegated kinds grow with freedom, but the old, green English Holly is at home everywhere. It is doubtful if we make so much of our native evergreens as we should do, and we certainly do not as a rule accord the Holly the position which it merits.—J. C. B.

Veneers for decorative purposes.—There is just now a good deal of activity in the application of wood to decorative purposes, especially in the form of veneers. We have had sent for our inspection, says *The Timber Trade's Journal*, some very fine specimens of inlaid veneers of exceeding thinness and of very elegant design, suitable for book covers. These veneers are made in the same manner as the mosaic bandings, well known in the cabinet and pianoforte trades, but are backed with paper. Larger designs are also made in long strips for the decoration of furniture and the interior of houses, as they can be used to cover deal doors, panelling, &c., or can be put on a papered wall, and suitable patterns are made for skirtings, ceilings, &c. Glue, or glue mixed with paste, is best for fixing these veneers, and, as they will bear polish or varnish, the effect of solid panelling is thus obtained.

Special prizes.—We omitted to mention in our report of the last meeting at South Kensington that prizes for collections of vegetables, amounting to £25 11s. 6d., were offered by Messrs. Sutton & Sons, the well-known seedsmen at Reading. A bronze medal was also awarded to Messrs. Sutton for their extensive collection of Potatoes and other vegetables.

"The Garden" (*M. M.*)—The price of the vols. of this paper from iv. to xxii. inclusive is £15 18s.

Rats and bulbs.—Is there any dressing that will prevent rats from eating bulbs? Will some of your readers kindly answer this question, as I am fond of my spring garden, and these depredators sadly mar its beauty? B. C. W.

The late Mr. Meehan.—"H. E.," in his obituary of the late Mr. Edward Meehan, omitted to mention that he is succeeded by his son, Mr. Charles Meehan, as gardener at St. Clare. The latter is a devoted horticulturist and has many of those genial qualities so happily possessed by his late much lamented father.—F. E. Goudge, *Clapton*.

Names of plants.—*C. Dimmick & Sons*.—Shrub is *Pittosporum Tobira*; Orchid is *Epidendrum glumaceum*.—*J. Couzens*.—4, *Abies orientalis*; 6, *Taxus adpressa*; 8 and 9, *Abies excelsa* varieties. —*W. B.* *Lelia autumnalis*. —*M. A. N.*—1, *Davallia dissecta*; 2, *Asplenium Ruta-muraria*; 3, *Ceterach aureum*.

COMMUNICATIONS RECEIVED.

M. F.—A. M.—J. C. T.—D. T. F.—W. W.—J. S. & Sons. —S. D. S.—R. P. W.—J. S. W.—W. T.—J. C.—J. H.—A. D.—J. O. B.—W. T.—J. C.—D. T. F.—M. D.—C. R.—C. de B.—J. B.—J. K.—M. or N.—W. T.—A. H.—W. G.—G. H.—J. S.—F. E. G.—A. S. H.—E. H.—W. H. F.—C. B.—J. E. H.—F. W. B.—J. S. & Sons.—J. N.

"This is an Art

Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

THE PAST, PRESENT, AND FUTURE OF FLOWER GARDENS.

THE fashion which established half-hardy decorative plants in our gardens, and banished at the same time the old occupants of our beds and borders which failed to conform to the requirements of the floral standard of excellence the bedding-out system demanded, like all pronounced fashions, whether in gardening or in other affairs of life, having had its period of favour, seems to be destined at no distant time to give place to other systems of plant arrangement of a less restricted character, and affording in the plants employed a wider range of interest. As a means of exhibiting many beautiful examples of the results of floricultural skill, and of giving brightness and colour to the formal beds that so often are arranged more or less obtrusively in immediate proximity to our great houses, something may be said in favour of this fashion of bedding out, as it is called, but I am sure that I give expression to the feelings of many persons interested in gardens when I say that the sameness presented year after year, the short period during which the full beauty of the plants is seen, the susceptibility of the flowers to injury from weather, and the necessity of maintaining hot-houses to preserve them, make the system very undesirable even in many cases where flowers are really loved and greatly desired. With this general indifference to the floricultural display in our flower gardens in summer, it cannot be said that the love of flowers has decreased in the people at large; on the contrary, it is manifested in an increased demand for plants of all descriptions; their employment in the embellishment of our rooms has become more general; and for personal adornment, for all the ceremonial observances of life, and as tributes of affection to the departed, flowers are more constantly and abundantly demanded than they have ever been before.

Perhaps carpet bedding may be regarded as the more artistic and refined development of summer planting, and it suits in its precision and finish with the style of our stately mansions and architectural gardens, the formal beds of which demand such a system of embellishment. It has found favour with the general public, and may do so until it palls by repetition, and perhaps as long as the flower beds which the Dutch and Nesfieldian schools of landscape gardening have bequeathed to us are permitted to remain; but in gardens less trammelled by legacies of a cumbrous and formal fashion murmurs are beginning to be heard of an uniformity in the annual parade of plants that is tiresome by repetition, of the lack of interest to a true lover of plants, and the complaint is not unfrequent of the time and trouble involved in carrying out the fanciful and elaborate designs which it is the custom to work out with the obedient little plants that are so generally employed. The existence of this feeling of dissatisfaction is ominous, and, carrying with it two important arguments, taste and convenience, is significant of an approaching change, or at least a modification of the prevailing fashion. The decorative gardening of the future will doubtless represent the more catholic and cultivated taste of the time, and will eschew mere garish effect and seek from the ample stores of plants with which our country is enriched materials to make a garden at once replete with interest, beauty, and instruction, while brilliance of colour, which marks many of the objects and illustrates the floricultural skill of the period, may be well retained. The beauty of form with which many plants are richly endowed will be cherished, and the botanist will find in an extended variety of representative plants

an interest which he has often failed to find in modern gardens filled with mere floricultural fancies.

W. INGRAM.

DAPHNE INDICA PLANTED OUT.

In his article on floral decoration (p. 472) Mr. J. Hudson regrets that the Indian *Daphnes* are not more available for cutting, and suggests that they would probably do better planted out than under the usual pot culture. In this supposition he is perfectly right, and certainly no one who has tried the planting out will ever go back to potting. A few years ago I saw *D. indica rubra* planted out against a wall in a conservatory, and was surprised by its appearance of health and vigour, and at once took the hint by planting out both the red and white against the wall of a warm greenhouse. They were the usual miserable objects trained to wire balloons, with much naked stem, a scanty furnishing of yellowish leaves, and very few flowers. Now, after four years, *rubra* clothes the wall with a dense mass of deep green foliage 5 feet 6 inches high and as much wide, standing forward from the wall a foot thick, and bearing as nearly as one can count correctly between 270 and 300 heads of bloom and buds. This one plant supplies as much as we want for cutting through the winter. It is more satisfactory to cut from than the white variety, which seems to have a different manner of growth, making only one strong terminal head of bloom on its fewer branches; whereas *rubra* is much more branching, throwing out from the base of the last growth four or five blooming shoots, all of which may be cut without impeding growth.

G. J.

COLOUR IN THE FLOWER GARDEN.

WHILST "G. J." and "S." are meandering amongst the finer niceties of this subject, will it not be well to "hark back" a little to such plain practical canons of colour arrangement as may be easily committed to memory and afterwards utilised by a class of gardener who cannot go the length of "G. J." in extensive borders, so well depicted in THE GARDEN (p. 470)—I mean the "small amateur," that large-hearted lover of flowers, who, through lack of space or funds, or both, cannot map out his little plot into artistic arrangements of spring, summer, and autumn bloom? Now, as the laws of colour are applicable to the smallest space as well as to the most extensive and expensive efforts of our landscape gardeners, let us ascertain what may be done with the humblest materials in the most limited space to produce effects in colour quite as pleasing as the more ambitious intricacies of scientific culture. What we want to know is, given a trowel in one hand and a plant in the other, where to fix the latter so that its juxtaposition in colour shall produce an harmonious and agreeable sensation to the eye instead of a jarring discord; for, be it remembered, the eye is almost as sensitive to pleasing or painful impressions as the ear is. A perfect arrangement must consist of (1) the three primary colours—red, yellow, blue—or (2) three secondary colours—orange, green, purple—or (3) tertiary colours—olive, gray, brown—the two latter groups being mixtures of the three primary colours in various quantities and combinations thus: Red and yellow, orange; red and blue, purple; yellow and blue, green—these secondaries in their turn producing tertiaries. Now if it be distinctly kept in mind that all hues and colours in Nature, black and white included, are composed of red, yellow, blue, in varied proportions, and that these three colours must be present in every colour arrangement, whether in pictures, dress, bouquets, gardens, or in open Nature, our gardener's difficulty as to tasteful, correct display of colour is at an end. I will leave cultural questions—aspect, exposure, soil, &c.—on one side, as not affecting the

Question of colour, but let the amateur have his red, yellow, and blue flowers planted next each other; his purple Pansies, for instance, with their green foliage alongside his golden ones. Correct combinations are endless; so also are vil-

lainous contrasts, which latter could be prevented by the application of a little knowledge, and a "little learning" in gardening matters anyhow is not always a dangerous thing. Any two of the primary colours, without their complementary colour (the colour which completes the trio) are decidedly objectionable anywhere and in anything. Yet we are not bound by any hard and fast line to trios of colour in planting. Bearing in mind, for example, that red and blue form purple, we should be correct in placing purple alongside yellow, green alongside red, and orange or golden alongside blue. The variations are thus easily seen to be capable of multiplication *ad infinitum*. In the more advanced stages of artistic grouping nothing more beautiful can be produced, but the same system may be elaborated and carried out on a larger scale—colours blending at a distance into the secondary and tertiary groups which would be in-harmonious contrasts if brought comparatively close to the eye in a small garden. Where a large garden has to be dealt with, the tertiary group may be used very effectively by the aid of ever-greens and persistent dying or dead leaves. Nature does all this work for us in her glorious autumnal tints of purple, green, gold, russet, olive, and grey if we leave her alone, but in our poor efforts to copy her in our smaller gardens, it is well to do so in accordance with recognised laws, and arrange our colours according to her key. It must never be forgotten that the colours of the soil and foliage frequently tone down apparent harshness, and that white flowers accord with any colour; in fact, they are often totally forgotten when this subject is debated. White flowers are all too sparingly used in producing beautiful effects; white intensifies any colour, and even in simple bouquet arrangements gives a brilliancy and light which is surprising. These seemingly complex questions may be summarised and condensed into practical form by a little experiment. Let us take a piece of each

Bright primary colour (also, if you like, of each secondary) and a strip of white. By transposing these, ringing the changes, so to speak, we shall find the removal and replacement of the completing third, impart a *je ne sais quoi*, which renders the whole agreeable or distinctly disagreeable to the eye. Every one not positively colour-blind is susceptible to this, many possibly and probably without knowing it. How frequently, for example, we hear the expression, "There's something about it I don't like!" As an illustration of this I saw a lady yesterday wearing a spray of scarlet *Pelargonium* along with a sulphur-coloured *Chrysanthemum*, but, alas! minus the bit of blue ribbon (I do not mean the badge of the Blue Ribbon Army) which would have rendered the whole charming. As we become familiar with the primaries the remaining combinations will come "on the carpet" of themselves when required, and tasteful arrangement becomes the order of the day. So in our garden, however small or large, let our plants be the commonest or the choicest, the red Daisy, the yellow Marigold, and the blue Forget-me-not, or, on the other hand, *Sophronitis grandiflora*, *Oncidium Rogersi*, and blue *Vanda* amongst Orchids, the one rule applies—correct contrasts and combinations must please the eye and their omission offend.

R. A. H. G.

Horsforth, near Leeds.

BOTANIC GARDEN, GENEVA.

ALLOW me to say a few words in reply to "W. I." (p. 350). In all that concerned Geneva, and particularly our Botanic Garden, I agree with him, i.e., as regards the principal points, and, like him, regret that during the past thirty years our garden has been so much neglected; in fact, for some time this garden, which was founded by our illustrious De Candolle, was annexed to the parks and gardens of the town, and botany had been made to give way to horticulture; nevertheless, a reaction has taken place during the past year, and the administrative council of the commune of Geneva is seriously engaged with this subject. The present position is not quite so bad as "W. I." seems

to think, and I was astonished to see that he believes the fogs and smoke of the town to be injurious to our garden. Geneva is not like London, where much coal is burnt and the air is full of smoke; here wood and coke are more used, and therefore cultivation can be carried on even in the very heart of the town without inconvenience. The fogs from the lake, too, are absolutely harmless; indeed, I may say advantageous; it is from the borders of the lake that the best vintage of the country is obtained. I know too well that each day our Botanic Garden is becoming too small in consequence of the encroachments made by numerous fashionable buildings and public promenades, and that it requires to be transported elsewhere and enlarged. I should like to see trees in the form of an arboretum, a garden of perennials, and plants requiring glass having all the accommodation necessary; but for all this money is needed, and unfortunately our administration has but little to spare. "W.I." objects to the exactitude and symmetry of our rockwork. It is true that in a garden more naturally laid out it would produce an effect anything but pleasing, but in our geometrical garden, where the divisions are square and rectilinear, where the aim is specially scientific, it would be absurd to have picturesque rockwork, especially in so small a space. It is necessary that all should be in unison, otherwise the effect would be anything but good.

H. CORREYON.

UGLINESS IN BOTANIC GARDENS.

In the interest of truth, beauty, and science, I said a few words as to the need of doing something to change for the better the character of our botanic gardens. Your correspondents who have touched on the question appear to dislike its being opened, though in their hearts they agree with me. As they seem gentlemen of ready thought and pen, I should be glad of their views on a few questions. No word said by any of them, from M. Leichtlin to "F. W. B.," justifies the present state of things. My position was and is that botanical gardens need be none the less botanical, none the less useful, none the less scientific in the true sense if designed and kept with more regard to the laws of beauty. I ask—

1. Is Glasnevin, by general consent the most beautiful of our botanic gardens, less favourable to the study of botany than one of the many botanic gardens in Europe, which have no peace of lawn or grace of view? Are the trees by the pretty up-and-down banks of the Tolka more difficult for the botanical student than those jammed into beds in many gardens on the Continent, and even in this country?

2. Is the best collection of Filmy Ferns in England useless to the botanist, because it happens also to be the best grown and the most artistically disposed?

3. Lately a very good and artistic fernery has been formed in the Botanic Gardens at Manchester. It is such a fernery as hitherto we could only find in the case of a very few rich and devoted amateurs. Is this a step in the wrong direction?

4. Given two botanic gardens similar in size and in the number of trees, shrubs, and flowers, which is the best course, putting likes together, for the sake of making an open-air book, or putting the trees and flowers where they will look best, thrive best, and group best?

5. How is it accounted for that the most beautiful alpine gardens in England are also the most rich in species? Is not the garden the most rich in species, the most precious to the botanist? Have we not in this proof that botany and true art in the garden may go hand in hand?

6. There is a beautiful little alpine garden in one of the public gardens of Vienna in which there is something to be learnt about the habits and charms of these plants. Is it more injurious to botany than the crusty banks one so often sees in others?

I am keeping to-day to illustrations from botanic gardens themselves, though comparisons might be carried outside of them with advantage.

If these questions are answered with the rigorous method by which the poor plants are often set out, I may again revert to the subject; otherwise not. Happily, there is more grateful work than trying to reform the gardens of societies and public bodies. And if they are answered, the writers, whom I fully respect, may proceed further perhaps, and prove to us that Beeches are easier studied clipped into a wall at Schönbrunn than in the bold and natural groves of Laxenberg; that trees are better observed in 4-foot beds at the Garden of Plants (where they can by no means represent themselves, let alone the vegetable kingdom) than in the stately groves of the Petit Trianon, where the look of a tree is sometimes enough to make a man love trees all his life; and finally, with "F. W. B.," that it is quite right that the place we put out our pretty mountain and wood plants to grow in should resemble a dog's graveyard, with fitting monument.

TRAVELLER.

ROSE GARDEN.

ROSE GROWING AT SUTTON.

THE Sutton Amateur Rose Society has just published a useful little pamphlet on Rose growing in that district, from which the following are extracts:—

Soils.—Whilst it must be admitted that some Roses can be grown and will bloom in almost any soil, it must be borne in mind that in poor soils the plants will degenerate year by year, they will die early, and will require constant renewal; whereas in suitable soils, with ordinary care, they will annually gain strength, with a corresponding increase in the number and perfection of the blooms. The soils about Sutton are for the most part (1) heavy, retentive clay, (2) a thin stratum of light, sandy soil with a substratum of chalk, and (3) a stratum of sand. None of these are suitable. Let us consider how to make them so. With respect to heavy, retentive clay, the first thing is to get rid of its surplus moisture—that is, to drain it. When water stagnates around the roots of a plant they cannot receive air or warmth. The top spit should be removed, and the clay under the same carted away to the depth of about 3 feet from the original surface, the bottom of the bed being gently sloped towards the drain, which should be formed of plain red agricultural pipes; the drain being also sloped towards an outfall, with which it should be connected. Rough material, such as broken bricks, bushes, burnt earth, &c., should be laid over the sloping surface, and the top spit returned, mixing with it any light material, such as Burgh Heath loam, sand, charred garden refuse, lime, and burned clay, to render it friable, to which a liberal supply of rotten stable or farmyard manure must be added, in the proportion of half a barrowload of manure to two barrowloads of earth. The ground will now be ready for planting. Where the clay is of a lighter character, the drains should be cut with a good fall and 4 feet deep. Next, the ground must be thoroughly trenched, at the same time mixing with it any light material as before. For those who postpone their planting till the spring, another, and perhaps equally efficient way of rendering such clay friable, is to trench deeply, leaving the surface as rough as possible, so that the air during the winter months may well penetrate and pulverise it, in which case the sand and burnt clay need not be added. Now, what is to be done with thin, light soil, on the chalk? The best thing, undoubtedly, is to get rid of it, excavating the chalk till a total depth of from 2½ feet to 3 feet is reached. Cover the bottom of this space to the depth of an inch or two with clay; this can be as heavy as you please—the more retentive the better for the purpose—which in this case is to retain moisture, as the chalk acts as too great a filter; then fill up with a mixture of rotten horse manure and good turfy loam, such as may be often obtained at an inexpensive rate where foundations are being dug or new roads made. If it should be wished to use the top spit of light

soil, which in some cases is worth retaining, it can be worked up with the loam and manure above the clay foundation; it may also be used alone on the surface of the bed or border, to the depth of 2 inches or 3 inches, without detriment. As it is sometimes difficult to procure loam, good fibrous clay may be substituted, and should be well mixed with the original soil in about equal proportions; of course, the manure must be added as in the above instance, and it will still be advisable to retain the clay bottom. The same treatment is necessary with a gravelly or sandy soil.

Planting and mulching.—November is the best month, but it may be done any time between November and March, when the ground is in good order and the weather sufficiently open. In planting dwarf budded plants, place the points of junction beneath the soil, as the Rose will then make roots and the plants have a double chance. A few crushed bones placed near the roots are beneficial. Plant firmly, and stake at once as a protection against high winds. Tea Roses require some protection during severe frost, such as a wisp of straw fastened to a stake or Bracken Fern. Both standard and dwarf trees are often planted too deep in the soil; this is a great error, and should be carefully avoided. Roses are strong feeders, and will take almost any amount of manure; and it is advisable to keep a good top-dressing on the bed or border all the year round, renewing the same in spring and autumn, when the old top-dressing should be lightly forked in. If the mulching is properly done, little or no watering will be required, as the ground will always be kept moist, except in a very dry summer, when a thorough watering once or twice a week will be of advantage.

Pruning and disbudding.—Pruning may be done any time after the beginning of March, according to the season. Cut out all wood over two years old and weakly shoots. Weak-growing kinds should be pruned hard—*i.e.*, down to three or four eyes; stronger-growing sorts may be left longer. Cut to an eye that points outward, so as to keep the middle open. Teas and Noisettes require less cutting back, but the idea is fast gaining ground that they should be treated nearly the same in this respect as Hybrid Perpetuals. We cannot impress too strongly the importance of cutting back pretty hard, as the success of the whole season depends in a great measure upon this operation being properly performed. In autumn long shoots should be cut back by a fourth of their length to prevent their being damaged by wind and snow. This will not interfere with spring pruning, which must take place just as if they had not been shortened. To obtain a Rose in its best form and beauty it is absolutely necessary to disbud. The meaning of this term is, that when three or four buds appear together at the end of the same shoot all should be taken off but the middle one. This should be done whilst the buds are quite small, and the best implement is something in the shape of a quill tooth-pick. By this means the whole strength of the shoot is centred in the one bloom left.

Insect pests.—What is called the grub commences its depredations as soon as the plants begin to shoot. Its presence is generally indicated in the very young growth by the appearance of a few minute black specks, and in the open leaf by a curling up, with a cobweb-like appearance on the under side. These pests must be diligently sought for daily and killed; this may be best done by squeezing the leaf. For aphides there are many so-called cures; but when they once establish themselves in a tree, they are extremely difficult to eradicate, as they multiply so fast. The best plan is to examine daily, and to take them off with the fingers or aphid brush as soon as they appear. Or if this is considered too great an undertaking, any of the following remedies may be applied, by means of a spray distributor or syringe, or by dipping the branches in the mixture, *viz.*, Fir-tree oil insecticide, Tobacco and Quassia chip water, soft soap, the City Soap Works Aphid Wash. The saw-fly grub appears in July, and should be

sought for and killed, as in the case of "the grub" which appears earlier in the year. It generally eats into the heart of the flower-buds, and will destroy the bloom unless discovered in time.

Liquid manure.—If our recommendations as to mulching have been attended to, very little of this will be required, as the rain passing through the mulching serves the same purpose. Where mulching is not resorted to liquid manure should be applied twice a week, commencing about the time when the buds begin to swell and continuing until the end of the flowering season. If artificial manures are used they should be well diluted, as Roses do better with frequent weak applications than a few strong doses applied at longer intervals.

The pamphlet also contains instructions on exhibiting and a year's work in a Rose garden, copied from "A Book about Roses," by permission of the author, the Rev. Canon Hole.

ORCHIDS.

ORCHIDS IN AMERICA.

DURING a recent visit to the United States I had an opportunity of seeing for myself the rapid strides that are being made in plant culture, and more particularly as regards the cultivation of Orchids. I had long heard of the vast collections that were to be found in some of the best gardens, and certainly it must be admitted that our American friends are not far, if at all, behind us as regards Orchid culture, and not at all as regards the richness of some of the collections and the rarity of the species which they contain.

The climate, at least that in New York State, appears to be exceptionally favourable for the growth of some classes of Orchids, and particularly tropical species; on the other hand, the climatic conditions are not so favourable for those that come under the head of cool Orchids, owing to the excessive heat and aridity of the atmosphere in summer, and it evidently taxes the skill of the cultivator to manage *Odontoglossums*, *Masdevallias*, &c., from the cool, moist regions of South America. *Cattleyas*, *Lælias*, *Dendrobiums*, *Phalænopsids*, *Aerides*, *Saccolabiums*, and similar genera thrive uncommonly well in the abundance of solar heat and clear, cloudless atmosphere which characterise the American summer just at the period when the plants most require it. The following three places are typical of some of the finest Orchid-growing establishments in the States:—

Kenwood, or, as it is called in the vernacular, Tawassagunsee, is the summer residence of the Hon. Erastus Corning. It is about 150 miles from New York City, and a few miles from Albany. The grounds are very picturesque, and lie in a dell admirably planted with trees, native and exotic, that are hardy enough to withstand the severe winters often experienced there. Among deciduous trees I noticed here the finest Tulip tree (*Liriodendron Tulipifera*) I ever saw. The Oaks and Maples, too, are important elements of the deciduous tree growth. Among evergreens *Abies excelsa* (the Norway Spruce—an exotic here) and *A. Menziesii* were predominant. I also observed large masses of *Rhododendrons* growing on slopes and on the lawn. As regards

The houses, the first I entered was a capacious span-roofed structure devoted to *Phalænopsids*, than which I have never before seen finer plants in any private collection, not only as regards size, but rarity and the numbers grown of each. As an instance of this may be mentioned *Phalænopsis Schilleriana*, with leaves from 12 inches to 15 inches long, and from 4 inches to 5 inches wide, and several of the plants, too, carried over 100 flowers on each. *P. grandiflora* and *amabilis* also have leaves 8 inches, 10 inches, and 12 inches long. Of the rarer kinds there were many grand examples of such as *Coringiana*, *Marie*, *casta*, *leucorrhoda*, *violacea*, *intermedia*, *Portei*, *sumatrana*, *Veitchiana*, *Stuartiana nobilis*. The charming little *Lowi* was beautifully in flower, also *P. rosea*, of which there was quite a

bank of plants, scarcely two alike. *Angræcums* included *citratum*, of which there were some dozen fine plants, many of them showing flower-spikes, *A. Ellisi*, *bilobum*, *Chailluanum*, *Kotschyi*, and all the older kinds. Leading from the *Phalænopsis* house is the *Cattleya* and *Lælia* house, another large span-roofed structure, where one may see some of the *crème de la crème* of these genera, such as the true autumn-flowering *C. labiata* in flower, *Dowiana*, *Walkeriana*, *exoniensis*, *Dominii alba*, *Mendelli*, *Wagneri*, *McMorlandi*, and *Skinneri alba*, *Trianae alba* and *Trianae Dodgsoni*, *Eldorado virginialis* (*Wallisi*), an immense mass on an old tree stump, 6 feet or 7 feet in circumference, had last season the enormous number of 170 flowers open at one time, a sight alone worth going across the Atlantic to see. *Lælia anceps* is represented in grand masses, also the varieties *alba* and *Dawsoni*, also some very fine plants of *Lælia Turneri*, *Wolstenholmiæ*, *Warneri*, *Jonghi*, *Pitcheri alba*, *purpurata*, and *Schilleriana*. In the same house the grandest mass of *Oncidium Lanceanum* I ever saw was in flower, and of a very superior variety. The flowers were a little over 3 inches across, bright crimson blotches on petals, with violet and dark crimson lip, growing most freely on an old stump, the foliage and roots all that a lover of Orchids could desire. In the

Vanda house some grand examples of *Vanda tricolor*, *V. suavis* (*Veitch's var.*), *Lowi*, *Batemani*, *Coringiana*, *coerulea*, and *coerulea Greyana*, flowers of the latter over 3½ inches across, splendid varieties; several *Angræcum sesquipedale*, one fine specimen with three leads, two leads with eighteen leaves each, one with seventeen leaves, a perfect plant in every sense. Of *Dendrobiums*, some good plants of *Wardianum*, *Falconeri giganteum*, *Findleyanum*, *macrophyllum*, *giganteum*, *Schröderi*, *McCarthyi*, *suavissimum*, *thyrsiflorum*, *lituiflorum*, *densiflorum*, and *primitivum* *giganteum*. *Lycaste Skinneri* and *Skinneri alba*, some fine plants; *Cypripediums*, large plants of all the leading kinds. The collection throughout bears the impress of Mr. Grey's cultural ability, notwithstanding the adverse conditions with which he has to contend.

Mrs. Morgan's garden, in New York City, also contains a marvellously rich collection of exotic plants, particularly of Orchids, which include the cream of the family, all grown remarkably well by Mr. Clements. The following are a few of the more prominent kinds: Among *Vandas* there are large plants of *Vanda tricolor* in many varieties and *V. suavis* (*Veitch*), all very fine, plants, well feathered to the pots; *V. Batemani*, *V. Parishii*, *V. insignis* (true), with four fine stems 3 feet and 3 feet 6 inches high. A magnificent specimen of *Phalænopsis Schilleriana* is grown here admirably, and some plants have leaves 15 inches long; *grandiflora* and *amabilis*, excellent examples; *P. casta*, with leaves 10 inches to 11 inches; *P. Lowi*, in flower. In another house some grand plants of *Angræcum*, notably a unique specimen of *A. sesquipedale*, with three heads, one with twenty-four leaves, one with twenty, and eighteen, a perfectly robust plant, and said to be a grand variety. *Aerides* include such fine species as *Lar-pentei*, *suavissimum*, *affine*, *Fieldingi*, and *Warneri*, fine plants of *Saccolabium Holfordi*, *guttatum*, *Blumei majus*. In a cooler house were two very fine plants of *Vanda coerulea* in baskets, with forty-two and thirty-seven leaves and four flower-spikes. In the *Cattleya* house some excellent examples of *Cattleya Dowiana*, *C. exoniensis*, *C. Russellii*, and *C. gigas*, with thirty-seven fine bulbs, and a very fine white variety in flower named *Pendelli*. The collection of *Cypripediums* is exceptionally good of all the leading varieties; several good plants of *Cypripedium Spicerianum* coming into flower; the little gem *Cypripedium Fairrieanum*, with seven good growths; *Laurencianum*, *Sedeni*, *Stonei*, *eurandum*, *Lowi*, *Dayanum*, *Veitchianum*, *Schlimi*, and *Schlimi album*.

Mr. Hunnewell's garden at Wellesley, near Boston, is part of a noble estate of 700 acres, 70 acres of which are well planted, giving it a park-like appearance. The approach to the flower garden and plant houses is between grand hedges

of *Arbor-vitæ* and rows of gold and silver *Hollies*. A large space is set apart for all the leading kinds of *Rhododendrons* consisting of very fine plants, which, during their flowering season, are covered with an immense marquee, and as an instance of the difficulty our *confrères* have to contend with in the United States, every plant must be lifted in late autumn and protected through the winter months in a capacious house built expressly for the purpose. In the

Orchid houses I noticed some fine plants of *Phalænopsis grandiflora* and *amabilis*, the true *Cattleya labiata*, *C. Mossiæ*, and *C. Trianae*, *Dendrobium Griffithi*, *Calanthe Veitchi rubra* and *luteo-oculata*, large pots full of finely developed bulbs and showing well for flower; also very fine plants of that good old winter flowering Orchid, *Zygopetalum Mackayi majus*, and *Lælia superbiens* with four strong flower-spikes. The collection of *Cypripediums* is remarkably fine. *C. Lawrenceanum*, *C. Sedeni*, and *Veitchi* are represented by fine examples; and there is a magnificent plant of *C. Dayanum* with over 200 leaves, each from 10 inches to 11 inches long.

In the stoves there is a fine collection of all the best *Crotons*, fine specimens in their richest coloured foliage. The *Dracænas*, too, are fine in the extreme, and many of the best varieties are seedlings raised by the gardener there, Mr. Harris. Among the few we noticed the most remarkable were Mrs. Hunnewell, in the way of *Cooperi*, but far superior both in size and brilliancy of colour; *D. Harrisoni*, in the way of *terminalis alba*, but much better as regards the variegation and vigour of the plant. *D. Bella* and *Wellesleyensis* are likewise fine sorts, two noble varieties.

In an intermediate house the roof was well covered with *Bougainvillea spectabilis*, which every spring is a mass of bloom; also *Bignonia venusta*, with the lateral branches covered with flower buds, and a grand old specimen of *Bonapartea juncea* in flower, the stem 12 feet to 13 feet high. There is a handsome conservatory adjoining the mansion filled with fine examples of Tree Ferns, Palms, *Dracænas*, *Rhopalas*, and flowering plants, amongst which was a specimen of *Amaryllis reticulata*, with six spikes and thirty flowers. There is also here an Italian garden consisting of over 2 acres arranged in four terraces, rising from 3 feet to 5 feet high and 16 feet to 18 feet across, well turfed and planted with coniferous trees shaped into various forms by cutting. In front of the terraces is a large natural lake of 140 acres, well backed by fine rising woodland scenery consisting of Oaks, Maples, Hickories, and Sumachs in their richest hues of yellow and crimson, in the centre of which stands in bold relief a large college, a magnificent building. The whole viewed from the top of the terrace produces a grand effect.

E. SHUTTLEWORTH.

ORCHIDS IN POTS V. BASKETS.

I BELIEVE if cultivators, especially amateurs and those who do much of their own gardening, had their choice in the matter, the majority would prefer to grow their Orchids in pots generally rather than in baskets or on blocks, because they are so much easier managed in that way, and there are very few specimens indeed that do not succeed as well in pots as in baskets. Where the culture of Orchids is a hobby and no expense is spared, it is not of so much consequence which plan is followed; but where they have to take their chance with other things and the baskets have perhaps to be suspended in stoves above other plants, they cause no little trouble and injury. Specimens like the *Phalænopsis*, that throw their flowers out in a spray from the plant, certainly look best suspended on blocks, and, probably flower better also, but even they will grow well enough in pots if potted in the right way. It is not the case, according to collectors, that epiphytal Orchids are invariably found growing on trees far from the ground; they are also found on fallen timber, rocks, and in various situations suitable to their habits. It seems to be generally concluded that, because Orchids of this kind send out what

are called "air roots," i.e., roots that hang in the air and derive nourishment therefrom, therefore the air is their natural rooting medium; but this is open to doubt. I never saw an Orchid root yet that did not prefer to hold on by some solid substance if it had the chance; and the way the roots of Vandas and the like will adhere to and warp themselves round the rim of a pot or basket-work—so firmly that they can only be detached bit by bit—proves this. It is probably the poverty of the situation in which an Orchid finds itself, suspended in the air, that causes it to ripen its bulbs more perfectly than they are supposed to do in pots; but then we need not give them more food in the pot than on the block, unless we like. Nurserymen, who grow Orchids better perhaps than the general run of private cultivators, grow by far the greatest proportion of their plants in pots for economical reasons, and there is a very general tendency at present to follow their example in private places. The old *Dendrobium nobile* is as true an "air Orchid" as any in cultivation, and yet it does as well in a pot, staked and trained like an ordinary stove plant, as could be desired; and so do all the fine varieties. *D. Wardianum* does equally well. I have known plants, with as many as forty fine flowers to some of the bulbs, that have always been in a pot. It is said this variety frequently dies under pot culture, but I doubt it; I never knew an instance. Why should it do so? Our plants are not

Staked at every shoot, but have a few sticks in the pot, round which a tie is run, and the stems push over this, and lie and flower pretty much in the same position as plants suspended in baskets. It is not so much the shape of the article the roots of the plants are confined to as the position the plants occupy, and they can be suited in this respect almost as well in pots as on blocks. If the plants are kept near the glass, by raising them on stages or on inverted pots, they are virtually suspended, and enjoy all the advantages of such a position, while they can be arranged so as to be seen, and also cared for to the best advantage. A man can attend to a much larger collection when they are in pots, for they are both more easily watered and kept clean. It is true that the strongest bulbs are usually produced by pot culture, and it is a fact also that these strong bulbs do not always flower so freely as might be expected; but that is probably owing to the greater body of rich compost used in pots, and can be remedied easily enough. Mostly all Orchids will grow and flower in a pot filled with charcoal lumps and broken potsherds alone, provided they are kept moist enough during the growing season; and it is optional for growers to add peat and Sphagnum in any proportion they please; but probably such composts are usually too dense and deep, and exert a similar influence on the

Maturation of the bulbs as ill-drained soils do upon other plants. I have often thought that we invert the order of things in Orchid culture under glass in this country; for whereas, in their native countries, Orchids enjoy both heat and light in a greater degree than with us, the roots are not so well nourished, and the result is better ripened if not such large bulbs, and consequently more flowers. It is well known to those who have to deal with imported Orchids, especially of the *Dendrobium* class, that the bulbs produced under artificial culture are often much stronger than those plants appear to have made where they came from. We have many very remarkable examples of this; but although the plants produce a greater or less number of fine flowers annually, they do not bear a large proportion to the number of shoots, or to the number of nodes on these which show rudimentary buds that ought to produce flowers. In the most successfully grown specimens I have ever seen at shows and in well-grown private collections, the flowers are exceedingly few in comparison to the number of shoots or bulbs and the nodes upon them, except in the case of free-flowering subjects like some of the *Dendrobiums*. When fruit trees of any kind produce few fruit buds, we at once conclude correctly that the wood has not properly matured; and there

can be no doubt that a sparse-blooming habit in Orchids is to be accounted for in the same way, and remedied by similar means. Immaturity in Orchids may originate from three different causes—a too low temperature, want of sufficient light, or a too rich and too wet rooting compost, the last probably the most common. W.

A white *Odontoglossum crispum* has been sent to us by Mr. Edwards. The flower is large with broad sepals and petals and beautifully crisped, and there is nothing to mar the chaste purity of the snowy whiteness save the dash of yellow on the labellum. It is a variety as uncommon as it is lovely.

***Oncidium bifrons*.**—This by no means common species, also known under the name of *O. Warszewiczii*, is now in flower at Kew. Its blossoms are of singular shape, about 1½ inches long, and of an uniform warm yellow hue. The raceme or spike is few flowered, but the blossoms continue long in perfection. It is a Mexican species which was introduced many years ago by Messrs. Loddiges.

Phalænopsids at Clapton.—The varieties of *Phalænopsis* in Messrs. Low's nursery, at Clapton, now exhibit upwards of 6000 flower-spikes, many of them well advanced in bud. What a floral treat is here promised during the dull winter and spring months. *Masdevallia tovarensis* is also here represented by some thousands of plants, literally covered with beautiful snow-white blooms.—JAMES O'BRIEN, *Harrison-the-Hill*.

***Liparis Saundersiana*.**—We do not as a rule pay much attention to "botanical curiosities" among Orchids, but this singular little plant is not without beauty if looked at closely. It grows some 2 inches or 3 inches high, and has thick short leaves and small erect spikes of tiny flowers of a deep vinous purple colour. It is now in flower in the cool part of the Orchid house at Kew, where it is named *L. Saundersiana*.

Winter Orchids.—In the rich collection of plants in Sir Frederick Fitzwigram's garden at Leigh Park, Havant, the following Orchids are in bloom, viz., *Cattleya labiata*, the true autumn-flowering variety; *Angraecum sesquipedale*, *Cypripedium insignis* and *venustum*, *Zygopetalum maxillare* and *Z. crinitum* *ceruleum*, *Maxillaria picta*, *Cymbidium sinense*, *Vanda tricolor insignis*, and *Oncidium flexuosum pictum*. All of these rank among the best winter flowerers, though all are what may be now called old-fashioned.

***Calanthe Veitchi*.**—Some of the finest spikes of this lovely Orchid we have yet seen come from Mr. T. B. Field, Stanley Hall, Bridgenorth. All of them are nearly 3 feet in length, and one is no less than 3 feet 6 inches long, and thickly set for about half that length with large blossoms of that deep rosy hue which are produced only by plants grown in pure country air. This Orchid is without doubt the most popular of the family; there are few good gardens in which it cannot be found, but it is not often so finely cultivated as the examples under notice. Mr. Field grows his plants in an intermediate house having a minimum night temperature of 55°.

***Vanda insignis*.**—The true plant answering to this name, and of which there has been such quantities lately imported and sold at Stevens', is now in flower in Messrs. Veitch's nursery, Chelsea. It is an extremely handsome plant, having much the same style of growth as *V. suavis* or *tricolor*. The flowers, however, are very distinct from either of these, as they are of different form, having a broad open lip of a rich mauve tint surmounted by a white crest, while the sepals are broad, slightly incurved, and deep chocolate in colour marbled with white. It is an Orchid of that kind that, to use an oft expressed phrase, no collection is complete without it.

***Dendrobium endocharis*.**—This beautiful hybrid Orchid has now commenced to flower in the Royal Exotic Nursery, Chelsea. It is a cross be-

tween *D. heterocarpum* and *D. japonicum*. The flowers are larger than those of the latter, and produced in pairs; they are milk white and have a conspicuous purple blotch in the centre of the labellum. In addition to the attractiveness of the blossoms which it produces so plentifully, it has a delicious perfume similar to that of its parent, *D. heterocarpum*. Being dwarf in habit and of vigorous growth, it will inevitably become a favourite. At Chelsea it is grown in suspended shallow pans. It is one of the numerous hybrids raised by Mr. Seden.

***Lælia flammea*.** a hybrid between *L. cinnabarina* and *L. Pitcheri*, is a strikingly beautiful plant, and one that would be welcomed by all Orchid lovers, though as yet it continues to be so scarce. We lately saw it in flower at Messrs. Veitch's nursery, where it was raised about a dozen years ago. It is larger in growth than *L. cinnabarina*, and has slender cylindrical stems bearing a single thick leaf. The flowers, two or more in number from each sheath, are 4 inches across; the sepals and petals are of a brilliant vermilion, while the labellum is beautifully crisped at the margin, and of a rich crimson colour with pencillings of a deeper hue. Such a beautiful plant as this has, as may be imagined, received high honours wherever exhibited in flower.

***Masdevallia Barlaeana*.**—This charming new species is now beautifully in flower in the Kew collection, and has been so for a month past. In appearance it resembles the little *M. amabilis*, but the flowers are larger and more shell-like. The colour too is rich, being a deep carmine-purple. It is, in short, a very pretty plant, and the wonder is that it is not more plentiful than it is. It is a Peruvian species, discovered and collected by Mr. Davis when travelling for Messrs. Veitch, in whose nursery it first flowered about six years ago. Judging by the Kew plant, it is a free grower and tolerably free flowerer, and we know it lasts a long time in bloom, and that during the dull season of the year.

Vandas and Phalænopsids grown cool.—It is certain that the excessive heat and moisture generally accorded to *Vanda tricolor* and *suavis* is by no means necessary, and is, moreover, a hindrance to their becoming so popular as they should be. Mr. Douglas states that he grows them all the year round with his *Cattleyas*, treatment which fully accords with my experience of their requirements. The best specimens I ever saw, and, as I have reason to know, some of the very finest ever grown, remained in an intermediate house all the year through. If I am not mistaken, Mr. O'Brien, whose skill as an Orchid grower is well known, holds very decided opinions upon this subject, and the day will probably come when rational treatment will be more freely practised. The stifling atmosphere which these Vandas are supposed to require is decidedly a great bar to the enjoyment which they at all times are capable of affording, as whether in or out of flower, they present, if well grown, an attractive aspect. Mr. Douglas considers that *Phalænopsids* demand a high temperature, but I can assure him that *amabilis*, *Schilleriana*, and *grandiflora* will thrive in as low a temperature as the Vandas. This I have proved, and although they do not make quite such large leaves, the same are characterised by great substance and absolute freedom from spot, and they flower every year with much freedom. They certainly ought not to be classed with *Saccobulbiums*, which must have a high average temperature.—J. C. B.

Influence of lime on the germination of seeds.—Some interesting results of experiments by Dr. Liebenberg, as to the influence of lime on the germination of seeds, have recently been published in the *Journal of the Vienna Academy of Sciences*. It appears that the seeds of many plants require the presence of lime in the soil during the germinating process, or the seedlings die from want of it. It is likewise shown that many other plants do not fail to germinate freely

and well without the presence of lime in the soil. Dr. Liebenberg also points out that plants which fail to grow through the absence of lime in the soil do not fail in consequence of the injurious effects of any other matters that may be present, but because lime is essential to their healthy growth.

PLANTS IN FLOWER.

COCOS WEDDELLIANA.—Mr. Bullen, of Ham Court, Upton-on-Severn, writes to say that he has a plant of this elegant Palm, about 4 feet high, producing six spikes of bloom, one of which is expanded. The flowering of this Palm is not very uncommon, but sufficiently so to be worth recording.

CHRYSANTHEMUMS.—Mr. S. Learoyd, of Sherwood House, Huddersfield, sends us some uncommonly fine blooms of Chrysanthemums, the largest we have seen, particularly Empress of India, a pure white incurved variety, and Golden Empress of India. Blooms of these measure fully 5 inches across, and are massive and full without any "dressing."

LUCULIA GRATISSIMA.—I send specimens of *Luculia gratissima* cut from a plant nearly forty years old. It is often stated that this lovely plant is difficult to grow, probably owing to cultivators attempting to grow it in pots. Planted out it is no trouble at all, except to keep it clear of thrips. A. G. BRIDGEMAN, *Thames Bank, Marlow*. [Very fine sweetly-scented flower clusters of this handsome shrub.]

HETEROCENTRUM ROSEUM.—This old Mexican plant seems to be grown uncommonly well in the Stanley Hall Gardens, Bridgenorth, by Mr. Field, judging by some specimens of it which he sends to us. Some of the stems sent measure nearly a yard long, and each twig bears a cluster of small, bright rosy flowers, especially useful in a cut state at this season of the year. Mr. Field grows it in an intermediate house, and treats it liberally throughout the year.

RHODODENDRON ROSE PERFECTION.—An immense truss of large and finely-shaped flowers of a clear rose-pink colour is the chief characteristic of this new hybrid belonging to the javanicum type, and which appears to be the embodiment of all that could be wished for in a greenhouse Rhododendron. It quite eclipses any variety hitherto raised by Messrs. Veitch as regards size of truss and fine contour of flower; and as to colour, even the lovely Princess Royal, which has for so many years been thought so delicate and beautiful, must pale before it. This last addition, which has been raised by Mr. Heale, will shortly make its appearance in public, and we hope that ere long it may be propagated in quantities sufficient for wide distribution.

TWO PRETTY BEGONIAS now in bloom are the rose-coloured variety of *B. semperflorens* and a hybrid named Madame Fanny Garon. The former differs in no way, except in colour, from the well-known original which is such a favourite winter plant. The flowers, instead of being pure white, have the petals broadly margined with a lovely rose-pink, which in contrast with the bright green foliage has a pretty effect. The other has more of the habit of *B. insignis*, and has moderately large blossoms of a beautiful cherry rose tint and plentifully produced even on small plants. Both may be seen in bloom at the Royal Exotic Nursery, Chelsea, where they may be easily singled out from the large collection grown there.

NEW CHRYSANTHEMUMS.—The display of Chrysanthemums at the Royal Exotic Nursery, Chelsea, has been unusually extensive this season, there being two or three houses devoted to them. In the chief one, a span-roofed structure, there are, besides a full collection of the leading sorts, several new varieties, which are more or less distinct. Among those of the Japanese class are Thunberg, a large attractive flower of a soft primrose-yellow; Delicatum, pale lilac, suffused with

white, large, and fine; Kämpfer, bright bronzy yellow; Duchess of Connaught, a large white flower flushed with lilac; Bend Or, bright sulphur yellow; and Comte de Germiny, nankeen-yellow striped with crimson. These have all been introduced by Messrs. Veitch direct from Japan. Among the new seedlings raised by Mr. Salter, and now being distributed by this firm, are, Tisiphone, a shaggy flower with conspicuous yellow centre and narrow bronzy red florets; Mignonette, in the way of the latter, but darker; Sir Beauchamp Seymour, bronzy brown, very attractive; Lucifer, a reddish brown, with singularly split florets, and Mary Major, a beautiful white. These are all Japanese sorts. Among Pompones there are a few really beautiful novelties, notably Ringleader, which has globular heads of quilled florets of a pale purple, and Orange Beauty, with numerous flowers in clusters and of a bronzy yellow.

ANTHURIUM FERRIERENSE.—This is the name given to a remarkable new hybrid Anthurium, which has been raised by M. Bergman, at Ferrières. It is a cross between the new *A. Andreanum* and *A. ornatum*, a species characterised by ample cordate leaves and tall slender stems bearing a large shell-like spathe of pure ivory whiteness and enclosing a purple spadix. The progeny of these two species is singularly intermediate. The spathe is about the size of that of *A. Andreanum*, but not so brilliant in colour, and the spadix, instead of being depressed, as in Andre's species, is erect, as in *ornatum*, though not surrounded by the spathe. The foliage is heart-shaped and of large size. It is now in flower in Messrs. Veitch's nursery, Chelsea, by whom it will be exhibited.

A NEW JAPANESE PRIMULA under the name of *P. poculiformis* is now flowering in one of the cool houses at Kew. It seems to be the same as that exhibited for the past two or three years by Messrs. Veitch as *P. obconica*, a kind introduced through Mr. Maries when travelling in Japan. It may be best described as a near neighbour of *P. cortusoides*, which it resembles in size and habit of growth. The foliage is broad and ovate, borne in dense tufts, from which arise slender flower-stems about 6 inches high. The flowers, which are about the size of a shilling, are of a delicate mauve colour, distinct from that of any other species of Primula with which we are acquainted. If habitually a winter flowerer, and we presume it is, it will be a valuable greenhouse plant for winter and spring decoration.

TACHIADENUS CARINATUS.—This showy Gentianwort has lately been brought under prominent notice by Messrs. Veitch, in whose nursery, at Chelsea, it may be seen beautifully in flower in various sizes, from tiny rooted cuttings to well developed specimens. It has slender, erect stems, furnished with roundish, shining leaves, and terminated by a solitary blossom, having a tube some 2 inches long and a corolla an inch or more across. The colour varies from a deep blue-purple to a bright violet-purple, according to the age of the flower. It is said to be a good perennial, of easy growth in a warm greenhouse. Its free flowering propensity is strongly marked in the plants under notice, as every tiny plant bears a flower. As it naturally blooms from September throughout the winter, it will be found useful for decorative purposes, particularly as it flowers in such a small state.

A NOVEMBER BOUQUET gathered the other day on the side of the Hill of Howth, though counting no rare blossoms, may have some interest, inasmuch as it shows what loving care can do in enticing bright autumn blossoms to linger with us through a vigorous and happy growth, which enables them to resist the wild storms of rain and wind that assail our hill. Stretching out as Howth does into the open sea, joined only to the mainland at one little spot hardly a quarter of a mile wide, there is no break or shelter from the first cold violence of the wind; yet, given the soil they fancy, the flowers seem gifted with a wonderful power of endurance, and, no matter how torn and bruised they may be, at every little lull they break into fresh buds and blossoms.—ST. BRIDGID. [A

beautiful bouquet of open-air flowers, consisting chiefly of double Crown Anemones, which "St. Bridgid" grows so finely, together with Christmas Roses, Aster Reevesi, pot Marigolds, hybrid Pentstemons, Mignonette, shrubby Veronicas, Anemone japonica (pink), Chrysanthemums (Japanese and Chinese), sulphur-yellow Polyanthus, Paris Daisies, and Salvias—all still in charming condition.]

SCHIZOSTYLIS COCCINEA.—During the last three months of the year numerous are the encomiums passed upon this plant, and well it deserves them, for it has few rivals as regards brightness and showiness of bloom, lasting quality when cut, and vigorous growth, and last, but not least, simple culture. In most of the good gardens we have lately visited about London we have found it in quantity either embellishing the conservatory, or greenhouse, or the open border. It is grateful for greenhouse shelter, and indeed it is only under glass that the flowers become fully developed. The best way to grow it is to put the plants out in a border of good light soil in spring, and well look after their wants throughout the summer, stimulating them with weak manure water now and then, and lift them in the beginning or middle of September and pot them for greenhouse decoration and cut flowers.

STRELITZIA REGINÆ.—I have a plant of this in flower now, and very attractive it is, its flowers being equally interesting as those of many Orchids. Their upper petals are orange and the tongue blue—truly a singular combination of colour. It is a plant that only requires cool treatment; indeed, if planted out it succeeds better than in a pot. Its large fleshy roots luxuriate in almost any kind of soil; a mixture of turf, peat, and leaf-mould suits it well, and a winter temperature of about 50° is all that it requires in that way. In addition, moreover, to the beauty of its flowers and noble foliage, it is one of the cleanest plants we have, not being liable to insect pests of any kind, and if placed amongst other plants affected by them, they are easily removed from its smooth, shining foliage.—J. GROOM.

Ivy as a seaside plant.—In this locality we are unable to grow Conifers and many beautiful trees and shrubs that succeed in more inland situations; the violent gales, highly charged with saline particles, preclude the possibility of getting them up to any great height, and close to the coast owners are glad to avail themselves of anything that will keep green and healthy. Happily, we have in the common Ivy a plant that adapts itself to almost any sort of position, and when allowed to grow unpruned for many years, treatment under which it acquires an arborescent form, it is a really beautiful object both in winter and summer, but especially in winter. Many old seaside buildings are now really beautiful objects, solely from being overgrown with Ivy, lately covered with heads of yellowish green flowers, and later on we shall have black, shining berries, that will play an important part in our Christmas decorations. On inhabited houses Ivy is usually kept closely clipped, and consequently its beauty is only that of a fine foliated plant; but on any sort of elevated structure where it can grow in a natural manner, Ivy is beautiful both as a flowering and berry-bearing plant. Anyone desirous of propagating Ivy will find this the best time of the year for doing so. Get strong young shoots and insert them firmly in soil in a partially shaded position, in which they will root readily; when struck they may either be planted out finally where they are intended to grow, or if required to be in readiness for any emergency they may be kept in pots, with their shoots tied up to single stakes, or trained on temporary trellises.—JAMES GROOM, *Seafield, Gosport*.

Flowers in shop windows.—In "J. C. B.'s" note on gardening in Switzerland (p. 443) allusion is made to the lack of floral life in English shop windows, which is doubtless in the main correct; but not as regards the Isle of Wight, for on a recent visit to Ryde I noticed that the prevailing taste for flowers had there invaded the "shop" as

well as clothed the walls of the houses with beautiful creepers. Indeed, I could not help stopping to admire several shops that, although in no way connected with floriculture, were nevertheless beautified by the introduction into their arrangements of plants of various kinds. Butchers' shops especially attracted my attention, from their cleanliness and from the background being formed like a grotto or fernery, so constructed as to supply ample ventilation, thus possessing a cool, refreshing look, quite different from that of the ordinary run of butchers' shops in London; and as country folks like to emulate those who live in large towns, I trust that in this case Londoners will emulate country tradesmen, though the latter will always have the advantage of his town rival in this matter at least. Fine foliaged plants, such as Aspidistras, Ficus, Ferns, &c., will doubtless be the best subjects to begin with, but during summer, flowering plants could be used. Only let a few examples be seen in actual working order, and such will be the effect that the practice will soon spread.—J. GROOM, *Seafield, Gosport.*

INDOOR GARDEN.

THE PREPARATION OF PLANTS FOR FORCING.

In a general way plants are taken up and started for forcing at once, which is a great mistake, as with their roots disturbed and mutilated it is impossible for them to start so strongly and freely as they would were they potted early and encouraged to make fresh feeders. This being so, no time should be lost in making selections of what is most useful, and getting them together, as both evergreen and deciduous subjects may be moved now, and once in pots it is a good plan to stand them where they can be surrounded or plunged in a bed of fresh fallen leaves, which, by the slight warmth they afford, will amply excite the plants, and aid materially in enabling them to get renewed hold of the soil. Among the evergreen section of plants adapted for forcing none are more showy and valuable than Rhododendrons, quite large bushes of which may be dug up and potted without feeling much check. All that is necessary is to cut round them with a sharp spade, so as to secure a ball as big as the pot will admit, to the shape of which the ball should be trimmed and then rammed in tight with a little fresh peat to fill up the interstices. The sorts of Rhododendrons to choose are the early kinds, as they require little forcing to get them in during March and April, and none at all if wanted in bloom later on. To be of service they must be well set with buds, which may be distinctly seen at the ends of the shoots, as they are very large and prominent, and differ from those that form wood.

Next in point of merit to Rhododendrons are the hardy Azaleas, which, besides being almost equally showy, have the additional merit of being sweet scented, and especially is this the case with the yellow kinds, most of which are deliciously fragrant. Like Rhododendrons, they admit of being taken great liberties with by way of lifting, and may be dug up with large balls and set to work without feeling much check. Kalmias, too, root much in the same manner, forming perfect masses of hair-like feeders, which hold the peat together, so that the individual plants may be got with sufficient attached to live on and open their blossoms. Beautiful as these are out doors, they are simply lovely forced, slightly flushed, as they then are, with delicate pink, which suffuses itself through the singularly crimped petals so waxy and charming in form.

Lilacs are specially adapted for forcing, and by a little training or preparing may be had either as little dwarf bushes or standards, the latter being particularly serviceable for standing in vases in conservatories, or to project above other plants on greenhouse stages, in either of which positions they show themselves off to advantage.

By starting and keeping Lilacs in the dark, the flowers come white without losing their sweet odour, and are very valuable for cutting or working up in bouquets. To have Lilacs and other deciduous plants of a similar nature really good, they must be pruned annually, so as to get plenty of nice young wood, which pruning should be done on part of the stock now, and the plants lifted and replanted in order to induce an abundance of roots close home, as much upon these and the growth they form depends the quantity of buds they set, which only appear on shoots that are strong.

Weigelas are first-class shrubs for forcing, as they are exceedingly floriferous, respond to heat readily, and last a long time in perfection. The best kind is *W. Van Houttei*, which has larger and deeper coloured blooms than the old *W. amabilis*, and makes a rare show.

The Guelder Rose is another fine subject, with its large, globular balls of pure white flowers. With some this is thought a difficult plant to manage, but it is only shy blooming when dug from shrubberies without any preparation, where it comes up with very little root, and starts feebly without expanding its blossoms, but transplanted annually and well treated as to soil and manure, and pruned as recommended above, it is one of the best things for pots. Coming to herbaceous plants, the Spiraeas are perhaps the most important, the most noteworthy being *S. japonica*, which is sent over from Germany and Holland in great quantities, and may be had cheap in clumps, which, having strong crowns, may be depended on to produce many spikes of sweet-scented flowers. Although not so serviceable for general purposes, *S. palmata* is much the showiest, as besides having handsome foliage, it bears large, panicular heads of the most lovely violet-pink blossoms. Both of these sorts being now ripe should be potted at once and stood in cold frames, where they will start gradually, and be ready to be drawn from for forcing.

Lilies of the Valley are also imported in the same way, and may be had in single crowns or large clumps, the latter being the most preferable, as they form nice compact tufts with plenty of leaves, which are a great ornament and set off their delicate blossoms. In forcing Lily of the Valley early, it is necessary to keep the plants in the dark and uniformly moist, which may best be done by using inverted pots over the crowns, or covering them with a good layer of damp Moss or Cocoa-nut fibre, which treatment coaxes them up, as it is in close imitation of their natural conditions. Another valuable plant for forcing is Solomon's Seal, which bears numerous chaste silver coloured, bell-shaped flowers at the axils of the leaves up the entire length of its gracefully arching stems, and having very elegant, delicate looking, green foliage, this *Convallaria* affords very choice bits for cutting. In digging up the roots, the strongest only should be selected, and the others planted again in rich beds of mould, to grow on and be ready for lifting next year.

S. D.

AGATHAEA CELESTIS.

THE reference to this plant in a recent number of THE GARDEN reminds me of a time when I had to deal with it rather largely, as it was a great favourite a quarter of a century or so ago. I had to grow it in the form of specimens, in small pots for vases and also as a bedding plant. It is not showy, but at the same time it flowers sufficiently freely to enable one to use it for any of the purposes just named. For bedding out we used to strike the cuttings at the same time as we prepared the usual stock for such work in the autumn. Cuttings made of the young growth root as freely as Verbenas, but to be successful with it as a bedder, good sized plants must be put out. For this purpose they should be potted off into single pots as soon as they are rooted. If put into 3-inch pots in autumn, they should be shifted into pots 2 inches larger early in March; in other respects they may be treated exactly the same as Verbenas. The tops should be taken off

about three times before they are bedded out. In habit it is rather neat, but in order to obtain stocky, well-furnished plants a little stopping is necessary. A very rich soil in any case is not necessary, or it will make too much growth and produce but few flowers. It is a plant that makes plenty of roots; the soil, therefore, should be light and fine. It is not at all adapted for a cold wet soil or for very cold, exposed positions; a moderate sized circular bed with a centre of this plant, 4 feet or 5 feet in width, with a 9-inch band of *Mesembryanthemum cordifolium variegatum* and an edging of *Alternanthera magnifica*, makes a quiet bit of colouring not easily surpassed.

Specimen plants.—It is best to commence the formation of these in spring with plants struck from cuttings in the autumn. The soil may consist of half loam and half leaf-mould, with a fair proportion of sand, sifted through a coarse sieve. Commencing early in March, the first shift should be into 5-inch pots, and the treatment should be the same as that given to an ordinary stock of hard-wooded greenhouse plants. Sufficient stopping of the young growth must be carried out in order to keep the plants in shape; a neat stick will be required for the centre, and a few pegs may be necessary as growth advances to bring the branches down to the rim of the pot. But in the matter of growth it is not a robust-growing subject, and very handsome specimens may be had with the aid of very few sticks and ties, *i.e.*, if the stopping has been attended to in good time. I used to devote one summer's growth to getting the specimens into proper form, and during that time every flower was picked off as soon as it appeared. As a matter of course, the plants were shifted on from time to time into larger pots as they filled those they were in with roots. In 10-inch pots I used to get specimens 3 feet high and as much through. In these pots they used to be quietly rested during the winter, with a reduced water supply until the middle of February, when more water was given, and without any further attention to the roots and with only regular supplies of manure water, the plants would flower continuously all the summer in a well ventilated greenhouse shaded from very bright sun. To have them suitable for the filling of vases, &c., they should be grown in 6-inch pots, and I may here remark that they do not flower freely until the pot gets pretty full of roots. Even, however, if the soil is moderately full of roots they may be made to continue flowering pretty freely with the aid of regular supplies of manure water.

J. C. C.

Euphorbia jacquiniæflora.—Not the least of the merits belonging to this old-fashioned plant is the fact of its blooming at a time when flowers are scarce, *viz.*, from the middle of December to the end of February. Its long branches of bright scarlet flowers are most useful in a cut state for table decoration and for many other purposes. It requires stove treatment in winter, one of the best positions for it being a Cucumber or Melon house, and it may with advantage be trained up the trellis, as in this form it occupies less space than amongst other plants. Some difficulty may, perhaps, occasionally be experienced in propagating it, but young shoots taken off with a heel in February, inserted in light, sandy soil, and placed in a close, moist heat will root freely. They should be potted off before the roots get entangled together in a mixture of about three parts good light loam, one of leaf-soil, and one of well-decayed cow manure, with a good sprinkling of sand, after which they should be replaced in strong heat till established in the new soil, when they may be removed to an intermediate house for the summer, and be reported at discretion. Lovely sprays of this may be secured by following these directions, at least such has been my experience.—W. H. L.

Oil stoves. Will some of the correspondents of THE GARDEN kindly tell me if an oil stove will effectually heat a greenhouse where other heat is inconvenient?—T. P.

A GRACEFUL TRAILER.
PLANTED out at one end of an old-fashioned cold

trace of pink is discernible in any of the flowers, which are of the purest waxy white, our variety

Layers.—It is surprising that the *Lapageria* should be so seldom seen in good health, or, indeed, seldom seen at all in many gardens, considering how popular the plant is, how many are distributed by the trade, and how easy it is to grow. Many now propagate the white *Lapageria* in the trade, and I know one firm which has probably sent out as many plants these fifteen years back as would supply every garden named in the "Garden Annual;" and yet they are both scarce and dear, a good plant of one year's growth from a sucker fetching perhaps a couple of guineas, and older ones much more. My impression is that many fail through attempting to grow the plants in pots as specimens on the shifting-on principle. No conservatory plant I am acquainted with grows

more strongly or quickly planted out, and few are more readily increased. From five young plants layered here a little over three years ago I took last year thirty fine plants, many of them 9 feet high, and all with roots so large that they required 12-inch or 14-inch pots to hold them; and we have now eighty big and little ones from the same stock, and including the parent plants. Trained to strings stretched say 2½ inches or 3 inches apart, less than the half of that number fill one side of a span-roofed house in every part, or very nearly up to the apex, one plant of the rosea variety filling the other side—an extra-fine variety I came across lately—covering over 100 square feet. The remainder of our white ones are planted or plunged under the trained ones in the meantime. The plan of training the shoots to small strings hardly as thick as pin-wire will commend itself to growers who have to cut the flowers for decorative purposes—with perhaps a foot or two of wood and

foliage attached. When wire is used the only way to get the shoots off is to uncoil them from the wire, in doing which leaves and flowers are apt to be broken; but with the string it is different, as all that is needed is to cut the string with the shoot, when it pulls out easily in a second if no knots have been tied upon it. This is the only plan for training up plants from layered shoots. Every separate plant must have one or more strings to itself, and when they come to be lifted many plants can be moved away in a short time. If the shoots of the separate plants once get mixed, separation without great injury is next to impossible. The young plants spring so thickly from the bed that it soon becomes necessary to stretch the strings an inch asunder, in order to accommodate them till planting time. A carving-knife may be used freely to cut the separate stools out in blocks, as they will mostly all have big roots in a year after layering.

Compost and roots.—I doubt if it be quite certain yet what kind of compost suits the *Lapageria* best, but the trade growers use pure peat and sand alone, and it does very well in it. I have seen plants do well in loam too. It is a curious fact that, although the plant rejoices in a soil that is continually moist and cool, it will not succeed without the most perfect drainage. Wherever the soil gets wet and cloggy, the roots rot immediately, and the tops soon show it. Like Vines

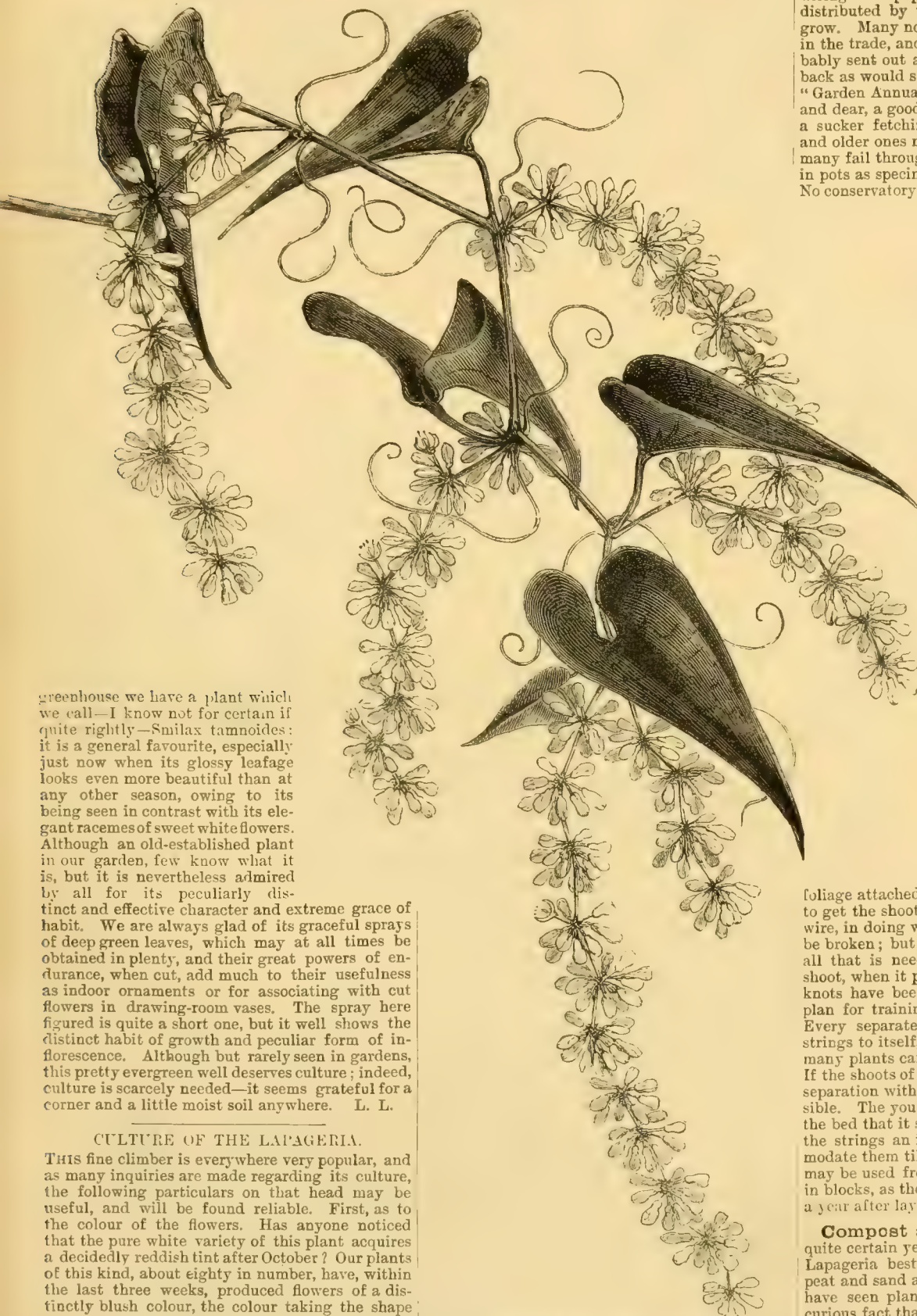
greenhouse we have a plant which we call—I know not for certain if quite rightly—*Smilax tamnoides*: it is a general favourite, especially just now when its glossy leafage looks even more beautiful than at any other season, owing to its being seen in contrast with its elegant racemes of sweet white flowers. Although an old-established plant in our garden, few know what it is, but it is nevertheless admired by all for its peculiarly distinct and effective character and extreme grace of habit. We are always glad of its graceful sprays of deep green leaves, which may at all times be obtained in plenty, and their great powers of endurance, when cut, add much to their usefulness as indoor ornaments or for associating with cut flowers in drawing-room vases. The spray here figured is quite a short one, but it well shows the distinct habit of growth and peculiar form of inflorescence. Although but rarely seen in gardens, this pretty evergreen well deserves culture; indeed, culture is scarcely needed—it seems grateful for a corner and a little moist soil anywhere. L. L.

CULTURE OF THE LAPAGERIA.

This fine climber is everywhere very popular, and as many inquiries are made regarding its culture, the following particulars on that head may be useful, and will be found reliable. First, as to the colour of the flowers. Has anyone noticed that the pure white variety of this plant acquires a decidedly reddish tint after October? Our plants of this kind, about eighty in number, have, within the last three weeks, produced flowers of a distinctly blush colour, the colour taking the shape of blotches, like the light blotches in the rosea variety. Before expanding, some of the buds are quite flesh-coloured, and grow lighter as they expand, but are never pure white after this date. Before the middle of October not the faintest

being propagated from the true sort. The Gloire de Dijon Rose exhibits the same tendency in the autumn.

Flowering spray of *Smilax tamnoides*.



and Pines, too, the roots vary much according to the compost they are in. In soft sandy peat they are numerous, strong, and quill-like; but when they come in contact with the side of the pot or the drainage, they multiply into numerous spongioses. The large plant of rosea just mentioned was in a tub when it came here, and in order to get it out the staves had to be pulled away, showing quite a solid mass of thousands of small rootlets close against the wood, and so hard and firmly locked together, that it was impossible to make any impression on them before planting without injuring them. The compost appeared to suit it admirably, and looked very like much decayed pure leaf soil, mixed with its bulk of sand, sandstone grit, and pounded brick. No plant could have rooted better. In our softer bed of peat, sand, and charcoal the roots of the white one were stronger, but not so numerous; but where they had penetrated the ashes put in the bottom for drainage, they were just the same as those in the tub. Acting on this hint, we have in the new bed made nearly one-half of the compost pure silver sand, ground bricks from the mill, and small charcoal as before. The plan of covering the drainage with peat sods, grassy side downwards, is a bad one. If there are any wet places found about the roots, oftentimes it is in these sods, which hold water like a sponge, and in these the roots rot. Neither is a deep bed of soil needed; 9 inches to 18 inches will do, but it is desirable the roots should be confined to the compost by a hard bottom and sides.

Flowering shoots.—Although the first year's shoots from the layered eyes are, as a rule, strongest and longest, they are not, according to my experience, the most floriferous. Extra strong shoots will run up several feet, perhaps before producing their proper foliage, which in such cases will often be as broad as the palm of the hand in the white kind, which has broader leaves than the red and less pointed; and it will be towards the point of the shoots that the flowers will appear, the number of which will depend on culture and soil. As a rule they are produced in ones and twos in close succession along the shoot to the extent of twenty or thirty, which is good. Six at one joint is the most we have ever had, and we have had two or three such close together on the same shoot, but on stopped shoots. Quick growth and frequent stopping is the way to get clusters, and if the last year's shoot is properly manipulated so as to get flowers from spurs, and the current season's growth is well flowered also, it is possible to get a magnificent wreath in that way. Two or three-year-old shoots produce most flowers, including the terminal portion added the same year.

Temperature.—The *Lapageria* is essentially a cool house plant. Our summers under glass are quite hot enough for it, and it needs shade from strong sunshine. It seems to do about equally well on the north and south side of a house, and does not like much fire heat, if any. By this season the plant has usually finished its growth for the season, and the shoots are hard and wiry, but in a temperature of 50° minimum it will continue to grow, although the leaves and wood made under such circumstances are never so good or strong. Being a native of the cloudy, wet, and cold regions of Patagonia, the most suitable treatment may be guessed. It only wants a glass roof to protect it against frost, but our outdoor temperature in summer suits it admirably, although I do not believe in trying to grow it outside altogether, considering how well worth it is of an inside place, where the growths are far better and the flowers far more numerous and cleaner—an important point, in the case of the white variety especially. A minimum temperature of 45° with 5° more by day will suit both varieties from November till March, when the night temperature may be raised to 50°, and the day proportionally, and a greenhouse temperature maintained all the summer through.

Positions for *Lapagerias*.—One plant will, in the course of a few years, perhaps cover 200 square feet trained thickly under good culture, and planted out will send up strong shoots

annually and so freely that it may be found needful to cut out quantities of the old wood to make room for the new. The tallest plants we have seen are those at Messrs. Veitch's and some others in a private conservatory about 20 feet high. The best places for plants are the roofs of cool conservatories and greenhouses, the gables of these structures and back walls not far from the glass, but not exposed fully to the sun. On no account give it horizontally placed wires to cling to, but let them all be vertical, and much labour in training will be saved, as the shoots will follow the wires and need very little guidance.

Insects.—The *Lapageria* is a little troubled by red spider, but it seldom does much harm. Green-fly is its worst enemy, and it attacks the young growths most persistently, but seems to be unable to harm the leathery foliage of the older shoots. The only plan of keeping this pest down is to smoke frequently and very gently, say once a week or fortnight, which will keep the plants quite clean.—*Field*.

GLOXINIAS.

As "Dido" (p. 442) has had his *Gloxinias* lying on their sides since last May, and they are now starting, it is quite evident they have had rest enough, and the best thing he can do with them is to let them come slowly on. This they will do if the soil is kept just moist and they are stood on a light shelf in any warm house or pit, where they have a temperature ranging anywhere between 60° and 70°. If, however, he desires a succession, part may be kept back in less heat, but they must not be watered, or they will rot, as they contain sufficient moisture in themselves to remain plump and sound, and they will not bear wet without heat till they get leaves and roots to take it up and help to carry it off. Those to be retarded will be all the better for not being repotted, as the bulbs always keep safer embedded in the soil as they grow, and any I have to do with I always like to start before shaking them out. It may be of use to "Dido" and others to know that *Gloxinia* seed sown now, or soon after this, will make plants that will flower next summer, and come in most valuable to succeed such as are a year or more old. The seed should be sown on finely-sifted peat, made quite level and firm, and be only very slightly covered with just a sprinkling of sand. To get the seed to germinate freely, the pot or pan in which it is sown should be covered with a piece of glass laid flat over the top, which prevents any escape of moisture and keeps the air humid and uniform as regards heat as well. As soon as the seedlings are large enough to handle, they ought at once to be pricked off in the same kind of soil as the seed was sown in, and be nursed on in a brisk moist temperature, where they can be placed near the glass to keep them from drawing. S. D.

PLANTS FOR WINTER CUTTING.

In the present day foliage is as important for cutting as flowers; indeed, with plenty of graceful sweet-scented foliage to form a setting for flowers, the latter need not be crowded to the extent they sometimes are. The foliage of Oak-leaved and other sweet-scented *Pelargoniums* is always in demand for cutting. In winter the leaves of *P. Radula* and its small-leaved variety are suitable for putting round Violets and other small flowers, as they are both sweet and lasting. Where there is convenience for planting these things out in a border against a wall in any light house they grow very freely; even the weakest and smallest will quickly cover a good space, and in spring large flowering sprays may be cut without doing damage. The *Heliotrope*, when planted out in a warm greenhouse, is invaluable for winter cutting, and all the *Abutilons* are useful, especially those possessing the brightest colours. The white variety *Boule de Neige* produces many more flowers when planted out than when grown in pots. *Jasminum grandiflorum*, planted out in a warm house and trained under the glass, flowers all winter, and the old *Euphorbia jacquiniiflora* when planted out, after

the first flowering shoot has been cut, throws out other flowering branches from below, and a succession of flowers is produced for a considerable time. In the midland and northern counties the *Laurustinus* is worth a place in pots under glass for the sake of its ornamental appearance when in flower. Trained as standards, from 2 feet to 3 feet high, *Laurustinuses* are useful in the conservatory or for indoor decoration, and the flowers are useful in a cut state also. I find old plants of *Pelargonium Vesuvius* very serviceable for furnishing scarlet flowers in winter, and in the south there is a kind called *Rosehill Scarlet* that is largely used for forcing. Mr. Gilbert, of the Springfield Nursery, Hastings, grows it largely for cutting. Old, well-ripened plants of it are preferred to young ones because they flower so much more abundantly, and they occupy one side of a light, warm house. As a rule, yellow flowers are not so much in request in winter as other colours, because yellow does not show well under artificial light. The *Jacaranda mimosifolia* is an elegant-foliaged plant, very useful in a young state, even superior, I think, to the *Grevillea robusta*, which is also a striking little plant for furnishing. The *Grevillea* trained standard high, when several years old and large, is one of the most graceful plants for the conservatory or for room decoration, and it will withstand a good deal of hardship, to which all plants that have to be moved from place to place in winter must submit. Its Fern-like foliage is useful in a cut state, as it lasts so long. The large leaves may be cut up into leaflets when too large and used with equally good effect. The best double white *Pelargonium* for autumn and winter blooming is *candidissimum plenum*. E. HOBDAY.

***Acorus gramineus variegatus*.**—Small plants of this look well mixed with Ferns in stands used for table decoration. Some old plants of it taken up from the open ground and pulled to pieces were potted singly in small pots and placed in a growing temperature—that of a warm greenhouse. Under such circumstances they grew freely and the variegation came out very distinctly, the plants looking like miniature specimens of an unusually fine variegated form of New Zealand Flax, although but 6 inches or 8 inches high. Thus employed, the variegated foliage contrasted well with the different shades of green, and had a very pleasing effect.—T.

***Eulalia japonica variegata* indoors.**—This variegated Grass well deserves the encomiums passed upon it in THE GARDEN (p. 443). In a greenhouse the variegation is even more clearly defined than out of doors. I recently saw fine masses of it under glass in 6-inch and 8-inch pots, and very pretty they looked. It is a plant of the easiest culture, and as it requires no nursing up in heat should become popular for purposes of both indoor and outdoor decoration. There is a variety (*zebrina*) in which the leaves are transversely banded with a whitish green variegation, but although peculiar owing to the arrangement of the stripes it is not nearly so effective as the first-named kind.—H. P.

SHORT NOTES.—INDOOR.

***Salvia hians*.** Permit me to state that this *Salvia* shares with many other Himalayan plants the property of being very variable in size as well as in the colour of the flowers. I suppose it occurs at different altitudes, which would account for its changeable size as well as for its comparative hardiness.—MAX LEICHTLIN, *Baden-Baden*.

***Chrysanthemum sport* (R. H.).**—We do not consider the flower you send sufficiently distinct from the original to merit a name, though it is well worth propagating.

—(W. W.).—The blooms you send of a white flowered sport from Queen Victoria are handsome, and the variety is well worth propagating, particularly if it has the good qualities possessed by the original.

***Adiantum Facottii*.**—This is a variety of *Adiantum cuneatum*, but is distinct from that well-known kind. It forms a dense cushion-like mass, and grown, say, in 4-inch pots, is well adapted for edgings.—H. P.

Dracæna terminalis* and *D. stricta in the Clapton Nursery are being rapidly worked up. All the market growers acknowledge the superiority of these two old varieties and *D. Cooperi* over the new introductions where a uniform batch of compact, well-coloured plants are required. At Clapton one need only look into a house of *D. terminalis* and then into one of the new varieties to be able to form a speedy opinion in favour of the former. Of course, the new varieties are not without merit where size and variety are required. — JAMES O'BRIEN, *Harroby-on-the-Hill*.

***Pentas carnea*.**—As a winter-blooming plant this is one whose merits should not be overlooked. It is readily propagated, of easy culture, and produces its terminal clusters of delicate pink blossoms very freely in winter, and, indeed, by keeping up a succession it may be had in bloom at almost any season, although at this time of year it is more valuable than when a greater variety of subjects is in flower. In order to grow it well it requires liberal treatment, *i.e.*, a rich, but not too heavy a soil, and plenty of water when growing. It is, strictly speaking, a stove plant, for although it often exists in a lower temperature it does not thrive well except in a stove. There is a variety (*kermesina*) in which the flowers are much deeper in colour than in the species, to which it forms a good companion. Cuttings of *P. carnea* strike readily, besides which it may be raised from seeds, but cutting plants are from their greater floriferousness to be preferred. — H. P.

TREES AND SHRUBS.

TIMELY THINNING TREES AND SHRUBS.

It often happens that the ideas of planters are not grasped by their successors; therefore the trees and shrubs which were intended for nurseries only are left too long, and much mischief is the result. In laying out new gardens, nearly everybody, in striving after what is termed immediate effect, plants too thickly. This would not signify much if thinning commenced early enough; but generally this is delayed till the bottom branches of the permanent trees and shrubs are seriously injured. A Cedar, it may be, has been planted amongst a bed of common things for shelter. The planter's idea was that the common things would be gradually removed, until finally the Cedar stood alone, fully exposed on all sides. But this had been neglected, and the bottom branches are so seriously injured as to destroy the beauty and symmetry of the tree for a number of years, if not altogether. The same often occurs with Hollies and other choice shrubs that require the light to shine on them on all sides in order that they may grow into perfect specimens. How soon after planting thinning should begin must depend upon the kinds of trees and shrubs planted and the nature of the soil. But, to meet every case, a thorough examination should take place every year, preferably at this season, when there is usually more leisure than at other times, and when planting can be cleanly and expeditiously carried out. The planting of the permanent features of a place should be so contrived as to require no rearrangement, and should be worked on a plan, to be studied at leisure any time. Only in this way is there a chance of the planter's ideas being carried out. The nurseries, or the movable material, of the place can be rearranged as often as they encroach upon the slower-growing trees or shrubs which are to form its future character. Sometimes the pruning knife will answer as well as the spade in checking redundancy of growth. When a Laurel, for instance, is encroaching too much upon a plant of better character, if the encroaching shoots are cut hard back the removal of the intruder may be delayed for a year. Most men have a horror of seeing bare spaces in shrubberies; but this need not be if the rearrangement be judiciously carried out. It may happen that the plants thinned out may come in for planting elsewhere; or if not, perhaps a market may be found for them, as large material, even of common

things, is often in demand for new gardens. — E. HOBDAV.

MAGNOLIA PURPUREA.

AMONGST what may be classed as the early-flowering section this is one of the latest, the earliest being the pure white *M. conspicua*, which is succeeded after a few days by *M. Soulangeana*, and that in its turn by *M. purpurea*. This purple *Magnolia* does not attain a size equal to that of either of the other two just mentioned, its usual habit being that of a spreading bush 6 feet or 8 feet high, although under very favourable conditions a larger size is sometimes reached. The flowers are borne in great profusion, especially where the wood gets thoroughly ripened. In shape they are not so globular as those of *M. conspicua*; indeed, they remain closed, or nearly so, till within a few days of their dropping off. The outside of the flowers is purple, a colour which varies a good deal in depth according to the season or individual peculiarities, and the inside is whitish in tint. This *Magnolia* prefers a cool, somewhat moist soil, but not a too shaded position, otherwise the growth is weak and the flowers but sparsely produced. It is a native of Japan, whence it was introduced towards the latter end



Magnolia purpurea.

of the last century; it is frequently met with under the name of *M. obovata* as well as that of *M. purpurea*. As a stock on which to graft other early kinds, such as *M. stellata* or *Halleana*, this *Magnolia* is often employed, as it is easier propagated than the others. ALPHA.

Variegated Conifers.—If in the choice of these we were confined to such as are distinguished by white markings, there would be ample justification for the wholesale condemnation with which a writer in THE GARDEN has lately visited them. Surely no one would wish to banish from our gardens such really fine and attractive forms as the golden *Retinospora*, *Biota elegantissima*, *Tuja semperæra*, and the golden *Juniper*, which are so distinct and constant as to render them of the greatest value in affording contrast and colour to the out-door garden in winter. *Retinospora plumosa aurea* is one of the most elegant habited Conifers we have, an additional charm in its case being that it varies much in colour, some specimens coming at certain times of the year of a beautiful clear sulphur-yellow, others taking a deeper tint, whilst others again exhibit a stronger shade of green. But to see these yellow-leaved evergreens in all their glory they should be planted where the sun shines full upon them in early spring, when the colour they develop is truly beautiful. One scarcely knows how to define the colour of *Biota elegantissima*, but bronzy gold would perhaps best define it. One thing is certain about these variegated Conifers: they should have ample breathing space wherever planted; deprived of light and air, they neither display their grace of form, nor develop those pleasing tints

which make them one of the joys of our out-door garden in winter. — J. C. B.

GARDENING IN AMERICA.*

The American Cranberry (*Vaccinium macrocarpum*), hardly grown at all in this country, has within the last few years come to be quite an article of commerce in America. Its culture is distinct from anything attempted in England, though *Vaccinium Oxycoccus* is cultivated to some extent here and more largely in Northern Europe. The question of how land unoccupied can best be turned to account has of late become a pressing one, and in connection with this I might just suggest that if the American Cranberry will do fairly well in this country, there is a large extent of land suitable for its cultivation at present waste, or almost so. It grows naturally in the American swamps, trailing over the *Sphagnum* and rooting into it as *V. Oxycoccus* does in some of our moorland bogs. The fruit is very abundant, and was formerly raked off the ground with a small rake, but within the last thirty years or so a great deal of attention has been paid to the culture of this plant, and now thousands of acres are covered with it. The cost of planting is high, but it requires little attention afterwards. The surface water is ditched off the ground and an embankment formed, so that the whole place can be put under water at any time to the depth of 2 feet or so. Some cultivators then remove the turf; others only level it and then spread a layer of 6 inches or 8 inches of sand right over it, and into this the Cranberries are planted. Little is expected from them during the first two or three years, but after that from 100 bushels to 200 bushels an acre is about the ordinary produce, and it is worth from 10s. to 15s. a bushel. As winter approaches the place is inundated to the depth of about 2 feet. This protects the plants from frost during winter, keeps away insects, and the longer it is left upon them it makes the flowering come the later to avoid spring frosts. Another fruit thought a good deal of in America and much neglected here is

The Bramble, or, as usually called, the Blackberry. They have no wild Brambles more edible than our wild ones, and yet by selection and careful culture they have brought the Blackberry to be a fruit in no way to be despised. There are a great many varieties, and some of them have been in cultivation for thirty or forty years, but I must say that I think our wild Bramble, which is naturally a most variable plant, would by culture and selection soon produce something as good as any the Americans yet have. It may be noticed that there are some of our wild Brambles much sweeter than others, and some much larger than others, and as this seems to belong rather to individual plants than to varieties, I think it only requires selection to give a good start towards good British Blackberries. These I would expect to produce good crops that would at least pay the trouble of culture on ground that is at present worth nothing. Bramble treatment is very similar to that of the Raspberry, but being a more robust grower it is better to be on poorer soil and to be severely pruned, which keeps it from running too much to wood. I have no doubt that if fruit of good varieties of this could be produced in quantity enough to make it a recognised market fruit it would soon come to command good prices.

The common Barberry is another plant with which one might utilise rough ground. In Massachusetts it is commonly used for fencing fields, and it also grows wild in many rough, hilly places. From these bushes and hedges the fruit is gathered in autumn and made into an excellent preserve. The Barberry fruits freely in this country, and might be planted more generally in rough ground than it is. As regards

Vegetables a great deal of difference exists between their general routine and ours. As half the population of Boston is Irish, so half the

* Read at a meeting of the North of Scotland Horticultural Association by T. R. Sim, Banchory.

gardens there contain Potatoes only, but no American garden is properly cropped which does not contain a patch of Corn, some Tomatoes, Kidney and Runner Beans, a Squash or two, and if there be room a Melon. All this is in addition to our home list. The Indian Corn is one of the ordinary field crops for cattle fodder, but in addition to this everybody grows a few plants of sweet Indian Corn for kitchen use early in the season, and a good vegetable it is. Tomatoes are generally frame started, and then planted out, and bear enormously towards the end of the season. I have seen beautiful Tomatoes hardly selling at a shilling a bushel, basket and all. I suppose the taste for Tomatoes has to be acquired, but I would much prefer them to Apples, and during my stay in the States there was hardly a day that Tomatoes were not on the table in some form, and the same was the case with Oranges. Peas are of no use after the warm weather sets in, as they are very subject to mildew. Squashes are extensively grown, and in the market gardens, fields of 20 acres of them may often be seen. Melons are also extensively grown, but, like Peaches, which are generally grown from seed and never budded, they require a good deal of sugar to make them edible at all. A soft Turnip would often be preferable. A method in common use for keeping Cabbages may be worth mention. They are pulled and set upside down for a week or two, then a furrow is run out with the plough into which they are placed, head downwards and the furrow turned on to them from each side; so left they keep well for a considerable time. Parsley left outside is useless; therefore generally it is covered with a frame or kept growing under glass for winter and spring use. Some market gardeners grow houses of Parsley only. I never saw Kale there except one patch raised from seed procured from this country. The American generally sets too high a value on the dollar to allow of much.

Floriculture, and his ideas are fairly well represented by a little anecdote which Mr. Peter Henderson relates, I think, in one of his books. A gentleman had been asking his advice about laying out the ground round his house. Among other things Mr. Henderson pointed out one spot near the door as particularly suitable for Roses. "But," said the gentleman, "these Roses won't eat, will they? Guess we won't have any of those things on the place;" and so it was determined. This only holds good in certain cases, however, for in out-of-the-way places an old cottage is occasionally to be met with with a small square plot in front containing Southernwood, Roses, Balm, Feverfew, Myrrh, and Thyme, and all the other symptoms of the old-fashioned garden of herbs and flowers. Carpet and succulent bedding are also both well carried out, especially in the Forest Hill Cemetery, but perhaps the best part of this cemetery is

The rockery. This was originally a solid rock, but has been blasted and changed in appearance and filled up with soil till now it has got to resemble an extremely rough rocky face 100 feet or more in height, just overlying a pretty lake and surrounded on all sides by wood. Paths have been formed up this face among the boulders, and several fountains having the appearance of natural springs from under the stones turn up in the most unexpected places, the surplus water generally going over the face of some rock below. Every little nook is filled with some scarce plant. Vines, Indian Cresses, Virginian Creeper, Clematis, Lophospermum, Passifloras, Cobaea, and numerous other trailers hang about in wild luxuriance, while huge plants of *Latania borbonica*, *Seaforthia elegans*, the Banana, *Ficus elastica*, Tree Ferns with stems of 8 feet or 10 feet, and other large tropical plants are plunged in the most prominent and often inaccessible places. Numerous Pelargoniums, tuberous Begonias, and all the ordinary bedding plants are planted wherever there is room. Ferns, Begonia Rex, &c., are planted in Sphagnum where there is no room for soil, and a few high trees stand almost on the summit, which is closely wooded a little back from the rock. The whole produces a rockery

effect which I have not seen nearly equalled in this country or out of it. Its extent, too, is far greater than any I have seen elsewhere. The various other cemeteries in and about Boston are also kept in fairly good form, and take the place there that the public parks and gardens do in London.

Cut flowers and wreaths.—To make up in some measure for their want of taste in outdoor gardening, a rage seems to have got up for cut flowers in winter, to supply which is the principal occupation of hundreds of florists. These generally have a few low span-roofed greenhouses, 10 feet wide, in which they force for winter use Roses, Tuberoses, Violets, English Daisies, but especially Carnations, Chrysanthemums, and Eupatorium. The Roses used for forcing are mostly Tea Roses, and include Bon Silene, Lamarque, Cornelia Cook, Céline Forestier, Gloire de Dijon, Isabella Sprunt, Maréchal Niel, Safrano, and Souvenir de la Malmaison. They are all grown on their own roots, the general practice being when a bud is cut to take a cutting, consisting of two or three eyes, from beneath it. If taken early in winter they will have rooted well before spring, and will require to be grown on as quickly as possible, and kept from flowering until September, by which time they should fill 6-inch or 8-inch pots. If kept in cold frames they are then ready to burst into bloom on being placed in heat.

Two plants largely grown and used for green in winter we seldom see here, and one of them, *Smilax*, is especially useful. It goes by the names of *Smilax*, *Myrsiphyllum*, and *Medeola asparagoides*; it is a climber with a long wiry stem and small roundish deep green leaves. This is grown in great quantity, and Messrs. Hovey grow a large house of it only. Its roots are dried off for some time in summer, and planted in time to let it start well before winter. Generally it is planted on the floor of the house in a strong mixture of manure in lines 1 foot apart and about 6 inches between the plants. A strong string is fixed above the crowns and another on the roof directly above, and a small string is fixed up and down between these at about every 4 inches. Each stem as it starts is directed to a string, and then kept to it, the result being strings of 5 feet or 6 feet densely set with beautiful green foliage. Nothing can be better for a wreath than one of these strings with a few flowers intermixed. For general cutting it is also most useful, and is almost the only thing used. The other plant to which I referred is *Lygodium scandens*, a well-known Fern here. Its treatment is exactly similar to that of the *Smilax*, though it is not so largely used. Chrysanthemums are generally planted out as soon as the weather permits, and lifted again just before the frost comes. *Stevias*, *Eupatorium*, and *Heliotrope* get exactly the same treatment, and a great quantity of *Heliotrope* is used for winter cutting. *Bouvardias* are hardly ever kept more than one year. Cuttings and root cuttings struck in spring and grown in pots for a month or two are planted in the open air, and kept constantly pinched till about September, then lifted. The Lily of the Nile (*Calla aethiopica*) is used a good deal for winter flowering. For this purpose the old plants are reduced to single strong crowns, planted out for the summer in damp free soil, and any flowers that show are picked off up to September. Carnations are struck as cuttings about January, and grown in boxes for a month or two, then hardened and planted out as soon as the weather allows Cabbages to be planted. Liquid manure is applied, and whenever a flower-stem appears it is pinched off till about August. They are then lifted, and either potted on planted on benches. It is a common practice there with many other plants besides the Carnation to plant on benches as thick as they will conveniently stand, with a depth of about 8 inches of soil. Neapolitan Violets are generally treated in this way, and so are English Daisies and Forget-me-nots when grown in the greenhouse, as they frequently are. They are all kept as cool as can be without freezing, as the more air and the less heat generally the more flower and the less foliage.

Planting on benches.—The principal idea worked on in most places in America is a reduction of the labour required, and for this purpose the planting out on benches answers well, and in some of the largest market places Carnations, *Bouvardias*, *Heliotropes*, *Begonias*, *Stevias*, *Chrysanthemums*, *Spiræas*, *Deutzias*, *Daisies*, *Violets*, *Forget-me-nots*, and everything else used are planted in the open ground for the summer, and as winter approaches lifted with good balls and planted on benches, and so left to flower, their place being filled by bedding plants and young stock as soon as they are done flowering. *Eupatoriums*, *Chrysanthemums*, and *Stevias* are too high to suit the low houses, but this is got over by planting them on their sides. Roses are often grown on benches summer and winter, and all the sashes, which are generally movable, removed entirely during summer. With this planting-out system, one man can manage a place that would require three or four if pots were used, and as a general rule the results are better.

GARDEN FLORA.

PLATE CCCLXV.

UTRICULARIA MONTANA.

THIS beautiful plant and *U. Endresi* are, singularly enough, the only two exotic species of Bladderwort in cultivation, although nearly 150 are known to botanists and dispersed throughout the tropical and temperate regions of the world. By comparing the subject of our present plate with *U. Endresi* (p. 432, Vol. XVIII.) it will be seen that there is but little difference between the two except as regards size and colour of the blossoms. Both are lovely plants, and may be reckoned among the choicest occupants of the stove or warm greenhouse. As the flowers bear a striking resemblance to those of some Orchids, these *Utricularias* are generally grown in an Orchid house, and the temperature of a *Cattleya* or what is called an intermediate house seems to suit *U. montana* admirably, but *U. Endresi* requires a little more heat, such as that in the coolest part of an East Indian Orchid house. The finest cultivated plants we have ever seen of *U. montana* were some which we saw in June last in Baron Schröder's garden, The Dell, Egham. One of these, growing in a square Orchid basket suspended in the *Cattleya* house could not have been less than 3 feet through, and the long, slender flower-spikes spread out horizontally in all directions. It was from this plant that our plate was drawn.

Culture.—As regards this we cannot do better than quote the following note from Mr. Ballantine, Baron Schröder's gardener, who says: "*U. montana* is grown here on the north or shaded side of the *Cattleya* house, suspended as near the glass as possible, so that the plant may obtain plenty of light, but it is always shaded from the sun. It is grown in an ordinary Orchid basket filled loosely with good Sphagnum Moss; a liberal supply of water is given during the growing season, that is, in spring and summer, and never at any season is this plant allowed to become dry, as it is essentially a lover of moisture." Both *U. montana* and *Endresi* may be propagated by separating the little bulb-like appendages that adhere to the stems and roots during summer. *U. montana* was introduced about a dozen

Growers or introducers of new plants will oblige us much by early intimation of the flowering of new or rare species, with a view to their representation in our "Garden Flora," the aim of which is the illustration in colour, and in all cases where possible life size, of distinct plants of high value for our gardens.



years ago from Martinique, though it is dispersed through the West Indies, Peru, and New Grenada. U. Endresi was discovered by M. Endres in Costa Rica a few years ago.

FRUIT GARDEN.

VINERIES AND THE KEEPING OF GRAPES.

THE great difficulty in the case of non-professional gardeners who have vineries to manage is the keeping of Grapes; they have been more than usually troublesome this season, as owing to the wet, sunless autumn they were not so well ripened as usual, and do not therefore contain so much saccharine matter, without which fruit cannot hang long. It is seldom that Hamburgs can be kept much after Christmas, as they are a thin-skinned Grape, but Lady Downes, Mrs. Pince, Barbarossa, Gros Colmar, and Alicante will keep till March if the atmosphere surrounding them is kept cool and dry. The easiest and best way to preserve them till that season is to cut and bottle them, that is, to take the bunches off the Vines with wood attached, the lower end of which should then be inserted in bottles of water. If both bottles and Grapes are then hung up in a dry, airy room, the Grapes will remain plump and good and retain their fresh, piquant flavour. There is a double advantage in cutting and keeping Grapes in the above-mentioned way, as it gives a chance of pruning the Vines and cleaning the vineries, both matters of the greatest importance, especially the former, as when deferred till late the Vines are sure to bleed, and the loss of sap has a most serious weakening effect. To save any risk from bleeding when pruning has to be deferred, it is a good plan to use styptic, which, if rubbed on the cut part stops the pores and seals up the sap vessels. Styptic, however, is useless after bleeding begins, as when the wood is wet, it will not adhere, and should therefore be put on directly the pruning is done. The vinery and glass ought then to be all washed and cleaned, so as to do away with insects, and let in the full flow of light. To get dirty green deposit off paint and wood, there is nothing like soft soap and water, which, syringed on and left to soak for a bit, soon softens it, and a rub with a brush sets it adrift, when it can be rinsed off at once. Stems of Vines, too, are also all the better for a scrub, as they, like ourselves, to be healthy, must have clean skins. To denude them of their bark, as some do, is a great mistake, as that is their natural covering, and is requisite as a protection against heat and cold. The only portion that should, under any circumstances, be removed is that which is seen to be loose or hanging in shreds, as it clearly shows then that the Vine not needing it longer is casting it off. S. D.

VINE BORDERS.

"T. B." (p. 415) has laid a good foundation by concreting the bottom of his border, which is always advisable where the ground is wet and bad below, but not otherwise, as Vines are all the better for having perfect freedom for their roots, which like to get down and spread far and wide. As the concrete is there it will be necessary to put some drainage on it, for which purpose soft, porous red bricks broken up are as good as anything, or coarse old mortar rubble, which is very absorbent, and lies dry and warm. As the depth of the border, 3 feet, is not great, the drainage ought only to be 6 inches thick, and to keep it always clear and open it should be covered with turves laid with the Grass side downwards. As to soil, there is nothing equal to good yellow turfy loam fresh cut from an old pasture that has been fed close, as such loam contains plenty of fibre, and will last sweet and wholesome for years, that is provided no manure or any other mixture is put with it to rob and eat the fibre away. A few crushed bones and a sprinkling of soot are all very well, but beyond these all else will do harm; any feeding the Vines require when in bearing can be given

by surface dressing the border and watering with liquid manure. In preparing the material, it should be chopped up rough, and when wheeled in, spread out regularly, that it may settle uniformly, and when it has subsided a bit, it will be quite ready for planting. As the autumn is now past, the best time to do this is in March, but the Vines should be got now and cut back to about 2 feet or 3 feet, according to their strength and the ripeness of the rods; by doing which they will heal over and not bleed in the spring. The shaking them out of their pots needs to be done with care, so as not to strain or injure the roots, every one of which should be laid out straight and covered with the finest parts of the soil. D.

WINTERING STRAWBERRIES FOR FORCING.

HAVING in my own practice tried many different plans of protecting Strawberry plants in pots from severe weather, and having seen various means adopted by others for the same purpose, I have come to the conclusion that any elaborate system of protection is wholly unnecessary. I quite agree that it is judicious to give them quarters in which they can be protected from violent extremes of temperature and moisture after the middle of November, but I maintain that to coddle them in any way before that time is a mistake. In this case, as in most others, I am of opinion that if Nature is allowed to do her work in her own way, it will be done much more effectually than if we try to assist her. All that the cultivator need do in the matter, provided the plants have been properly prepared, is to keep the roots right in regard to moisture. I have always found that, however heavy the rainfall may be in autumn, the plants winter better than they do when the weather is of an opposite character, and the condition of the plants at the present time plainly shows that we are more likely to err on the side of giving them too little than too much water. This fact has, I think, a direct bearing on the kind of treatment which they require from this time until they are taken to the forcing house. For several years past my practice has been guided by these considerations, which have resulted in a fair measure of success. Let me now describe my own practice as well as that of some others, and then I will leave the reader to decide which method he will adopt.

Wintering in a Peach house.—About the middle of November we go over the plants, cut off any decaying leaves, clear off all weeds, and give each pot a rub round with a wisp of dry matting. They are then taken into an unheated Peach house, where they remain until they are required for forcing. While in this house they are looked over once a week, and those that require water receive it, my impression being that the drying-off process is altogether at variance with the nature of the plants, and I have always found that if once the soil gets sufficiently dry in the pots to shrink away from them all round, it never gets back again in the way in which it was previously, and I have always found a difficulty in keeping plants thus dried thoroughly and regularly moist when taken to the forcing house. Keeping the plants in

Cold frames, with the pots plunged to their rims in coal ashes, is a plan practised by a friend of mine, a very successful forcer of Strawberries, and from what I have seen of the results of his practice I am quite sure there is no better mode. It is not, however, always convenient to find frame room for a large number of Strawberry pots, but where there is room and the pots can be placed in the frames early in November, and have the shelter of the lights during very heavy rain and frosty nights, and at other times have the lights drawn off altogether, the plants have the benefit of air and light. In fact, in this way all the conditions that the plants would have in the open ground are secured without being subjected to violent extremes of cold drenching rain and frost. The grower to whom I have just alluded is most circumspect in his practice; not a leaf,

although there may be many quite yellow, is removed before the plants are ready to go to the forcing house, nor must it be supposed that he coddles his stock in any way; on the contrary, he is a firm believer in thoroughly maturing the plants by giving them plenty of air, and allowing them to feel the steady autumn rains. It is only the severest frost and heavy downpours that are kept off.

Stacking against a south wall and filling the spaces between the pots with ashes is a favourite plan with some, and where there is no better convenience no doubt it is better than leaving them quite exposed. The operation is a very simple one: a row of plants with the crowns outwards is placed on the ground close to the wall; fine ashes are then spread between the pots to form a level bed for the next row, then more ashes are laid between, and another row of pots is placed on the one preceding it, and so the work goes on, a row of pots and a layer of ashes tier upon tier, 3 feet or 4 feet high, according to the space at command and the number of plants to be dealt with. There need be no question that the wall and the ashes between the pots afford some protection; but if the plants have to remain in that position for three or four months, it is certain the soil in the pots must get drier than is good for the roots. In this matter, however, opinions differ; for my own, part I am not a believer in the drying-off process, but I have given the details for the benefit of those who may be compelled to adopt this plan from want of more suitable quarters. J. C. C.

ROOT PRUNING AND TRANSPLANTING.

THE beneficial effects of root pruning on over-luxuriant, and consequently barren, fruit trees can scarcely be overrated, as the operation is so quickly corrective that by the check it at once gives growth is arrested and flower buds formed. Transplanting produces much the same results, but this can only be carried out with young trees of moderate size, as the actual lifting of any of large dimensions, unless very carefully and skilfully performed, would be exceedingly injurious to them, and retard their progress for years. The case is very different with root pruning, as they may be operated on piecemeal, as it were, that is one side or half the ground around the tree may be opened out and the roots cut back now, and the other portion next autumn or a year later. The way to proceed is to dig a good wide trench, the size and depth of which must be regulated by the age of the Apple or Pear to be operated on, as also the distance the trench should be from the stem, but from 3 feet to 5 feet is generally sufficient. When the opening is made it is easy to work inwards by using a fork till the roots are all bare, and it can be seen whether there is a tap or any going straight down under the trunk. These are the ones that work the mischief, and they should therefore be severed, and others raised nearer the surface, which may be done as the filling in proceeds, when it is a good plan to give the roots a little fresh soil. What suits them best and induces fibres is newly-cut turf mixed with sharp grit or road scrapings, that is in cases where the land the trees are growing in is stiff and clayey; but if the reverse of this and light, the loam will be more valuable without the grit, as it would keep it too loose and open, and neither Pears nor Apples do well when they have earth in a condition like that. As regards

Transplanting, the earlier that operation is taken in hand the better, as it is surprising what a difference it makes in the strength of the trees if they are got in early, for by giving them plenty of time, hosts of young fibrous roots are formed ready for nourishing and sustaining the buds when they begin to burst in the spring. This being so, trees should be ordered at once that they may be got before hard frost sets in, which may delay planting for weeks, and do much harm by keeping the plants long out of the ground. That this may not occur, preparations should be made by having all in readiness on their arrival, and the chief thing to be done is to have suitable soil at

hand that each tree may have at least a barrow-load of fresh to give them a start. As before mentioned, nothing answers better than turfy loam, which cannot well be too stiff for Apples and Pears, but for Peaches, Apricots, Plums, and Cherries soil with more sand in it grows the best fruit. Some endeavour to make it light by mixing in leaf-mould, but that is highly dangerous, as, though most plants like it, it only generates fungus, and once this gets into a border and fastens itself on the roots of trees they seldom do any good after. Loam, pure and simple, is always the best, and the fresher it is the better will young trees succeed in it, as it is full of decomposing matter that they can at once turn to account. Before planting the roots should be examined, and any that are broken or injured at the ends trimmed by cutting away the jagged part with a sharp knife, but on no account should the branches be shortened or pruned back, as the doing of that throws the tree so operated on back a year, for the more top a plant has, the more leaves will it carry, and these greatly help the formation of roots and their rapid extension. All that ought to be done with young trees is the thinning out or removal of any branches that may be misplaced or not wanted for laying in, and beyond these every other should be left full length and trained out and nailed by the use of soft shreds to the wall in the positions required. This accomplished, the next thing is to mulch the ground immediately above the roots, which is a very important matter, as it not only keeps out frost, but maintains a more equable condition of the soil both as regards warmth and moisture. For mulching, half rotten manure is the most suitable material to use, as it lies light and does not blow about or become displaced, and the juices it contains are gradually washed out and carried down by the rain, and thus act beneficially in this way in enriching the soil. Standard and dwarf trees planted away from walls should be securely staked and tied to prevent any waving to and fro, which is highly injurious, as motion of that kind prevents young roots forming or destroys them by the friction which it causes. S. W.

Autumn swelling of fruit buds.—Fruit trees now begin to show the advantage of having had plenty of moisture at the root; their buds are round and plump, a good omen as regards next season. Some think they are dangerously forward for the time of year, but unless they are well filled up now no amount of genial spring weather will make a crop. There is really no fear of this autumn swelling resulting in premature blossoming; it is a final effort of the tree to complete what it has to do before the winter's rest.—JAMES GROOM, *Seafield, Gosport*.

When to plant Vines.—Notwithstanding what "A Vine Grower" asserts, it must not be overlooked that when Mr. Scott put his query his Vines had not done growing. The obvious deduction, therefore, was that if then planted out the roots, being still active, would soon get a grip of the soil without, as I said, promoting new wood or leafage. That still remains unquestioned; but "A Vine Grower" evidently refers to Vines in pots that have become matured and are resting, and that until heat is applied will remain dormant. The two things are quite different. All who are acquainted with plant physiology know that the reason why the early autumn planting of deciduous trees is recommended is that ere cold has solidified the sap and whilst it is yet active they may be induced by the soil which is yet warmer than the air to develop rootlets ere the winter sets in. In that way the trees really become established, and when the warmth of spring excites the sap to upward motion, the roots, having already made considerable growth, are ready to meet the demand. There is scarcely a deciduous tree or shrub of any kind that is not best planted in the autumn; bulbs, too, are so planted because even in their comparatively torpid state the soil will attract roots downwards long before there is any upward growth. "A Vine Grower" seems to have tested the plan of autumn

planting, and found it to fail in so far as no new roots were developed. Much, however, depends upon what he expected to find, and, moreover, his may have been an exceptional case, and, still farther, the planting may have been done after the Vines had quite gone to rest. It is unsatisfactory to learn that he is unable to tell the cause of non-root action in the case of the Vine, whilst he admits that other plants and trees make roots in autumn; indeed the stereotyped "Vine Grower's" advice seems to be, "plant in the spring," without giving any clear and exact reason why we should do so. Now, "A Vine Grower" says that even in the case of spring planted Vines foliage always precedes root action. If so, is that not an argument against spring planting, unless—what in my opinion would be best—we start the Vines in heat whilst yet in the pots, and when roots as well as leaves are active plant out?—A. D.

—It may be found desirable to replant, old Vines in bearing whose roots are chiefly under glass or some other protecting material; if in outside borders, the period just previous to the fall of the leaf may be taken as representing a favourable time for the work. With regard to young canes, either planted inside or outside a house, or against sunny walls, I should most certainly prefer to be guided by the practice of vineyard proprietors of the warmer middle lands of Europe. These men, following time-honoured safe methods for commercial purposes, never plant in the autumn, for reasons which in themselves are simple enough. They say that the young roots and spongioles, that almost always get injured in the operation of transplanting, do not heal, even if nicely pruned, but continue to rot further and further from the original wound, until the natural beginning of growth in the spring arrests the decay—precisely what occurs in autumn removed Asparagus. Of course the rotting of the rootlets means weakened growth the next season, and would entail in the case of the Vine grower his waiting till the fourth year instead of till the third year for a good crop. Exactly the same results must be looked for from autumn planting here, for although the temperature falls not so low, still our excessively wet winters favour decay in parts of a plant already mutilated or bruised to a still greater degree. It is not so much, if at all, the loss of rootlets which is to be deplored, but the weakening of the constitution of the plant by the rotting process. I have seen thousands of young Vines planted in April which had all the rootlets pruned off to within 2 inches of the stem (the stem being 1½ feet deep in the earth) with excellent results. Planters will therefore, I think, have no reason to regret planting Vines in spring.—SYLVESTRIS.

SHORT NOTES.—FRUIT.

Fruit shrivelling.—What is the cause of late Apples and Pears—Gloire d'Orléans, for example—shrivelling instead of ripening when not gathered too early, i.e. not before the middle of November? Some that were gathered only a week ago are beginning to shrivel.—J. E. H.

Fir tree oil.—Will some of your correspondents be good enough to inform me when Fir tree oil should be used for fruit trees? whether every year, or only under special and particular circumstances? also how it should be applied?—J. F.

Strawberry Pelissier.—Will "J. C. B." be so kind as to give some more information about this Strawberry, telling us what months it continues in bearing, something about its size, colour, flavour, &c., and where it may be procured, as I do not see it mentioned in any nurseryman's list? Any hints as to culture will be most gratefully received.—Q. Q.

Summer pruning stone fruits (M. D.).—If the pruning to which you allude is done, as stated, it is certainly wrong; both foliage and wood are necessary above the fruit in order to aid perfect swelling; besides, by such close and constant repression of growth there is no chance for the trees to form fruiting wood for another season. The stopping of the shoots should be at least two joints above the fruit.—W.

FLOWER GARDEN.

PLEASURE GROUNDS IN WINTER.

WE have here about thirty acres of pleasure grounds, the owner of which is away most of the summer, but at home the greater part of the winter; therefore the grounds have to be kept as well or better in winter than in summer, and to do this properly requires a good deal of attention. When leaves are falling daily, little is done with them until they are all down, when a thorough clearing up takes place, and everything is put into good order for the winter. The flower beds receive attention first; as soon as severe weather has destroyed their summer occupants, they are either cut down or pulled up and thrown away as the case may be, and the beds made ready for the reception of other plants. In some cases they are filled with hardy ornamental-leaved shrubs or bushes, in others spring flowers and bulbs are introduced, and not a few are closely filled with prunings of evergreens. Well coloured points of variegated Hollies, Aucubas, dark-leaved Bays, and different kinds of twigs with berries on them, if arranged according to colour and height, are very effective, and retain their good appearance until April; in fact, we have sometimes found that Laurel shoots placed in flower beds now have struck root when drawn up in spring. In every instance the beds are filled as neatly as possible, and the walks and Grass around them are well cared for. All weeds are carefully removed from the pathways, as nothing gives pleasure grounds a more forbidding appearance than dirty paths. It is an advantage to have these clean and in good condition in summer, but doubly so in winter, as a well-made and well-kept walk is then so enjoyable. To have a walk really comfortable the centre should always be at least 6 inches higher than the sides: this elevation will always afford dry footing—an important consideration in winter. Where the walks are full enough, but have gone out of shape, the best way is to pick them up all over and form them afresh. Raking in the first instance and rolling frequently afterwards will soon put them in excellent condition. Next in importance to the walks is

The lawn.—In order to have this in its best form now and on throughout the winter, any work requiring to be done on it must receive attention at the right time. Some who go over their Grass daily and sweep up the leaves almost as they fall, no matter whether the ground be wet or dry, generally succeed in taking all the close green velvet texture out of it, and throughout the winter it appears muddy and unattractive. It is only when Grass is dry and the turf firm under foot that we ever do any sweeping on it in winter, and the result is that now and during the whole of the short days our lawns are as attractive as they are in summer. The lawn mower is run over the Grass for the last time about the end of October, but that only when it is in good condition for doing so. At present it is dry here, and the Grass has been finally cut, leaves blown under bushes are being raked out, the Grass carefully swept and afterwards rolled, and then our principal work in the pleasure grounds is almost completed for the winter. Cleanliness and neatness being secured, we turn our attention to

Pruning and cutting back trees and shrubs. This, however, we do not follow through from beginning to end like the cleaning; on the contrary, it is generally work which lasts from November until March, as we do our pruning when frost and other circumstances prevent us from doing work in the kitchen garden or elsewhere. Some of the walks which are bordered with Laurels and other fast-growing shrubs are taken in hand first, as many of the branches of these grow 3 feet and 4 feet outwards in a season, and these sometimes extend so far over the walk as to be in the way. Large banks of Laurels which require much clipping are left to the last, or they may be gone over during long spells of frosty weather. In dealing with the more choice subjects nothing but the knife is used, as a natural and

graceful appearance is always preferable to any rigid, grotesque, close-shaven design; in fact, with the exception of a few cone-shaped Irish Yews, there is no isolated bush in our extensive pleasure grounds that we ever allow to be clipped. Hedges are cropped and dressed throughout the winter. We never like to begin to prune evergreens until the leaves are off deciduous trees, and they are all pruned by the time when the buds begin to push again in spring. Those who follow this rule as to time of pruning will find it answer in every way, and in adhering to it they need never be at a loss to tell when to trim their bushes or think they are doing their cutting at an unseasonable or wrong time. CAMBRIAN.

USES OF WOOD SORRELS.

THE several species of *Oxalis*, commonly known under the name of Wood Sorrels, are for many reasons especially interesting, whether we regard

several species of *Oxalis* have been at different times recommended in this country as a vegetable—a substitute, in fact, for the Potato. The principal species so recommended is *O. crenata*, a species with an erect, leafy stem, and yellow and purple-streaked umbellate flowers. This plant, which we figure, is a native of Peru, where it is largely grown, as well as about Lima, for the sake both of the acid leaf-stalks and the tubers. The former, it is said, make an excellent preserve, and the latter, after being boiled, are eaten as a vegetable. Some of the acid flavour is dispelled in the process of boiling, and in shape and appearance the tubers resemble miniature Potatoes.

The cultivation of this species in this country, as a substitute for the Potato, was advocated many years since. The tubers, however, even under cultivation seldom exceed two ounces in weight, and their acid flavour and waxy character would always tell against their general adoption



Oxalis crenata.

them for their simple beauty, as in the case of *O. Acetosella* of our own country, growing as it does in delightfully shady nooks in woods and groves, and flowering in the early spring months, or whether we consider the sensitive character of their leaflets, which are pendulous at night and spread out in daylight, or whether again we look upon them in a more strictly utilitarian light, namely, as affording articles of food in their tuberous root-stocks, all of them are plants well worth attention. They are, for the most part, herbaceous; some, however, are shrubby, and one, *O. scandens*, a South American species, is a climber. Most of the species form a subterranean fleshy stem or rhizome which becomes tuberiform or bulb-like. In some species, as in *O. cernua*, bulbs about the size of a Hazel nut are produced in the axils of the lower leaves. They are chiefly natives of Tropical America and South Africa, mostly about the Cape of Good Hope. The prevailing character of the Order to which *Oxalis* belongs is the presence of an acid principle, which is found more or less throughout the whole of the species, principally in the leaf-stalks and tubers. It is present in a marked degree in *O. Acetosella*, oxalic acid being produced from it. The tubers of

with us. It is not impossible, however, that these objectionable properties might, by continued and careful cultivation, be considerably modified, if not eventually entirely removed. Another great question would, of course, be whether the tubers could be produced in sufficient quantities to repay the outlay for the occupation of the land and the labour necessary for their cultivation, the average produce of a single plant not usually exceeding half a pound.

In the Mexican *O. Deppei*, which has similar fleshy, tuberous roots, the acid flavour is not so powerful as in *O. crenata*. It was introduced to this country in 1827, and is often to be met with in gardens. *O. tuberosa*, a native of Bolivia, is also largely grown for the sake of its edible tubers.

JOHN R. JACKSON.

Sunflowers. Several of these plants in the College Nurseries, Cheltenham, have acquired gigantic proportions, and their hugetubular-shaped blooms are from 12 inches to 15 inches in diameter. One especially large variety, whose stem is some 12 inches in circumference, has immense cordate leaves. A large bed of such plants has a striking effect. —E. JENKINS.

NOTES ON CHRYSANTHEMUMS.

CHRYSANTHEMUMS were well shown at Kingston the other day, and one of the special merits of the show was the absence in the competitive collections, with a few exceptions, of those huge abortions called trained plants. One local enthusiast sent to the show three truly monster specimens of the Mrs. G. Rundle family, each a duplicate of the other and some 7 feet across. These plants were far too widely tied out for the quantity of flowers which they carried, and were as ugly and objectionable as could well be desired. Compared with these, how admirable were the finely flowered half dozen plants in the first prize collection, each one about 3 feet through and 2½ feet in height, well flowered, each bloom being large and perfect. What a pity it is that in prize schedules some limit is not placed to the size of the specimen plants as well as to the width of the pots in which they are grown. No grower has yet been enabled to solve the problem of how to arrange a group of Chrysanthemums for conservatory decoration without rendering the group stiff and formal. Trained, the Chrysanthemum is a tortoise; naturally grown, it is a long-legged giraffe. With such elements it is, of course, difficult to make groups that can claim the designation of elegant or graceful, although in no case lacking variety or brightness in the way of colour. The common form of an exhibition group of Chrysanthemums is a gentle slope towards the spectator, so that all the flowers may be seen to the best advantage. That is, perhaps, under the circumstances the most natural arrangement. Then so very much stress is always laid upon quality of flowers, that the grower presents his plants generally with some half dozen or less of fine and usually stolid incurved blooms, so that when the group is staged the flowers look as regularly placed over the area as if mathematically arranged. To expect that any effective arrangement can grow out of such material is to look for what is impossible. Then, again, the requirement as to quality of flowers makes the grower chary as regards the employment of the singularly formed and beautiful Japanese kinds, whilst of reflexed flowers and good Pompones for facing the group, few, if any, are used. As there is so much inducement to exhibit quality of bloom, and that alone in the cut flower and trained plant classes, it is desirable that the word "quality" should be eliminated from these classes, leaving only the requirement of "most effectively arranged." In such a case not only would we have greater variety, but disbudding so severely would not be encouraged, and we might also see some of the tasselled Japanese flowers elevated here and there several inches above the more formal flowers, and thus a very pretty and striking effect would be the result.

The champion classes at Kingston have for the past four years always created considerable interest. At the recent show the offer of a new challenge vase contemporaneously with the concluding competition for the old one brought together all the best growers—some eight competitors staging in the two competitions each forty-eight flowers, or a total of 364 blooms, quite a large display of itself. It was peculiarly interesting to note that though some of the leading Liverpool growers competed, yet all the best awards fell to the southern men, for whilst Mr. Harding, of Putney, took the old champion vase for good and all, Mr. Molyneux, of Bishops Waltham, had the honour of winning the new vase for the first time, and both had grand flowers. Mr. Molyneux will be a formidable competitor henceforth, and may not improbably bring the new competition to an inglorious close next year by winning the vase for good and all. The class comprises twenty-four incurved flowers and twenty-four Japanese, and it is not difficult to find that the Japanese, be they ever so good, are not nearly so much esteemed by the fanciers as the incurved flowers, so that in the majority of cases where these are best there goes the award. Rarely has a more beautiful and fresh twenty-four Japanese blooms been shown than were those

with which Mr. Beckett, of Esher, won the first place in that class. Words utterly fail to convey the singularly graceful forms, rich and varied hues, and many striking beauties found in flowers so very fine as these were. The six blooms of the curiously incurved and soft lilac coloured Japanese Madame Audiguier, shown by Mr. Molyneux, were indeed grand, probably the finest of that variety ever seen. Whilst the Japanese section is being almost rapidly increased by seedlings, and the wondrously varied forms found in it permits to raisers wide scope for their abilities, the florists' favoured incurved kinds seem more dependent upon

Sports, which reproduce the original flower with some other colour, shading, or hue, but with these all must conform to the one great essential—perfect rotundity and the most exact dressing or arrangement of petals. A stand of perfect incurved show blooms, varying only in colour and size, might be not inaptly likened to a number of vari-coloured cricket balls.

The form may be of the most perfect kind, but it is none the less monotonous. The reflexed flowers are a limited section, and generally are of intermediate size, so that but few are acceptable as show flowers. Thus rarely is the rich deep crimson Julia Lagravère seen in a stand, because, though so beautiful, it lacks size, and its place has to be taken by its nearest reflexed companion, Dr. Sharpe, because the latter is larger. All these reflexed kinds are graceful flowers, and deserve far more encouragement than they get. Certainly, the growers of market Chrysanthemums know their worth and beauties, and

in consequence they are cultivated very largely. The best kinds of this section at Kingston were Pink and Golden Christine, Dr. Sharpe, King of Crimsons (a rich flower), Cloth of Gold, Chevalier Damage, Emperor of China, and Mrs. Forsyth. In the Pompones section there is a tendency to get away from the earlier progeny of the Chusan Daisy, and to increase the size of the flowers, and the same feature is seen in the Anemone-flowered section. Such Pompones as White and Golden Mdle. Marthe, Adèle Presette (soft lilac), Marabout (beautifully fringed), Cedo Nulli, and others of larger size are quite displacing the old button-flowered sorts. Certainly in this case the larger flowers are more pleasing and graceful. It is by no means improbable that in time, and that not long hence, it will be necessary to establish distinctive divisions in the Japanese flowers, for the variety of form shown amongst them indicates that set forms will soon become permanent. We see now sprawling, loose flowers that, to use a vulgarism, are literally all over the shop. Examples of this habit are found in Boule d'Or, Comtesse de Beauregard, Meg Merrilees, Baron de Prailly, and

Fair Maid of Guernsey. Then come the truly beautiful and more refined petalled forms of Thunberg, Grandiflorum, Balmoreau, Fanny Rochester, Striatum, Garnet, Criterion, and Oracle. These are perhaps the most charming kinds of the section, and should be largely increased because of their distinctive individuality. Then comes a section having partially stiffened or erect petals, of which Hiver Fleur is so good an example; and others are Peter the Great, Album plenum, La Nymphe, and Sarnia.

Yet another section may be made out of the flowers the petals of which assume an incurved form, such as do those of Madame Audiguier, Soleil Levant, Chang, Comte de Germiny, and Rubrum striatum. There yet remain the feather-petalled kinds, of which there are not many, but Curiosity suffices for an example. Apart from these sectional diversities, the selection of these Japanese kinds now given will serve to show many not well acquainted with them how to choose

giants, but from the ground upwards it displays 4 feet of naked-looking stem. *Helenium autumnale* does the same, or worse, for the lower part of the stem is clothed with unsightly-looking, withered leaves turned black. In planting these it is well to place them so that they rise behind other plants of such stature as will best conceal their weak points, such as Michaelmas Daisies of medium height.

Helianthus orgyalis, if seen standing by itself, is an awkward monster, with a preposterously lanky look, and must be supported by tall stakes that cannot be hidden, but its clear yellow stars and delicate leaves are graceful, showing at a height of 10 feet or 11 feet behind and above a group of another perennial Sunflower that blooms at 8 feet or 9 feet. Several of the taller plants, difficult to place singly, come well if thrown together into a great group, and such a large mass placed at some advantageous point in the length of the border cannot, therefore, fail in being a fine object.

In a border just replanted the great mass for next autumn is of the two Sunflowers just mentioned (*H. orgyalis* and *giganteus*), *Physostegia imbricata*, and Michaelmas Daisies. The past year's experience shows that it is far the better plan to keep together the groups that flower at the same season, especially in the case of late autumn bloomers, when flowers are becoming few. The effect is far finer of a few large flowering masses at irregular intervals than of a greater number of single blooming plants or groups more evenly distributed over the whole extent of the border. The eye goes at once to the mass of colour without noticing the

deficiency of the intervening spaces.

G. J.



The three-coloured Celeriac (*Apium graveolens tricolor*).

sorts having variations in form as well as in colour. All the biggest blooms are not the most beautiful, and many of the large sprawling flowers are the least enduring, but whether grown for house decoration only or for exhibition variety is charming, whilst in the latter case size seems to be an important feature.

A. D.

TALL BORDER PLANTS.

IN planting a mixed border of hardy flowers it needs some judgment to place to the best advantage the very tallest plants, those whose height is from 7 feet to 10 feet. The habit of the plant, and chiefly the way the leaves grow towards the base, will mainly determine the best method of treatment. Such a thing as a well-grown Hollyhock is a perfect group in itself; the flower-spikes rise tall and strong from a grand mass of foliage, and the whole growth from the ground upwards is a beautiful object. It may stand well to the back of the border, but nothing large should be before it, that it may be seen clear its whole height. *Helianthus giganteus* is one of the finest of the autumn

Chrysanthemum Etoile d'Or.—This is a useful Chrysanthemum either for bedding or as a pot plant for the conservatory. Its flowers are greatly superior to those of other varieties both as regards size, substance, and purity of colour. It is best propagated by means of cuttings put in in March, and grown on in heat till the end of May, when they should be planted out. It is of quick growth, and flowers abundantly from July to October; moreover, the flowers withstand rain better than those of many other bedding plants, and are very effective associated with such plants as single Dahlias, Heliotropes, Fuchsias, and Abutilons. As a pot plant it flowers freely, not only in summer and autumn, but also under good treatment all through the winter months. Its culture as a conservatory plant consists in simply growing it in pots in the way in which ordinary Chrysanthemums are grown, and taking care to house it before there is any danger of its being injured by frost.—W. L. H.

THE PINK AND ITS CULTURE.

SOME who have failed with the Carnation and Picotee have not found it difficult to grow the Pink, and some prefer it to the Carnation, even if they had the choice of growing both. There is one thing in favour of the Pink, and that is it succeeds better entirely out of doors than under glass. It should be propagated by taking the small side growths off in July and inserting them in sandy soil in a shady place, or, if available, they may be put under glass-lights. They strike most readily when taken off in rainy weather, and if the sun should shine out strongly, they must be shaded until they have formed roots, but they dislike much shading. When rooted, they should be planted out in fine garden soil, about 3 inches or 4 inches apart, to be again planted out in beds or borders where they are to flower in October or (if the ground is ready) in September. I plant them in good garden soil into which some rotten manure has been dug. Old Pink growers used to make too much fuss about the preparation of Pink beds, and this more than anything else caused the Pink to decline in favour. The beds require attending to during winter, as the plants are sometimes thrown out of the ground by frost, especially when planted late in the season; they may be made firm with the fingers after a thaw, and the surface of the beds may be occasionally stirred up with a small fork or a pointed stick. The Pink flowers a month earlier than the Carnation, which makes it more valuable, as the one naturally succeeds the other. By the middle of July the Pink will be past its best, while the Carnation and Picotee will be beginning to open their flowers. This is considering that they have been allowed to come to the flowering stage out of doors in beds or borders.

Pinks for forcing.—There does not yet seem to be a strain of perpetual flowering Pinks, although some of the varieties are well adapted for forcing purposes. These forcing Pinks seem to be a distinct class, and although they do not possess the various points of excellence in lacing, form, and quality which the others have, yet they are beautiful border flowers, and if grown in the open air produce large quantities of bloom, invaluable where cut flowers are much in demand. The plants that we intend to force were potted a month or more ago and were placed in a cold frame, where they are rapidly making fresh roots. Early in the new year a few pots will be placed in a forcing house, as near the glass as we can get them, and where they can receive a gentle bottom heat. The variety most esteemed by us is Lady Blanche (Gibbons), a fine pure white kind, well adapted for cutting for bouquets. Lord Lyons (Clark) is placed next to it, but it is quite distinct in colour, being a reddish purple. Mrs. Moore and Mrs. Pettifer both force well; they are white with dark purplish maroon centres. Anne Boleyn is an old and useful border sort, but it is not so well adapted for forcing as those just named. To obtain good strong plants of this section of Pinks for forcing they must be propagated by means of cuttings placed in a hot-bed in April or at least early in May; when rooted, they should be planted close together in boxes until they are inured to the open air, when they may be planted out in the open ground 10 inches or 12 inches apart. J. DOUGLAS.

Packing flowers.—I see in THE GARDEN (p. 427) some very good hints on this subject by "S. K. T." He mentions the difficulty he has experienced in packing Camellias. I believe the best plan is to use a very shallow box, fastening the Camellias with small nails through the stems to the bottom. I have sent Gardenias long distances in this way, and they have always arrived in the most perfect condition.—W. H. S. M.

Hardy flowers in winter.—A garden fairly stocked with hardy plants yields a good store of nosegay flowers even in the winter months. Handsome bunches of the following were picked to-day (November 27th), viz.: Scarlet Anemone coronaria, Laurustinus, Anemone fulgens, Iris

stylosa, the large Christmas Rose, Schizostylis coccinea, branches of Alexandrian Laurel, Chrysanthemums in great variety, Tea Roses (Safrano, Rubens, and Comtesse Riza du Parc), Czar Violets, Jasminum nudiflorum, Primroses and Polyanthus in variety, and Pansies in abundance from summer-sown plants.—G. J.

Hybrid Foxgloves.—I planted out some seedlings, the result of crossing *Digitalis purpurea* and *D. grandiflora*; several of them bloomed and were very remarkable, being not above half the stature of *D. purpurea*, but with flowers quite as large as those of our native species, and retaining the perennial character of *D. grandiflora*. Of these hybrids all produced seeds, but only the seeds of one of them vegetated, and that but sparingly. I lost the last of this interesting progeny only last winter through accident. I have wished since I had distributed the seedlings when I had plenty of them. The flowers produced by all these crosses were of a bronzy purple colour, curiously checkered in the throat with yellowish bronzy markings. I can conceive what beautiful varieties may be raised by crossing *D. grandiflora* with the finer garden varieties of *D. purpurea*. Let anyone plant out *D. grandiflora* amongst *D. purpurea*, clip out the stamens of *D. grandiflora*, sow the seeds, and await the result. The variety raised from even a single seed-pod will be surprising. Any that do not produce fertile seeds may easily be propagated by cuttings, and as far as I know will prove to be permanent perennials.—WM. ELLIOTT, *Castle Grove, Nottingham.*

Eulalia japonica.—This Japanese plant seems to me to have been greatly over-rated, as wherever I have seen it it has been but little, if any, better than the variegated Cock's-foot Grass, which it much resembles, except that it is not broad and well marked in the leaf or so good in habit; and instead of using it last summer in our conservatory I made choice of the Grass, which, mixed in a group of *Celosia pyramidalis* with its scarlet feathery plumes, had a very pleasing and striking effect. I have tried the *Eulalia* in the fernery, where we have it planted out and in pots, and in both ways it looks drawn, weedy, and poor. In a cold house or outdoors it may not be so bad, but from what I have witnessed of it I should be sorry to give up my old friend for it, as the Cock's-foot is not only highly ornamental, but it will flourish almost anywhere in the poorest of soils, and soon spreads and makes a fine mass.—S. D.

Carnations all the year round.—My reason for saying (p. 457) that "Delta's" friend ought to have had more than three weeks' bloom will be readily understood by any owner of a good collection, because amongst the varieties of the florist's section some, such as Sybil (Holmes) and Joseph Crossland (Simonite), flower early, whilst others, such as the Rev. G. Rudrick, open three weeks later. Therefore Carnation bloom lasts for six or seven weeks, even if all the plants receive the same treatment, but that should not be so in a well-managed collection. A good grower is also a raiser of seedlings, and they continue to produce flowers during the summer and autumn. The president of the National Carnation and Picotee Society came up to London on the 14th of November with a Carnation and Picotee in his button-hole, cut from the open border of his garden in Wales, and a week ago I saw the Carnation in flower in a cottage garden two miles from Ilford. But to have perfect blooms of the Carnation in November it must be grown under glass. In all good gardens Roses can be had in bloom nearly all the year round; so can Carnations; and it is easier to have the latter in December, January, February, and March than the former; at least such is my experience.—J. DOUGLAS.

Hardiness of Dahlia White Queen.—My experience of this variety is in exact accord with that mentioned in THE GARDEN (p. 427). All other varieties were blackened by frost on the morning of the 21st ult., but this still continues as green and almost as floriferous as ever.—H.

Raising seedlings of white Water Lily.—Will you inform me if the white Water Lily ripens its seed in England? Is its propagation by seed satisfactory? and what is the best way to rear the seedlings?—HY. DOBBIE. [The common white Water Lily (*Nymphaea alba*) ripens seeds plentifully in this country. In order to save them, the flowers, after they have been expanded a few days, should be enveloped in a piece of muslin tied in a bag-like fashion securely to the flower-stalk. In a few weeks the muslin bags, which will be under water, should be untied and the seeds taken out. Without allowing them to become dry, sow them in shallow pans of mud, sprinkling them over the surface; then keep about an inch of water above the pans. If placed in a heated frame germination will take place in about a month. When the seedlings are sufficiently large to take hold of prick them off into other pots or pans about an inch apart, and keep them submerged in tepid water all the winter. In spring or early summer they will have developed good-sized root-leaves, and therefore should be submerged deeper. In the second or third year they will be large enough to put in a tub or shallow pool, and when grown into large plants they should be planted in a depth of about 3 feet of water, sunk in large wicker baskets, or if the water into which they are to be put is low enough they may be placed on the top of mounds of soil prepared for their reception, placing stones around them to prevent the soil or the plants floating. The best soil is a mixture of good loam and rotten manure tempered with sharp sand.—W. G.]

KITCHEN GARDEN.

NEW VARIEGATED CELERIAC.

For the annexed illustration of this handsome leaved Celeriac we are indebted to M. Chr. Lorenz, of Erfurt, who writes as follows concerning it: "Amongst ornamental foliaged plants, this new Celeriac is assuredly one of the most beautiful, and one which has been admired by all who have visited my establishment. In general it resembles the ordinary Celeriac, but its vigorous leaves, of a deep glossy green, are broadly edged with creamy white. This arrangement of colours makes it highly effective, especially in autumn when the leaf-stalks become violet-red. It comes nearly true from seed, giving at least 80 per cent. of variegated plants, and, moreover, it is equally fit for kitchen use, particularly for garnishing, as the common Celeriac."

BROCCOLI AND ITS CULTURE.

WHERE well-selected varieties of Broccoli are cultivated, a constant supply can be depended upon during the greater part of the winter. It comes into use as soon as the autumn crops of Cauliflower are finished and the different varieties succeed each other until the first crop of early Cauliflowers is fit to cut in May. This will, however, depend a good deal upon the protection which the Cauliflower plants receive in the spring after being planted out in the open borders and the locality in which they are growing. Broccoli should be grown in every garden provided space can be spared for it, but in small gardens some of the hardier varieties of the Brassica family generally have the preference, as often in severe winters, if the plants are not laid down and a little protection given them, the crop will be destroyed. If carefully protected, however, it generally winters safely. The soil most suitable for Broccoli is a good stiff loam, and fine crops may even be grown upon ground inclining to stiff clay, provided it is well drained. The plants seldom club at the root if grown upon heavy land. But in many cases when planted upon light soil the crop will be found to be almost a failure through club.

Culture.—Ground for Broccoli should be deeply dug or trenched, working into it plenty of rotten manure, for liberal treatment is needed to produce a profitable return. Ground which has been cropped with late Celery will be found to be a

good rotation; planting two crops in succession of any of the Brassicas upon the same piece of ground should always if possible be avoided. Ground cropped with early Potatoes is often planted with Broccoli. Two sowings of seed should be made, the first in the second week in April and another the last week in that month. A piece of deep rich soil should be selected for the seed beds upon an open piece of ground facing the south or west. Before sowing give the ground a good dressing with soot and lime, and, if at hand, some wood ashes may be used. Rake the compost well into the soil before sowing; this helps to prevent the young plants from clubbing, which often occurs in gardens in which no precaution is taken to guard against it. Sow in beds 4 feet wide, leaving 12-inch alleys between them; sow broadcast, and rake the seeds with an iron rake; then a portion of the soil may be taken out of the alley and spread over the beds, again raking the surface level; now stretch the line and cut the edges straight, when the beds will be finished. Or the seeds may be sown in drills half an inch deep, and from 3 inches to 4 inches asunder, covering in the seeds and raking the surface level as before. When the plants have made from three to five leaves prick them off into a piece of good rich soil in as open a position as possible, and which has been deeply dug and had a good dressing of soot and lime, watering them occasionally in dry weather. If the plants are large enough, the first plantation should be made early in June, using some of the earliest varieties in order to succeed the latest crop of Veitch's Autumn Giant Cauliflower. Plant in rows from 2 feet to 2½ feet apart and 18 inches plant from plant. Another plantation may be made towards the end of June and the main crop early in July, planting the same distance apart as for the early crop. Hoe frequently between the rows to keep down weeds and the surface of the ground open. When the plants have got well established, a dressing of some artificial manure may be scattered between the rows, hoeing it deeply into the ground; or waterings with liquid manure from the farmyard will be found to be beneficial. When the plants have become sufficiently large, draw some soil round their stems to keep them steady, after which they will require but little attention until late in the autumn, when they should be laid down to protect them from the frost. When the stems get frozen through they are as a rule rendered useless, but by

Laying down the plants before sharp frosts set in, one is almost sure to preserve the crop. It only takes a short time to lay down a large breadth of plants, and any ordinary garden labourer can perform the work when shown how to set about it. Laying can, however, be better done by two men than one. At one side of a plantation an opening should be taken out with a spade, a few inches in front of the first row, making the soil level on which to lay the plants. Both men must then put their spades well underneath the roots of the plants opposite the opening, turning the plants over upon the soil just levelled and pressing them down firmly with the foot. The top of the plant must be brought down nearly level with the surface of the ground; then cover the stems up to within 8 inches or 10 inches of the top leaves. Strip off the old leaves before laying is commenced; lay the second row down the same as the first, and thus continue until the plantation is wholly laid down. Cover the crowns of the plants, which should, if possible, be laid towards the north, with some dry straw or Fern which will protect them. A practice sometimes used by growers is to lift the plants in the autumn, and lay them in some spare corner of the garden, where they can be protected in sharp weather. By having them close together a less quantity of covering material is required, but by this plan the heads will be found to be smaller than those of plants laid in the open quarters. When the different sorts are forming their heads, look over the plantation daily, and cut those which have come to maturity, and store them in a cool cellar, where they will keep good for several days.

Varieties.—The following will ensure a good supply from autumn till early in the summer, when Cauliflowers may be had, viz., Walcheren, one of the best white kinds for early use; White Cape, a sort which succeeds the Walcheren, and which produces heads of a fine white colour; Purple Cape, a hardy variety, producing large, purple heads; Snow's Winter White, a kind which produces fine, large, white heads in December and January; Veitch's Self-protecting, a fine sort which should be largely grown, coming into bearing, as it does, early in the new year; Carter's Mammoth, a variety which produces large, white, and finely-flavoured heads; Leamington, one of the best of late Broccoli and hardy; Adams' Early White, a good grower, producing heads large and compact; Knight's Protecting, furnishing heads well protected by the leaves, large, compact, and of good flavour; Carter's Summer, a fine, late variety; Cattell's Eclipse, one of the most useful of Broccoli, coming into bearing before early Cauliflowers are fit to cut, and very hardy; and Carter's Champion, one of the latest and best varieties in cultivation, and one which cannot be too highly recommended. WM. CHRISTISON.

The Roekery, Bromley Common.

NEW VEGETABLES.

AMONGST these Matchless Brussels Sprout is a very compact-growing, hardy, free-bearing variety, remarkable for its uniformly true character. In many kinds some will be thickly studded with Sprouts, while others only have one here and there along their stems, and some will not have any; some of the plants, moreover, may be 18 inches high, while others run up to 3 feet or more. This is the result of bad selection and want of care in saving the seed, but Matchless shows no such diversity, all the plants being true in height and productiveness, and the quality of the Sprouts all that could be desired. Emperor Cabbage is not the largest that could be named, but in quality it stands in the foremost rank, and is a valuable sort for early and general use. Its best points are a very hardy constitution, a reluctance to bolt or run to flower prematurely, and a certainty of producing finely-shaped, firm, well-flavoured heads. It is ready for use early in spring, and remains good until very late in the season. Although a good many Cabbages are grown here, the varieties are few, but this is one of the best. Early Mammoth Cauliflower well deserves its name, as it is both early and large. Last year our earliest plantation of it consisted of some five dozen or so, and we never had so many fine heads from such a small number of plants, every one of them supplying us with firm, compact, large white heads early in June. The seed was sown in a flower-pot in March; the plants were grown on for a time in cutting boxes, and then planted out, the result being that just stated. Later sowings made out of doors were equally satisfactory. The place now occupied by Veitch's Autumn Giant Cauliflower was filled by Mammoth throughout the spring and summer, a strong recommendation in favour of the latter. Amongst Cucumbers, the perpetual bearing variety will always occupy a foremost place; it is robust, a prolific bearer, and a model as regards shape and quality. To those who do not know it, it may be described as a unique variety of Telegraph. Of Peas we had a row of Electric Light, about 30 yards in length, and are so well pleased with it that, with the exception of a small boiling or two to test the flavour, we allowed every pod to ripen for seed in order to increase our rows next year. It is a sturdy grower, attains a height of 5 feet or so, blooms early from the ground upwards, produces an amazing quantity of dark green narrow pods which fill well throughout and contain on an average ten Peas each. The flavour is sweet and marrow-like, and altogether it is a Pea which will pay for cultivating where either quantity or quality is the object in view. Amongst Lettuces there are two which should be extensively grown wherever Lettuces of the largest size are required, and when this is combined with quality, they are

never out of place. The kinds to which I am referring are Summerhill, in the Cabbage section, and Monstrous White Cos. In July last we had heads of the Summerhill which we could not hide under an 8-inch pot, massive round heads of the most solid description, with hardly any loose outer leaves, and a tender white heart. It is the largest and hardest Cabbage Lettuce I have ever seen; one of it will go further and be more appreciated than half a dozen of almost any other sort. The same remarks apply to the Monstrous White Cos, an excellent companion to the preceding; and last, but not least, comes the Wordsley selected Banbury Onion, a variety second to none in all the points which go to make up a perfect Onion. It is true in colour and shape, all the bulbs being of a yellowish hue, and thick necks or round and oblong bulbs are never to be found in the same packet of seed. The produce of this selection grows freely, bulbs well under ordinary cultivation, and finishes off sound and plump, good alike for the kitchen or for exhibition. CAMBRIAN.

FORCING SEAKALE.

THE season has once more come round for forcing this delicious vegetable; and where the old-fashioned plan is still adhered to of covering large crowns with pots made specially for the purpose, and these with a good body of leaves or leaves and manure mixed, no time should be lost in getting a quantity of leaves raked up, and mixed with some fresh littery manure, so as to get a gentle warmth to permeate the whole mass. The crowns, having been cleared of decayed foliage, weeds, &c., should then have a covering of coal ashes to keep slugs at bay, and the pots set over them, when the covering may be built up at least 2 feet beyond the outside pots, and at least 2½ feet thick. Some test sticks must be put in so as to indicate the right temperature—that is, just warm enough to feel lukewarm to the hand. If it gets too warm, the thickness must be reduced; if too cold, it must be added to. This plan produces excellent blanched Seakale in about a month; in fact, I question if better can be produced by any other means, for the plants can be large, well-established clumps, and they are not disturbed at the root; consequently the produce is crisp and succulent. But the drawback to this mode is that it entails a good deal of labour; and for this reason we find the plan of raising annually a stock of Seakale roots specially for lifting and forcing, either in the Mushroom house or in some artificially warmed structure, best. In this way it can be forced in quantity with a minimum of labour, and no plant responds more quickly or surely to the influence of heat than this. At the time the roots are lifted, all the long fleshy roots that break off should be saved for raising stock for another year, and cut into lengths of about 4 inches and laid in boxes of moist soil until spring, when they form crowns at the top. They should then be planted in rows 2 feet apart and 1 foot asunder in the row. The only attention they require is keeping them free from weeds. They will be found to have made one or two good crowns by the end of the season that will produce a fine head of Seakale when placed in heat, or they may easily be raised from seed sown in March in drills 2 feet apart and thinned out to 1 foot asunder in the row. On good soils they make plants fit for forcing in one year, but are better left for two years, the crowns being cut off in spring when they run up to seed, and the crowd of young crowns that push from the top reduced to two or three.

These roots may be forced in large pots, letting the crowns down as low as possible, and filling the top with hay or some material to exclude the light. Plunge the pots in a gentle bottom heat; but, as before mentioned, where a properly darkened Mushroom house is kept at about 60°, Seakale may be forced in quantity by simply planting or laying the roots in moist soil on the floor, and giving a good soaking of tepid water once a week. We have here in constant use throughout the winter a long box built over the main pipes that go

from a large boiler through potting sheds to vineries, and by putting in a quantity of soil it makes an excellent place for forcing Seakale or anything requiring a gentle heat. We find the best plan is to put in a little and often, or about twice a week to keep up a regular supply; of course the quantity of roots must be regulated by the demand, and if any are fit to cut and not required, they must be cut and put in pans of water in a cool cellar, covering them up to exclude the air. At this time of the year a large quantity of roots fit for forcing should be taken up and laid in thickly, so that they can be covered with litter in case of frost or snow, as the roots, being very brittle, cannot be got out of the ground in a frozen state without breaking them; and with the experience of the past few severe winters before us it is well to be prepared in case similar visitations are in store for us. L.

LAYING IN AND PROTECTING BROCCOLI.

It is lamentable to think of hundreds of thousands of Broccoli killed every winter, and lost to the country as food through not being protected, and yet people go on year after year without taking the least trouble or using the simplest of means to prevent frost destroying this useful vegetable, which might easily be done and is done by experienced gardeners, by only laying them in, which prevents the sap vessels in the stems being riven asunder through the expansion of the moisture they contain when it is turned into ice. So powerful is the force of this during sharp weather, that it has been known to burst strong iron pipes; it is no wonder, therefore, that the whole structure of a plant should give way; and as Broccoli is exceedingly sappy this season, owing to the excessive wet and the late growth they have made, there is more than usual danger of heavy losses occurring. To stop all risk, the way is to lay in or earth up the stems, the latter being the best plan where the rows are wide apart, as then they may be ridged like Celery, which will not only ward off frost, but keep the soil about the plants drier, and this is of great importance where gardens lie low or the land the Broccoli is in is stiff and cold through being undrained. Grown in the ordinary way, about 2 feet apart in plots, this landing up is impracticable, and a good way to manage under the circumstances is to take out every other row of the plantation and lay the plants in, when leaving the others standing at 4 feet between, gives plenty of earth and room to bank up and protect them securely. Those drawn out may then be laid in on any border or spare piece of ground near by, where all that has to be done is to dig a trench to drop the balls in, when by leaning the plants on their side, the stalks may be quickly buried right up to the leaves. The vital parts will then be protected, and though the check given by the removal of the plants may reduce the size of the heads when they turn in, it will preserve them from injury, and the half left standing will attain their full growth. Some sorts of Broccoli with short, hard, woody stalks that have been planted at wide intervals on exposed situations, such as fields, require no protection, as frost cannot act on them, but early kinds, such as Snow's, Backhouse's, Osborn's, and others that come into use first, should have litter thrown over the tops by night when they are hearing in, as frost spoils the tender flower by turning it black. A cleaner way of protecting these early Broccoli is to cover with straw hurdles, which may be lifted on and off easily, or, better still, where there are any pits or frames out of use, to put the plants in them, as with glass over them they are out of reach of all harm. S. D.

Diseased Cucumbers (R. P. W.)—Cucumbers have of late years been subject to several different diseases and all of a serious character. Sometimes the ailment is due to fungi, but there are no fungi on the leaves sent, and it is impossible from your description to say what has caused the plants to become diseased. Sometimes the manure used, sometimes the earth, and even the

water contains microscopic worms which eat into and lay eggs in the roots. When the minute eggs, which sometimes exist in millions, are hatched, the microscopic worms get into the stems, stop the growth, and kill the plants. A good plan is to clear out, burn the old plants, and begin afresh, avoiding rank manure.—S.

Yellow and white Turnips.—It often strikes one as being singular why so few yellow Turnips are grown in England, while white-fleshed kinds are always met with. The former are admitted to be much more pleasant to the palate than the white kinds. At Scotch exhibitions of vegetables white Turnips are less common than at southern shows. I am of opinion that yellow kinds are of more value for human food than white sorts, and that Swedes are as wholesome and nutritious as any others, and the latter seldom fail to grow in any soil or district. In some of the western counties of England I have seen most tempting dishes made with Swedish Turnips. In many parts of Ireland and Scotland, too, I have seen them used largely by the peasantry. The English peasantry are generally ignorant of the use of Swedish Turnips, Leeks, and Borecole. This is unfortunate, as the remuneration for labour is so small among that class compared with what is paid in Scotland, and were a proper knowledge of the value of these easily grown and most wholesome of vegetables known in England as they are in the north, much suffering might be averted. There is a prejudice among many of the lower classes in England respecting certain articles of diet, notably oatmeal, while among the middle and higher classes the demand for and use of it is increasing rapidly. Returning to Turnips, it may be worth while to remind those who have them still in the ground to draw soil over the bulbs, which will act as a protection as well as retain the crispness of the Turnips.—M. P.

SEASONABLE WORK.

FLORAL DECORATIONS.

JAMES HUDSON, GUNNERSBURY HOUSE.

ORCHIDS in goodly numbers, as regards various species and varieties, may now be turned to good account in different ways for the decoration of the dinner table and drawing-room. In a cut state, effective arrangements may be made with a few spikes each of *Calanthe Veitchi* and *vestita*, selecting a trumpet-shaped vase of medium height, so that the well-developed spikes of these beautiful autumnal Orchids can be displayed to good advantage. Those spikes should be chosen that have but a few remaining buds to expand, as by so doing no needless sacrifice of flowers need be made. Of foliage to associate with these the following will harmonise well, viz., a few heads of *Cyperus alternifolius* of different sizes, or a shoot or two of *Pandanus graminifolius*, or a few small leaves of *Eucharis amazonica* might be used with advantage in lieu of either of the aforementioned, or, failing a supply of *Eucharis*, Ferns might be used, the best perhaps for the purpose being the pendent fronds of the *Goniophlebium* or *Nephrolepis*, some sorts of *Davallias*, as *D. elegans*, *dissecta*, or *Tyermani*. A few fronds of the Maiden-hair might also be added, but would not be in themselves of a sufficiently bold character to rely upon entirely. Single flowers of *Cattleyas* or *Lælias* in specimen glasses for the dinner-table cannot be easily excelled. As a backing to these handsome exotics, one *Davallia* and two or three medium sized fronds of Maiden-hair would be the best selection. *Cypripedium insigne* and *Sedeni* may now be had in good condition. The first-named can be cut with a good length of stem. About three flowers placed in a small upright vase with a few durable Fern fronds will last many days in good condition. A shoot or two of any of the *Narcissi* that have been forced early and from which the foliage can be spared would be a useful addition. The somewhat perpetual character of *C. Sedeni* in developing so many flowers from the same spike for months in

succession causes one to avoid cutting any length of stem in the case of this Lady's Slipper. We break ours out at the base of the flower-stalk and use them in small glasses with rather wide tops. Spikes of the Alexandrian *Odontoglossum* (*O. crispum*) look well in almost any form or arrangement. Lasting, as they do, a long time on the plant, it is a charity to cut them in order to ease the plant of its burden. Any of the above-named kinds of foliage might be selected in order to give effect to fair sized spikes of this Orchid. A warm room, however, should not be its position—the coolest place free from draught will be the best, taking the precaution also to have a good depth of water in the glass which holds them. Single blooms of this and one or two at the most of *Dendrobium nobile* will be excellent for button-hole bouquets. The old but still valuable *Zygopetalum Mackayi* with its delicious perfume, especially under bright sunshine, may be advantageously used in like manner.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Fermenting material for stoves.—

Nothing in the shape of fermenting material has yet been found more conducive to a genial growing atmosphere than good fresh tan. And it is much better to get this in at once than to put the work off until later, for if the arrangement of the house is such as to admit of a sufficient body, say 3 feet or 4 feet in thickness, it will keep up a heat for three months. In the use of this material care should always be taken to procure it, if possible, immediately it has been taken out of the pits, before it has had time to ferment, and on no account to mix any with it that has lain long enough to get worms in it, as if these exist only in small quantities they breed in the warmth of a stove to such an extent as to become a positive nuisance by getting into the soil of all plants that are even not plunged in the material, but simply placed upon it. To destroy the worms that are sure, more or less, to have got possession of the old tan that has been in use during the preceding year, the pit, before the new is put in, should be thoroughly dusted with dry, newly-slaked lime. The work will necessitate the temporary removal of a considerable number of the occupants of the house. Advantage of their absence should be taken to scrub and clean all the glass and woodwork, and if, in addition, the brickwork is limewashed it will be an advantage. This, with the pointing of all cracks and inequalities, is essential where mealy bug has been at all plentiful. Where this intolerable pest has got possession of the woodwork, the bars, rafters, wall-plates, shelves, and every portion should be painted over with clear paraffin, using it without stint, so as to get it well into the cracks and open joints where the insects congregate. The penetrating nature of this oil is such as to be more effectual in the destruction of this insect than any other material, and it likewise has the advantage of being so cheap as to entail little cost, even when used freely. In addition to this, if not already done, an effort should be made to reduce these insects on the plants as low as possible. There are some who, through the incautious use of paraffin, have killed or injured plants with it, who are timid at again trying it, but there is nothing to fear from its use on all smooth-leaved subjects that are at all firm in their texture, if only it is sufficiently diluted and care is taken that it is kept thoroughly mixed with the water during the time it is being syringed on to the plants. Without this its naturally light nature causes it to float almost entirely on the top, so that if the syringe or a sponge is charged from the surface it is almost certain to contain the oil in such proportion as to be destructive to the plants. For the same reason plants should not be dipped in water mixed with paraffin, as unless the precaution is taken to keep it continually agitated whilst the dipping is going on the chances are that the leaves get coated with oil in an all but undiluted condition. All this in reference to the use of paraffin as an insecticide has been often

urged, yet from the injury frequently seen through its careless use the caution cannot be too often repeated. Where either dipping or syringing is to be carried out it is a good plan with any plants, the foliage of which is at all tender, to syringe them overhead with clean, warm water immediately previous to the application of the paraffin mixture. Such things as Gardenias, Stephanotis, and others of a similar character, bearing leaves of considerable substance, may be syringed freely overhead as they stand in the houses, as the paraffin in such proportion as it is necessary to use will do no harm to the roots. A good-sized wineglassful of the oil to a gallon of water is sufficient.

Zonal Pelargoniums.—At no season of the year are these so useful as in the winter. A great number of new varieties make their appearance, yet, further than having large individual flowers, with possibly an infinitesimal difference in the shade of colour, many have little to recommend them. The double kinds possess the merit of lasting longer than the single sorts, the petals of which fall much sooner. For general purposes the bright red or scarlet, with the pink and white colours, are most useful. During the winter season the individual flowers are finer and the colours better brought out where a considerable amount of heat is used, but under such conditions to enable them to stand well when cut the plants require to be kept with their heads close to the glass, and have air admitted continuously through the day, and in the night as well, except when the weather is severe. When treated in this way the plants will bear much more heat than is usually supposed, producing a proportionately greater quantity of flowers.

Greenhouse Rhododendrons.—There has been recently a number of fine kinds raised of the *R. javanicum* race, possessing more or less the character of flower which that species exhibits; the colours run through the different shades of yellow, with light and dark pink, red, and crimson. One of their good qualities is that with little warmth they can be had in flower almost any time through the winter, when, in addition to their merits for conservatory decoration, the flowers are useful for bouquets. This race of Rhododendrons, though good growers, are not so vigorous as to outrun the space at command even where the glass accommodation is limited, and on this account they deserve a place in small establishments. They do not require much pot room as compared with many hard-wooded plants.

Meyenias.—The two forms of this plant, white and violet, are amongst the freest flowerers, blooming well where required in the winter. To have them in good condition in the early months of the year it is necessary to keep the plants now in a moderately warm house or pit. They are the most useful for standing about in the stove associated with fine-leaved plants, as the flowers do not usually last long when cut.

Imantophyllums.—Though these plants will thrive if kept continuously in a greenhouse, they succeed very well forced, and where there is a sufficient stock, it is well, with a view to keeping up a succession, to put a plant or two in heat every three weeks or so, by which means there will be some in flower almost continually. The cool end of the stove or forcing pit or anywhere where they will receive an intermediate temperature is better suited to them than a strong heat. They are plants that do not soon out-grow reasonable limits; they divide readily, and moderate-sized examples are of more service than larger ones. Big plants may be broken up after they have done flowering just before growth commences, reducing them to one, two, or three crowns, keeping them in small pots as compared with such as are required for many things, and although when restricted for root room in this way, they do not increase quite so fast; still, they bloom just as freely. Successional plants that are wanted to come in later should be kept comparatively dry at the roots and quite cool. There are now a number of fine varieties raised from seed, the flowers of which are marked improvements upon the older forms.

ORCHIDS.

J. DOUGLAS, LOXFORD HALL.

East India house.—It is very desirable that a note should be made of all Orchids flowering at this season of the year, so that the houses may be kept gay with flowers from now until the early weeks in the new year. The deciduous *Calanthes* are indispensable for this purpose. Most of them have completed their growth, and are either in flower, or the spikes are freely developing themselves. They seem to succeed best in a house with the temperature at 65° at night, but 5° or 10° less will suit them, and in that way a succession of blooms may be obtained for a longer period. They begin to flower in November and continue until February; and how useful the spikes are for cutting to place in vases. They will remain in beauty for three weeks in a cool room. The varieties that open their flowers first are *C. vestita* and *C. vestita rubra oculata*. *C. Veitchi*, a garden hybrid raised by Mr. Dominy by crossing *Limatodes rosea* with *C. vestita*, opens its flowers about the same time. Succeeding these, at an interval of about a month or six weeks, is the more beautiful *C. Turneri* and its varieties. This species is usually confounded with the *vestita* section, but it is quite distinct from them. *C. Turneri* was introduced by the Messrs. Veitch, of Chelsea, nearly thirty years ago. It was sent to them from Java by their collector, Mr. Thomas Lobb. There were a number of bulbs sent, and the first to flower produced pure white blooms, with a rosy red blotch on the lip; another had pure white flowers, and was named *C. Turneri alba* this has been erroneously named *C. nivalis*. A third variety produced white flowers with a reddish purple blotch, but it is lost to cultivation. *C. vestita* and the variety of it with a red blotch on the lip was also sent to Messrs. Veitch from Moulmein by Dr. Kane, of Exmouth, in 1848. The plants do not require so much water when the bulbs are formed, but they do not throw up such strong spikes if the compost gets over dry. If the plants have been grown on in the lower temperature recommended, it is best to place them in one of 60° to 65° to open their flowers. The very distinct and beautiful *Cypripedium Spicerianum* is now flowering freely from small plants, and as it is now obtainable at a cheap rate, it should be in every collection; it likes the warmest house, and grows as freely as *C. insigne* with the same treatment as regards potting, only *C. insigne* will flower freely in the coolest house.

Cattleya house.—In this section there are numerous species of Orchids in flower, some of them very distinct and charming. Take, for instance, *Oncidium cheiroporum*, mentioned last week; its gracefully nodding spikes of sweet-scented flowers seem to please everybody. I saw a mass of them last year at Clapton, in Messrs. Low's nursery, which reminded one of a bed of golden Wallflowers; this will grow freely all the year in a cool house, but it does not like the moist, cool atmosphere when it is producing its flowers. *Pilumna fragrans* and the large-flowered variety, which has been named *P. nobilis*, are very beautiful during this month. The pure white, sweetly scented flowers have a lemon-yellow blotch at the base of the labellum; it grows freely in pots treated exactly like *Cattleyas*, and succeeds best near the glass at the coolest end of the house. Another very sweetly scented Orchid is *Oncidium tigrinum*; its long spikes of distinct showy flowers are very effective. This species does not succeed well in some collections, but if it gets the treatment it likes, it grows strongly and flowers freely. In Mr. Bull's houses, at Chelsea, it seems to be quite at home, producing large pseudo-bulbs and corresponding strong spikes. It is a Mexican Orchid, and favours the treatment given to *Lelia autumnalis*. It is a very free flowering species; every good bulb produced will give a spike of flowers. It is an excellent variety to cut. *Cypripedium Harrisianum*, if it has been grown in a warmer house, should be put into this one to flower, as the flowers produced are much darker in colour than those opened in a warmer house. *C. insigne*, although it will grow

and flower freely enough in a cool house, does equally well with the *Cattleyas*. *Vanda cœrulea* has been in flower with us (as it is in most collections) for some time; this requires very similar treatment to the Mexican species of Orchids named above. It must be near to the glass and receive plenty of light and air. We grow the *Vanda* in baskets and the others in pots. This beautiful *Vanda* does not succeed well with some growers; the reason for this cannot always be found. One reason I was enabled to find out on examining a plant once to ascertain why it did not succeed. The plant had formed thick succulent roots just under the Sphagnum; and as fast as they were formed the slugs had eaten the ends off them. It likes plenty of water when growing, with as much light as possible, to be placed in a basket with Sphagnum and clean drainage.

Cool house.—*Masdevallia ignea* is frequently to be found in flower, and it makes a beautiful contrast with *M. tovarensis*; add to this *M. Veitchi*, the distinct and beautiful *M. Chelsoni*, a garden hybrid, and we have three brilliant species to form a contrast with the more pale and delicately tinted forms of the *Odontoglossums*. *Odontoglossum Rossi* is now coming into flower. Of this there are now very numerous and fine varieties, and it succeeds well with the treatment given to *C. crispum*. *O. cirrhosum* ought to be mentioned as one throwing up its flower-spikes at this time, while the pseudo-bulbs are fully formed; this species seems to like liberal supplies of water, from which it should not be withheld now. There are many young growers starting to cultivate cool Orchids, and as the plants have been selling at a cheap rate, they have been enabled easily to do so. I would say to such that there are a few main principles necessary to success. First, watering. It has been said that "keep the Sphagnum growing freely on the surface and they will be all right." To do this requires abundant supplies of water, but when this is done there is danger of souring the compost and the plants will not thrive. To avoid this use small pots for the size of the plants, the best fibrous peat, with plenty of drainage. Do not be afraid to give air; a close, damp atmosphere will cause a watery growth, which will in a year or two debilitate the plants. I like to see the bulbs of a dark reddish brown tint when ripe. To obtain this, judicious airing, watering, and potting are necessary; and when the plants are kept in good health by these means, insect pests seldom trouble them. The form of house is only of secondary importance. For winter, a house with its ends to the north and south is, I think, the best. They do not get light enough in a lean-to with a northern aspect, although this is the best place for them in the summer and autumn months. The temperature of our house had fallen below 40° at night during slight frosts, and the heat was turned on; and well it was we did so, as the nights were cold, causing the glass to register 8° of frost, with a stiff breeze blowing. It is now milder, and we can easily dispense with the artificial heat. The house will not require much water sprinkled about at this season, but most must be used when the air is dry and cold outside, the heat from the pipes drying up the damp more rapidly at that time.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Figs.—By this time the trees in the early house will have been brought into a satisfactory state by frequent waterings, and the fermenting material will be gently exciting the roots, but until the embryo Figs begin to push forth, and the terminal buds show signs of breaking, no increase must be made upon the temperatures given in my last paper; indeed, should the weather become severe the minimum heats there advised will be quite sufficient throughout the present month. Syringe the trees regularly twice a day. Keep the evaporating pans filled and turn the fermenting material frequently, adding fresh leaves from the reserve as they are required,

always bearing in mind that a steady warmth of 70° to 75° about the roots is at all times one of the most important points in early forcing. Give a little air at the apex whenever the temperature touches 65°, and close again before it recedes below 60°. Keep the glass quite clean and free from accumulations, which are apt to settle in the lower side where fermenting materials are used, as Figs in the brightest and best of houses cannot have too much light and warmth from above in winter, while neglect of these conditions very often fosters elongated growths, sickly foliage, and imperfectly fertilised fruit, which falls before it is ripe.

Succession house.—Where a second house is to be started to succeed the early pot trees it should now be pruned, or, more correctly speaking, thinned out, cleansed, and tied in ready for shutting up at Christmas. If scale has taken a hold, spare no pains in scrubbing and cleaning the shoots, but carefully avoid bruising the embryo Figs near the points, thoroughly scald and limewash the walls, paint the wires and woodwork, and finally dress the trees with a solution of Gishurst compound, 8 ounces to 10 ounces to the gallon of water. Examine the roots, and if root pruning has been neglected, the operation may still be performed by cutting trenches round the balls and filling in with fresh compost of a rich calcareous nature. When filling in the trenches use the compost in a dry state and ram it in until it becomes as firm as the old balls which have not been disturbed for years, then mulch well with good rotten manure, and give a series of waterings at short intervals throughout the month to insure a healthy growing state before the trees are excited.

Cherries.—If the trees in the early house, from which ripe fruit is expected early in May, have not been pruned and cleansed ready for starting, this operation must not be delayed. Old established trees which have filled their allotted space do not as a rule make much young wood; consequently there will now be very little to remove; but good service may be done by thinning out the old spurs and cutting away barren branches where they can be spared to make room for younger growths. When this has been done, wash the trees and the trellis with strong soap water, and dress with a solution of Gishurst, 8 ounces to the gallon of water; also wash the glass and woodwork, unless the latter have been painted, and limewash the walls. If the trees have had full exposure to autumnal rains, the borders will be wet enough for the present, but otherwise make repeated waterings until the soil is thoroughly moistened. Remove all old mulching and inert surface soil, and replace with good, fresh, friable loam and lime rubble if the trees are young and vigorous, and add 2 inches or 3 inches of rotten manure where they are old and require rich stimulants from the outset. If pot trees are used for the first crop or for filling up vacant spaces, get them washed, top-dressed, and ready for taking in when the house is closed about the middle of the month. When forcing is commenced do not exceed a night temperature of 40° in severe weather, and 45° when it is mild. Always force with a chink of air on the ventilators, and run up to 50° or 55° with a circulation, when, as is often the case, these figures can be touched without having recourse to fire heat or perhaps the most gentle warming of the pipes. Where Plums occupy a portion of the house, the same careful thinning of the spurs, cleansing, and dressing will apply, and the crop will come on very well under the same conditions as to syringing, watering, and temperature; but the Plum being more tardy in its later stages, the trees should be conveniently arranged for syringing, when the application of water would be highly injurious to the Cherries, or, better still, they might be grown in pots or tubs, as they could then be removed to another house to finish, when a dry atmosphere becomes indispensable to the proper ripening and preservation of the Cherries. To carry on the successful forcing of Cherries a few healthy trees, including such kinds as May Duke, Black Circassian, Elton,

Governor Wood, and Bigarreau Napoleon, should be kept against a reserve wall, where by means of annual lifting and replanting in pure loam they can be maintained in a fit state for removal to the houses at any time after the fruit is gathered with the certainty of their giving a full crop the following season.

Cucumbers.—Autumn-sown plants now in bearing will require liberal supplies of diluted liquid at the temperature of the bed. If in pots or boxes, keep adding light, rich turf to the roots as they appear on the surface, and renovate the plunging material when the bottom heat thermometer indicates a fall below 80°. Keep the foliage well up to the glass, but guard against crowding, otherwise many of the old leaves will turn yellow and require removal at a dead time, when the knife should be sparingly used. Let the night temperature be regulated by the state of the weather, as nothing is gained by hard firing when external conditions are unfavourable; much, however, may be done by covering with mats or blinds during the hours of darkness, when, aided by steady firing, a minimum of 68° on cold nights will maintain progress until days become longer. On bright days run up 10° or 12°, and whenever the air temperature equals that of the bed give a chink of air to prevent it from rising higher, but not to cause a depression, as sudden depressions from this cause do more harm than a lower temperature without air. Avoid much syringing if the foliage can be kept clean without it; otherwise choose the lesser evil, as good fruit cannot be expected when the plants are infested with insects, but keep the evaporating pans filled, and the atmosphere properly charged with moisture by damping the walls, paths, and other surfaces with warm water of a slightly stimulating nature. Keep plants intended for later use steadily progressing. Stop the leaders when they have ascended two-thirds of the trellis, and thin out the side shoots as soon as they appear if all of them are likely to produce more foliage than can be exposed to the influence of light when fully developed. If the fruit is not likely to be wanted, remove all male and female blossoms as they appear, tie out the young growths horizontally, and endeavour to get the ridges or hills well filled with roots by frequent additions of rich, light, turfy loam in preference to forcing with stimulants a luxuriant growth which cannot be maintained when dead winter is upon us, and the plants are expected to produce fruit. Look after the weakest plants from the late sowings, as they very often come into use in the months of March and April, when Cucumbers are not over plentiful.

KITCHEN GARDEN.

R. GILBERT, BURGHEY.

THAT all-important thing, the weather, as regards outside garden operations, is just now all that can be desired; therefore take time by the forelock, and be up and doing. Every available inch of land should now be turned over, and where manure is required use it freely. I find from many years' experience that good farmyard manure is still the best for most purposes. If Globe Artichokes are not yet protected, delay that operation no longer. My Artichokes grow on each side of a long walk, and are quite as effective as many sub-tropical plants; therefore in this case we combine the useful with the ornamental. We are now sowing Rhubarb, Asparagus, and Seakale. We thus keep the stock well to the front, so that we have always plenty on hand. Mint, Tarragon, and Chives (the latter in great use here) will now require due attention. Of these we have a capital stock outside; therefore the trouble of putting in a few boxfuls is not great. Keep a sharp look-out for mice on the early Pea border. The old "brick and stick" traps we use here, and still consider them the best. Directly you see the young Peas coming up cover them an inch thick with sifted coal ashes, which will keep off mice, and protect them from cold surface winds. Beans, of which we like Green Windsor the best, should now be sown, if not already done. Young Cauli-

flower expose fully all day except in severe weather, shutting them up in the evening.

LEAVES FROM THE SOUTHERN ALPS.

AN antipodean garden does not offer many attractions in July any more than an English garden in January. The florist's pleasure at this season is mostly the pleasure of anticipation; but

The hope to joy is little less in joy
Than hope enjoyed.

And this is particularly true of the pleasures of gardening. Very often the making up of the seed order, with the help of one or two of the *catalogues de luxe* which the enterprising and imaginative nurserymen send out year by year, gives a keener enjoyment whilst it lasts than the actual fruition of the seed packets, if they ever do come to anything that may be called fruition, for we, on the wrong side of the line, are quite at the mercy of seed firms, some of which send us seed, good, bad, or indifferent, as is convenient and profitable to themselves. Of course we must be prepared to find a certain proportion of seeds and of varieties of seeds losing vitality in the trying ordeal of passing through the hot equatorial climate; and those who consign the seed will say also that we must make very large allowance for our own want of skill in the sowing and subsequent treatment of seeds. This is, no doubt, to a large extent true of amateurs who do not devote much time and thought to their gardens, but it does not apply to professional gardeners or to amateurs who have for years had gardening for their hobby. At any rate it is difficult to get over the fact that a whole consignment of seeds from one firm fails whilst the same kinds of seeds from another grow. In the case of those that fail either the seeds must have been dead before they were sent, or else the manner of packing must have been bad. As a case in point I may mention that some time ago I received some twenty-four packets of alpine plants from an English firm of high reputation, none of which made an appearance except about four plants of *Silene alpestris*. More careful treatment than these seeds had it would have been impossible to give. In order to double the chances of success, I shared the seed with a friend who grew them with a little success. On the other hand, I received more recently a consignment of alpine plants from Carinthia, at the foot of the Carnic Alps, a considerable proportion of which sown in autumn have already appeared, and more of which will probably make their appearance as the days lengthen. On another occasion I received from another grower who has done great things with most of the florists' flowers an assortment of various tender greenhouse flowers and annuals. Not even the Cinerarias, which usually grow with me like Groundsel, self-sown about the walks, showed a single plant. This lot of seeds I had from a grower whom I highly respect for his achievements in the culture of florists' flowers of all kinds, and for his courtesy in sending me directions for the culture of certain plants with which I had been unsuccessful. But it is none the less true that, with the exception of half-a-dozen Chinese Primroses, the seeds were an utter failure. I do not mean to insinuate in this case, because I do not believe, that the seeds were bad when they were sent from England. They were probably not packed so as to resist the influences of the tropical zone through which they had to pass. It may not unlikely be damp that destroys

The vitality of seeds in transit, for no doubt there is a good deal of damp in a mail-bag full of letters, and this damp will by-and-by permeate the seed packets even if they are packed in cotton wool. The only preventive for this is to wrap the whole in oiled silk, which is damp proof. It will be seen that those who receive bad seed on this side of the world are in much worse plight than anyone in a similar case in Britain. In England if any particular kind of seed fails there is time to receive a fresh supply from another quarter. Here, however, if our seed supply is bad, the whole season

is lost. Possibly the seed orders from the Australian colonies may not be sufficiently large or lucrative to make home firms very careful as to the quality of seeds they send out. But if many amateurs send home orders as large as my own generally are, it should be worth while for home firms to send us their best quality. I have myself determined, owing in a great measure to the disappointing character of the seed supply, to grow only perennials, or at least to grow none but hardy annuals, such as Sweet Peas, Canary Creeper, &c., of which we can ourselves collect the seed. The seeds which seem to suffer most in transit are those of the varieties of Aster. Primroses, too, of various kinds, Auriculas, *Primula sinensis*, &c., often fail to come up, or come up very sparsely. But in turning over the wonderful catalogues one does not forecast the failures. I never have such wonderful beds of Asters, enormous Victorias, incurved, Pæony flowered, and bristling hedgehog; such exquisite masses of Ten-week Stock, huge, candelabra-shaped, edged with *petite* bouquet; such flaming, trailing clumps of *Phlox Drummondii* as I have in the middle of winter in my mind's eye, Horatio. With a single sweep of the mind I can fill a bed with fine fat mould, almost good enough to eat, trim the edges and give it the last delicate touches, and cover it with a wealth of lovely blossoms which in colour and form are to my mind simply perfect. This can be done on a raw July day (substitute January), when wind and winter rain are beating upon the glass, whilst I am sitting in a cosy room in a comfortable easy chair before a blazing fire. This is the real primrose path to gardening, where there is no trouble and all is perfection, so that the mid-winter month, when in most gardens there is supposed to be an almost total cessation of interest in things horticultural, really gives the truest pleasure of the twelve. This delight we owe in large measure to the nurserymen who fill pages with descriptions of fabulous plants more glorious than anything to be found out of the "Arabian Nights." You sit down and you order a couple of pounds' worth of the germs which are to produce so much enchantment as if you had a pretty vivid imagination; the order is its own reward. Some three months later you receive

The consignment, and in reading the superscription and dreaming of the wonderful potentialities lying under the magic papers, you revive in some degree the old delight. But it is a fearful joy, the last leap of the flame before extinction. In the background hover ugly phantoms of crocking and potting, and mixing soils and sowing till your bones ache, and thinning, and weeding, and watering, and transplanting, and racking your addled brains to find suitable spots for half your stuff, and staking, and rooting out singles to substitute doubles, and other operations which must be performed with the sweat of your brow and to the infinite damage of your backbone. You handweed and grub till the points of your fingers feel like the surface of a file, and you dig and fork and hoe till you have callous pads on your palms of the consistency of hoof. You frizzle in the sun, and you soak in the rain, and you expose yourself to the dews of heaven, till, according to the season, you feel yourself either overdone, or in a generally uncooked and pasty condition. But for all this you have your reward! Your reward has been in expecting a reward. When the Stocks do flower they are after all not so very large nor yet so very brilliant in colour; and it generally happens that if two shades are particularly inharmonious, these very two shades are sure to come together, and worry you as long as they remain in flower. One or two colours will generally be found to predominate; they are generally a dull brick red, a colour which would delight the eye of Mr. Oscar Wilde, or a shade of purple, too hideous to please even a professed æsthete. What will please you most in the Stocks will be their delightful Clove scent, because you have thought less about the scent than about their appearance. The Asters will be very beautiful, but you will be apt to compare your Victorias and Pæony-flowered with Empress of India or Mrs. George Rundle Chrysanthemums, which grow and

flower luxuriantly with ten times the beauty and one-tenth of the trouble, only, of course, you cannot have Chrysanthemums at midsummer. At any rate the Asters will not quite come up to those glorious flowers which you have evolved from your inner consciousness by the help of your favourite catalogue. As to your *Phlox Drummondii*, you are fortunate if, where you anticipate a row of dark velvet crimson splendour, you do not find flowers of a dull purple with an eye into which the colour washes. The *Heynoldii* section I have ceased to believe in. I have sown the seeds again and again, but have not yet seen the flower. They are dear to my imagination, but a myth. When one does go out-of-doors in this winter month (August) there is not much in the garden to give positive enjoyment; the enjoyment, as I have said, is in

Looking forward. The leaves have fallen, the earth looks sodden, and where the work cannot be easily overtaken, dead stalks, leaves, flowers give a painfully mortal aspect to things. But on a bright, sunshiny day, or when we have had two or three sunshiny days in succession, the garden puts on a wonderfully happy look somehow or other. There is a beauty then even in the deciduous trees. That a tree has shed its leaves means that it is an English tree, and there is something agreeable in this proof of its nationality. I have three Birch trees in my garden; they are not large, certainly. In Scotland—the land of "birks"—they would be contemptible trees enough; but even a small Birch tree may look very handsome if the sun's rays fall on its leafless branches just at the proper angle. The twigs are filled with a purplish misty sheen which gives the tree the appearance of being surrounded by a halo. And the beauty is enhanced if the bole is covered with that beautiful satin bark which comes between the nut-brown rind of the sapling and the elephantiasis of the mature tree. The Ash, too, looks well in its leafless state. Tennyson, with his microscopic eye for Nature's hidden beauties, has taught us to admire something in the winter Ash when he speaks of a girl's hair as

More black than Ash buds in the front of March.

It is curious to think that poets should have been writing since written characters were invented, and yet have left Tennyson to discover this beautiful use for the Ash bud. These deciduous trees are beautiful to us from their associations, and because they somewhat disturb the monotony of the native and Australian trees, and of the Californian Pines which we plant so abundantly. I am, however, far from disparaging the

Australasian and Californian trees. The different Eucalypti of Australia and the Cypress and Pines of California have done us too valuable service to be depreciated. The Blue Gum (*Eucalyptus globulus*) is the best known member of the Eucalyptus family, and the one most frequently planted. In the earlier days of the colony, when varieties of quick-growing trees were few, this Gum was planted as a shelter round the homestead, where, shooting up with the rapidity of an Elder tree, it soon formed a dense breakwind. With new arrivals the tree is not a favourite, for it wears a sombre appearance at all seasons, and it takes a little observation of its habits and aspects in sunshine and storm to make it an object of interest and admiration. But it is a beautiful tree when one once gets reconciled to it, and when it grows in a suitable position. To see a well-grown Gum writhing and struggling in a gale gives one an idea of enormous strength, for when it bends its head of leaves before the wind, and you think the great stem must surely crack, it suddenly rebounds with an elastic spring and its struggle with the gale begins anew. Then it is not without those changes of leaf and blossom which make its livelier neighbours attractive. Its leaves in all their stages have a beauty. The young sapling has broadly ovate leaves with a flowery bloom like that on the cheek of a purple Plum, from which peculiarity the name of Blue Gum has been derived. As the tree ages and shoots into the air, the leaves entirely change their character. From a flowery metallic blue the colour changes to a sober dark olivaceous green, and the form,

from being ovate,¹ becomes more strap-shaped, like that of a knife-blade. Sometimes when the foliage is rich, the leaves become very long and curved, depending from the branches like so many sickles. In spring the young growths, which are of a lighter shade, gild the dark masses of the tree with a touch of golden green, and so

Its gloom is kindled at the tips,
And passes into gloom again.

But the Blue Gum looks its best when it covered with its large rosettes of Myrtle-like blossoms. A well-grown specimen covered with bloom might hold its own beside one of the Chestnuts in Richmond Park, and the one tree would make a magnificent foil to the other.

Though I am a sincere admirer of the Eucalyptus, I would not on any consideration have one in my garden, for it is the most insatiable of robbers, and it is no small amount of food that can support the huge cupola of foliage. Nothing but distance is a protection against its voracious roots. You might dig a trench to the centre of the earth and they would dive down and come up on the hither side. If you are to consider the Blue Gum's merits dispassionately and with equanimity, you must see it where you can admire it—a few chains off in your neighbour's garden, where you can observe with resignation that it has sucked up all the salt and savour that should have gone to nourish the Conifers and Rhododendrons. My own Blue Gums—I mean those in my neighbour's grounds—are placed all round just at the proper distance to make them enchanting. Opposite my breakfast room window there is a fine clump of them sufficiently far removed for observation and admiration, and forming an excellent breakwind on the side of the prevailing sou'-wester. It is not always the most learned who discover the hidden virtues of plants. I am indebted for

An excellent eucalyptive recipe to an old Scotchwoman—a genuine enthusiast—who occasionally comes to criticise my garden. She is a woman of the true Doric type, and calls flowers by those fine old vernacular names which are music to an ear sick of such pseudo-scientific jargon as "*Primula sinensis fimbriata carminea alba punctata*." It is like reading the shepherd's calendar fathom-deep in Heather to hear the happy old lady talking of "Daffodownillies," and "Dusties," and "Gowans," and "blue clouds of Violets." She is by no means ecstatic in her admiration, but whenever she sees anything that suits her fancy she invariably finds a simple, old-fashioned word that exactly touches the point that pleases her. Nobody has a better eye for the good points of a Rose, but the modern names are to her a snare and an abomination. Such a name as "John Hopper" has her approval, but whenever she attempts a French name she cuts the Gordian knot by anglicising it, and "*Gloire de Dijon*" becomes "Glory de John." Seeing some *Pelargoniums* one day in my small conservatory that were badly affected with aphides, she told me that the young blue twigs of the Eucalyptus, placed on or near the affected plants, would drive the insects away. This remedy I have found very effective. I should suggest to those whose plants are troubled with the pest that they should keep a supply of young Gums in pots and place them here and there through their plant houses. The young leaves are softer and more succulent than the older and more leathery ones, and probably contain more of the essential oil; hence their greater power when used as an insecticide. My gardener, who is cunning in simples, uses a decoction of Eucalyptus leaves as a cure for colds—and a disagreeable cure it must be. His statement is that he "masks" the leaves, drinks the decoction, and goes to bed; presently the brew begins to work at his toes and drives the cold gradually up through his body till it goes out at the crown of his head. I have not tried it, but it sounds effective. PAKEHA.

Holly berries.—These are specially abundant this year, but though the weather has not as yet been exceptionally severe, already the birds have begun to clear them off in a very rapid way. The simplest way to provide a good stock

for Christmas is to cut the branchlets as soon as convenient, and place them in a damp, cool shed or cellar, either in damp Moss or water or on the damp floor at once. Thus treated, the berries will keep bright and the leaves green for a month or six weeks. Holly boughs and berries thus treated are often far more fresh than those left on the plants exposed to severe frosts and the risks of bird peckings.—D. T. F.

NOTES OF THE WEEK.

A DONATION OF TREES has, we understand, been recently made by Messrs. Little & Ballantyne, of Carlisle, to the corporation of that town, which lately invited tenders for supplying trees to plant in Warwick Road.

LINNEAN SOCIETY.—The following botanical papers will be read on Thursday, December 7 next, at eight p.m.: Tasmanian plants in South Australia, by J. G. Otto Pepper; Lichens collected by Dr. Maingay in Eastern Asia, Dr. Nylander and Rev. J. M. Crombie.

LIFE HISTORY OF A CROCUS.—The last number of the "Journal of the Linnean Society" contains a paper on the life history of a Crocus, and the classification and geographical distribution of the genus, by Mr. G. Maw. The subject, which extends over twenty-five pages, is dealt with in a masterly manner, and is copiously illustrated.

AMERICAN WOODS.—A collection of these is now being prepared for exhibition in the Arsenal building, in Central Park, by the directors of the American Museum of Natural History. When complete the collection will embrace specimen blocks from each of the 420 trees indigenous to America, most of which have some economic or commercial value. The exhibition will also comprise water-colour drawings representing the actual size, colour, and appearance of the fruit, foliage, and flowers of the various trees. Their commercial products, as far as they can be obtained, will also be exhibited, as, for instance, in the case of the long-leaved Pine, the tar, resin, and pitch, for which it is especially valued. Then, too, in a herbarium, the fruits, leaves, and flowers are preserved as nearly as possible in their natural state. The collection is to be opened to the public next spring.

IMPROVEMENTS IN THE LONDON PARKS, long needed, are being carried out tardily; flower beds which afford only an ephemeral display are being curtailed, and the liberal introduction of attractive hardy perennials shows a healthy innovation. In Battersea Park we observe that some good improvements have been effected, especially in the open space surrounding the band-stand. Till lately this part was traversed by trodden tracks in all directions; now some well-made paths are directed straight across the space, which in no way detract from the appearance of the park. A hideous drinking fountain, too, which formerly stood out conspicuously, is now surrounded by a raised mound planted with various kinds of trees and shrubs, which in a few years will effectually hide the trough and give a finish to that portion of the park. This and other blemishes were pointed out by us a year or two ago, and others which still exist we hope to see remedied shortly.

FLOWERS BY POST.—Some of your correspondents have lately furnished valuable information as to packing out flowers. Some of us would be glad to have information as to the best kind of boxes for sending flowers by post. We are anticipating an early introduction of the parcels post, and no doubt it will be generally used for forwarding cut flowers. What is wanted is a cheap, strong, and yet light box. I have tried small baskets or postal hamper, but they are too costly, and the moisture too soon evaporates. Card-board boxes soften and crush from the dampness of the flowers, and I have been more than once a victim. Last Christmas I sent about a dozen boxes of flowers to lady friends by post with parchment labels attached. With eight out of the twelve the labels were torn off, and the labels only

arrived, and you may picture my dismay when I had letter after letter from my friends, to whom my writing was known, asking for an explanation. I fear some of them thought a handsome present had been sent, and would ultimately be discovered. In the other cases the boxes arrived crushed to pieces, and the contents worthless. Some of the boxes are far too expensive, and deter many from sending flowers which would otherwise be forwarded. I frequently receive flowers by post of exceptional merit, but often they are worthless simply on account of the package in which they have come.—SAMUEL LEAROYD, *Huddersfield*.

THE ROYAL HORTICULTURAL GARDENS at South Kensington are now undergoing important changes preparatory to the great Fisheries Exhibition to be held therein next year. A better place for such an exhibition could not have been found in London, and a better use could scarcely have been made of a place which has too long been misnamed a garden. It is to be hoped that if after the fish exhibition it is to be called a garden it will be remodelled, and its puerilities and cockneyisms effaced. The geometrical pools which were dotted about the place will, we observe, be utilised in connection with the exhibition, and due care will be taken not to disturb the tree growth more than is necessary. We understand that new quarters will be found in which to hold the periodical committee meetings of the society, as the council room and adjoining vestibule will form the main entrance to the exhibition.

A NEW FORM OF LABEL is now in use at Kew in the arboretum and herbaceous plant ground. It consists of an iron shank some 2 feet or more in length, stout enough to make it quite rigid. This stem carries a frame forming three sides of a square, and into this frame is slipped from the top a tablet of greyish-white porcelain, 4 inches by 2½ inches in size, with the name of the plant imprinted thereon, and apparently burnt in with the porcelain and afterwards glazed. This label is practically indestructible, very legible, and not too conspicuous for a botanical garden. The length of shank allows the label to be firmly thrust into the ground, and this is needed in the light soil at Kew, and at the same time the printed tablets are of sufficient height above the ground to prevent them becoming bespattered during heavy showers. The first cost of these labels no doubt is considerable, but no trouble is afterwards experienced with them, and if by chance they become broken, fresh tablets can be readily replaced in the frame. This form of label ought to be adopted throughout the whole of the out-door collection at Kew, as a good deal of expense would be saved thereby, for the old plan of painted iron labels involves a vast amount of labour in their periodical renovation.

ASTELMA EXIMIUM.—During winter when fresh flowers are not plentiful, even dried flowers are welcome for filling vases, and, indeed, very pretty combinations may be made by tastefully using such flowers as *Helicrysums*, *Gnaphaliums*, *Rhodanthes*, *Acrocliniums*, &c., mixed with Grasses of various kinds, but not dyed with gaudy colours, as they often are. *Astelma eximium* is a near ally of *Helicrysum* and a native of the Cape of Good Hope. It has its rigid stems and thick leaves densely coated with white woolly-like material, and the flowers, produced in terminal clusters of about a dozen in a bunch, are about the size of large Raspberries and similar in shape, the imbricating bracts of the involucre having a strong semblance to the pips of the Raspberry. The colour is a deep shining crimson, a tint which strongly contrasts with the white foliage. It is a very singular looking plant, and as it retains its shape and colour intact in a dried state, it is invaluable for winter decoration. For the past few years it has been largely imported by Messrs. Smith and Larke, florists, of Ashford, who send us some samples of it, and we understand that the same firm have succeeded in raising plants of it in their nursery. The flowers look well when dry, and when fresh must be very pretty.

FERNS.

BEST CULTIVATED FERNS.

ACROSTICHUM.—This genus comprises some very handsome, mostly strong-growing forms, nearly all of which are well adapted for covering dead Tree Ferns, as many of them ascend trees by means of the extension of their rhizomes. They may also be used as pillar plants, in which case the columns of the house should be surrounded by a cylinder made of galvanised wire, which should be gradually filled up with fibrous peat and Sphagnum, as the plants require it. Thus grown, they form a fine feature, hiding, as they do, the supports which, when naked, are unsightly. They are also useful for covering walls, in front of which a wire trellis should be put, and the interval between it and the wall filled with rough peat and Sphagnum. The few species which will not submit to this mode of treatment are those with entire fronds. For these pot culture is necessary, and for soil a mixture of two parts fibrous peat, one of loam, and one of sand. In whatever way they are grown they require a liberal supply of water at the roots; consequently the soil must be very porous. Although some fifty species and varieties of *Acrostichum* have been enumerated, a judicious selection must be made, as many of them possess only botanical interest. The following forms are those which are most ornamental, viz.:—

A. ACUMINATUM, a species from Brazil, with very drooping, dark shining fronds, produced in great quantities from a thick rhizome; a stove Fern of easy culture.

A. ALIENUM, a pretty and comparatively dwarf species from Tropical America. The fronds, which are produced in tufts, and which only reach from 10 inches to 12 inches high, are pinnate and triangular in shape, and their pinnae are beautifully undulated; one of the most distinct of the genus, and one which requires a stove.

A. APODUM, an interesting species from Tropical America. The fronds are produced from a thick crown, and have a very hairy appearance; they measure from 15 inches to 18 inches long, are narrow and slightly undulated on their margins. This and the four following are stove Ferns.

A. APPENDICULATUM, an East India species which produces fronds 2 feet long, with winged rachis, and proliferous at the apex.

A. AUREUM.—This noble Fern, which is found growing in swampy places in all parts of the Tropics, requires to be treated almost like an aquatic. It is evergreen, and the barren fronds, which are massive and of a brilliant green colour, rise from a crown; they are pinnate, smooth, and from 3 feet to 6 feet high, with broad and entire pinnae; the fertile fronds, which are totally different, are contracted, shorter, and densely spangiferous on their underside. It should be potted in equal parts of peat and loam, and, provided there is abundance of heat in the house, it will make a striking object if the lower part of the pot can be kept in water, as it requires constant moisture to grow it to perfection. It is one of the best and most distinct of all *Acrostichums*.

A. CANALICULATUM (*Polybotrya canaliculata*).—This gigantic species from Tropical America is of scendant habit and makes a beautiful specimen when run up a Tree Fern or a dead tree stump. Its fronds are dark glossy green and very long, some measuring quite 4 feet in length; they are bipinnate and produced at long intervals.

A. CAUDATUM (*Polybotrya caudata*).—A distinct species from the West Indies, having the fertile and sterile fronds from 2 feet to 3 feet in length; the latter are about 18 inches wide, bipinnate, with broad pinnules deeply toothed on the margins and bright shining green in colour. In the fertile fronds the pinnules are contracted, not more than 2 inches long, and entirely covered with brown sori.

A. CERVINA (*Olfersia cervina*).—This truly handsome Fern comes from Tropical America. The fertile and barren fronds are very distinct; the latter are from 18 inches to 24 inches long, very

leathery, pale green, and pinnate; the fertile fronds are from 12 inches to 18 inches long, bipinnate, contracted, and entirely covered with sporangia.

A. CENOPTERIS (Sorumanes).—A strong-growing Fern from Tropical America, with pinnate fronds, 4 feet long, of a shining green colour. The rhizomes, which are thick, are produced very freely.

A. CRINITUM (Hymenodium crinitum).—A very curious and also a very handsome Fern from the West Indies, and, owing to its singular appearance, a general favourite wherever it is cultivated. The fronds, which are simple and entire, rise from a thick rhizome densely covered with long black hairs, which are also found on the whole surface and margins of the fronds; the latter often reach 18 inches long and 9 inches in breadth, and are borne on footstalks of about 7 inches or 8 inches long; they are dark green. The fertile ones are a little smaller, slightly contracted, and their undersides are completely covered with brownish black sori. It requires to be grown in a stove, as do also the six following.

A. LATIFOLIUM (Elaphoglossum latifolium).—This species, which is found all over the Tropics, is quite distinct, owing to its thick, dark shining fronds, which are a foot high and entire; they are produced in thick clusters from a crown.

A. LATIFOLIUM CALLEFOLIUM.—Probably a variety of the preceding, but very distinct, and much handsomer. The fronds are dark green, very glossy, and produced from a crown or very thick rhizome, but they reach about 2 feet 6 inches long, and are borne on long stipes. It was introduced from Java.

A. LOWI (Lindsæa Lowi).—This is a singular little Fern, and very ornamental. It should be grown against a decaying piece of wood or a Tree Fern stump. The fronds when in their first stage are only semi-pinnate, the pinnae being only on one side of the rachis; they are very dark and glossy. Next they are developed on both sides of the rachis, but of a paler green. Then it changes again and becomes pinnate, with broad, distant, entire pinnae. It is handsome when young, and very interesting in its mode of growth. It comes from the Polynesian Islands.

A. MUSCOSUM.—An imposing Fern from Tropical America, and one which makes a very good specimen. The fronds are 3 feet long and half inch wide, entire, and covered on both surfaces with numerous scales, grey in the young fronds and brown on the more matured ones.

A. OSMUNDACEUM (Polybotrya osmundacea).—A very fine species, indeed the finest of all the Acrostichums. The fronds, which are tripinnate, are produced in abundance from thick rhizomes. The pinnules are broad in the barren fronds, contracted in the fertile ones, and wholly covered with sori; the stalks are clothed with long brown scales. It comes from Tropical America.

A. SCOLOPENDRIFOLIUM.—This is a singular form, having the appearance of a gigantic Scolopendrium. The fronds, which are pale green, are produced in tufts, and about 2 feet long and an inch wide; they are covered with numerous short hairs. From Tropical America. PELLEA.

LAW.

Charles M'Kechnie v. William Bertram.—This action, tried before Lord Adam, was raised to recover the balance of wages said by the pursuer to be due to him under an engagement as gardener to the defender, Mr. William Bertram, of Carswell, Carnwath, Lanarkshire, for a year from Martinmas, 1881. The pursuer was dismissed on June 15 last, and he here claimed wages from that date till Martinmas, 1882. The ground of dismissal was stated to be that M'Kechnie was inefficient, negligent, and disobedient, the latter consisting in his having his son working in the garden along with him on one occasion, and his inefficiency lying in his treatment of the defender's Vines. In defence, there was, *inter alia*, produced a receipt by the pursuer bearing to be "a full dis-

charge of any further claim for wages." The pursuer, on his side, said that he signed this receipt under excitement, and not knowing its contents, and that he had not discovered what he had done till two days afterwards. Proof was recently taken. The Lord Ordinary gave judgment, holding that the defender was not justified in his summary dismissal of the pursuer, and giving the pursuer decree for £22 9s., as wages to Martinmas last, with expenses. The pursuer, his lordship said, had taken his son to assist him in laying out some plants, but this was not such a deliberate disobedience to the defender's orders as to justify the dismissal. On the question of inefficiency, his lordship thought it was possible the pursuer might have treated the Vines in a more skilful manner; but, as far as he could see, it was not proved that he treated them otherwise than might be expected from any ordinary gardener in his position; and it was shown that he was reasonably competent to discharge the duties he had undertaken. His lordship did not think that the receipt founded on by the defender could bar the present claim, otherwise well founded. — *Scotsman*.

Heach v. Prichard.—A question—What is a garden?—was raised in this case upon the construction of the will of Ann Layton, dated November, 1853. The testatrix gave to her eldest daughter, Mary Ann Layton, her freehold cottage, called Teynham Lodge, at Colwall, in the county of Hereford, for the term of her life, and after her death she desired that the above-named cottage, with the garden, should be sold and the profits equally divided between her daughters and sons, whom she named. The question was whether a small orchard belonging to the testatrix, and held by her as appurtenant to the cottage, was intended to be passed under the above bequest. The cottage and garden stood upon 1 rood 35 poles of ground, and the orchard contained 1 rood 32 poles. The orchard was close to the house, but separated by a hedge from the garden, and a gate communicated between it and the garden; and the well which supplied the house with water was situated in the orchard. After the death of the testatrix, her eldest daughter, Mary Ann Layton, took possession of the cottage and garden, and also the orchard, and continued in occupation thereof until her death, in 1879. Mr. Justice Pearson, before whom the case was tried, was of opinion that the orchard was to all intents and purposes part of the garden, though one was used as a flower garden and the other a fruit garden. In this case, if the orchard did not pass under the bequest the testatrix must be held to have died intestate as to that portion of her property. His lordship considered that the testatrix did not intend to die intestate, but she meant to include the orchard as part of the "cottage and garden," and a decree must be made to that effect.

Are Mushrooms poisonous?—The deaths which are frequently reported from the consumption of supposed edible fungi render this question an important one. Professor Ponfick, of Breslau, has lately made experiments on the common Mushroom, and the practical results obtained are interesting and valuable. It appears that all common Mushrooms are poisonous—a fact not sufficiently understood—but cooking deprives them in a greater or less degree of their poisonous qualities. The repeated washing with cold water which they usually undergo to clean them takes away a portion of the poison, and boiling does the rest; but the water in which they have been boiled is highly poisonous, and should always be carefully disposed of. Experiments which Professor Ponfick made on dogs showed that if a dog ate its own weight of raw Mushrooms it fell sick, but recovered; if it ate $1\frac{1}{2}$ per cent. the poison had a more violent, but not fatal effect, and if it ate 2 per cent. it was inevitably fatal. The water in which Mushrooms had been boiled was far more poisonous than the raw Mushrooms; while the Mushrooms thus boiled could be taken without hurt to the amount of 10 per cent. of the weight of the dog's body. Washing with cold water does

not remove all the poison, so that Mushrooms thus prepared were poisonous when taken in large quantities. — *Daily paper*.

An old vegetable in a new form.—A friend of mine shut up his house and garden for the summer and went abroad. Returning in October, he found his Kidney Beans all run to seed, and determined if possible to utilise them. With this view he shelled and bleached some of them, throwing away the husks; then boiled the Beans as one would split Peas for a pudding. When quite soft he poured off the water, mashed them with a lump of butter, adding some pepper and salt. They were served up and he and his friends quite enjoyed the dish. I was advised to give these Kidney Beans a trial. I have done so, and can quite confirm what he has said in their favour. When properly cooked they make a very good and wholesome vegetable, and I recommend your readers who may have more seed than they require for next year to give it a trial.—H. L. B., *Wrentham, Exeter*.

OBITUARY.

THE RIGHT HON. SIR WILLIAM HUTT, K.C.B., died at Appley Tower, Ryde, Isle of Wight, on Friday, the 24th ult., in his 80th year. He was for many years a member of Parliament for Kingston-on-Hull and Gateshead. His garden at Appley Tower is among the finest in the country, and by his death horticulture has lost an enthusiastic supporter. He was a frequent contributor to THE GARDEN, in which an account of Appley Tower was given at p. 186 of the present volume.

MR. THOMAS FROST, of the Bower Nursery, Maidstone, died on the 11th ult., aged fifty-nine. He had been in ill-health for a long time, but it appears from details published in the *Kent Messenger* that on the morning of the 11th, accompanied by his wife, he came to London on business. While walking down the Strand in the afternoon he was seized with an apoplectic fit, and was at once removed to one of the hospitals, where he so far recovered as to be able to attempt his return journey to Maidstone, but on reaching Aylesford station he expired. He was for many years gardener at Preston Hall, and commenced business as a nurseryman in 1863. He was brother to that well-known horticulturist, Mr. Frost, of Dropmore, and was widely known and much respected.

Rainfall (C. S. R.).—You will find the information you want respecting this in a shilling annual published by Stanford, 55, Charing Cross.

Correspondents who wish fruit to be accurately named should send several specimens of each, showing the fruit in various stages. We cannot undertake to name more than four kinds of plants or fruit, and these should be numbered.

Names of Fruit.—C. Cundy. Heavy Morning.—D. H. 1 (Pear), Hacon's Incomparable; 2 (Apple), Cellini; 3, Cox's Pomona is most like it.

Names of plants.—F. G.—Twiner is Muhlenbeckia varians, Erigeron mucronatum.—G. Hope.—If you will send good specimens (twigs or branches) of each of the Hollies you want names for we will endeavour to assist you.

—O. R.—Monochaetum sericeum; others next week.
—G. H.—Variety of Salpiglossis variabilis.—J. G. K.—1, Oncidium Forbesi (fine form); 2, Coccoloba platyclada; 3, Tradescantia species; 4, Davallia parvula.—L. Dray.—1 and 2, Trichomanes radicans. Both forms are found on the same plant, one producing fronds in clusters and lighter in colour, the other at wider intervals and darker. The rhizome is exactly the same in both cases; 3, Todea pellucida species.—D. H.—4, Clerodendron. Please send again.

COMMUNICATIONS RECEIVED.

J. C. C.—H. D.—J. S. W.—D. T. F.—H. & S.—J. D.—J. R.—J. N. W.—H. W.—G. J.—J. G.—H. D.—J. G.—R. F. G.—W. L. H.—W. H. S. M.—R. F. S.—& Sons.—R. G.—W. T.—J. H.—A. D.—V. A. & Co.—R. B. S.—Delta.—W. G. S.—E. G. L.—J. D.—P. I.—W. P. R.—T. B.—J. C. Major C.—B. S. D.—W. P. R.—J. S. W.—G. S.—L. S.—J. D.—G. J.—J. H.—G. H.—D. K.—A. D.—W. T.—W. R.—T. S.—R. G.—W. E.—W. T.—J. C. C.

"This is an Art
Which does mend Nature : change it rather : but
THE ART ITSELF IS NATURE."—*Shakespeare*.

FLOWER GARDEN.

HARDY FLOWER BORDERS.

BEFORE laying out my present garden I for some years examined gardens in all parts of the world, with the view of forming borders that should not only grow hardy flowers to perfection, but show them off to advantage, and I must confess that although I read of many beautiful ideas which looked well on paper, I was disappointed with everything I saw or did in practice. In the first place I found that, while sloping banks suited few plants, flat borders rarely showed up the flowers as one sees them when they look their best in a natural state on rough ground; moreover, they were in most cases planted so far apart that the large patches of bare soil offended the eye. Secondly, when in my own case I planted them close, so as to form a mass, the strong growers very soon overrun the weaker ones; while, as for bulbs and plants which die down in the winter, they used to mysteriously disappear after the first year. It is very easy to say that they should have been carefully labelled, but I know that every practical gardener will bear me out when I say that labels often get lost, and that, moreover, when you have a large clump of Lilies marked with a single label at one spot, and a single bulb marked in exactly the same way in another, the gardener is sure in going over the border in spring either to leave too much space for the single bulb, or dig up half the larger number, more especially if you have a new gardener who never saw the plants in bloom. I also found the almost universal mistake of leaving a wide breadth of Grass, dividing the paths from the borders. Now this is like nothing that is to be seen in Nature. I have nothing to say against Grass lawns, bordered by shrubberies, especially when the foliage of the latter feathers down to the very edge of the Grass. This is copying and improving upon Nature, and you may see such natural glades any day in Epping Forest. But who ever saw a natural bank of alpine flowers with an edging of Grass? One can only think of wild flowers close to a path and under the very eye, and you will nearly always find them with a background of trees or shrubs. Taking, therefore, Nature as my guide, I have made my

Alpine garden a miniature forest, composed of flowering trees, shrubs, conifers, and evergreens, with winding paths running in all directions, widening here and there to admit of beds and rockeries in the gravel, and having everywhere on either side a flower border of 5 feet or 6 feet in width, with a background of shrubs and trees, of which of course I take care to only place the slow-growing ones in front. These borders are raised considerably above the paths, and in the most irregular manner, and the soil is supported by large burs or rocks, over the hanging ledges of which dwarf alpinists and trailing plants fall in rich profusion. These burs and rocks are strewn in a natural manner over the whole borders, cropping up here and there among the shrubs. There is, however, a method in their mode, for the border is by them formed into irregular terraces and spaces in such a manner that every plant or group of plants is roughly surrounded by little rocks that divide it from its neighbour. Of such irregular spaces or pockets I have in a garden of an acre, which includes a large tennis lawn and a kitchen garden, which supplies a large family with Strawberries and green vegetables, not less than 2000 of all shapes and sizes, from 6 inches to 6 feet in diameter. Many of the pockets are empty, but, covered over neatly with Cocoa-nut fibre, the bare

places do not spoil the general effect. And until my collection of hardy plants fills the garden, I make the reserve spaces gay with annuals, Pelargoniums, and duplicates of such plants as Daisies, Primroses, Pansies, Violas, Arabis, Stonecrop, Wallflowers, Foxgloves, summer Chrysanthemums, Phloxes, &c., which propagate fast enough to fill a parish in a few years. Whenever I get

A new plant, I carefully note whether it requires a sunny or a shady position, and whether suitable for a back or front row. I go round and seek out such a site, and if I fail to find one empty I destroy some worthless annual that has nearly done blooming or some duplicate. If the soil is not right, I dig it out and throw it back among the shrubs, and in its place I put other more suitable to the new-comer. I then arrange the rocks to form a bed about the size my new plant will grow to, and having marked it with an iron stake, with a number which tallies with my list of perennials, I carefully plant the stranger, and that bit of the garden will need no attention for three or four years or more, beyond hand-weeding and staking (with some plants), and an occasional clearing away of dead stems, and a yearly or biennial top-dressing. If a patch of flowers is seen to overgrow its boundary of burs, the gardener clips it in or enlarges the pocket as the case may require, and so everything is kept in its place, and a place for everything. On the wettest day or the most dewy morning I can walk round my garden without inconvenience, and even in the depth of winter the borders are interesting with fine-foliaged plants and evergreens. Of one thing I would warn your readers, and that is, that this style of garden is rather costly to lay out, as you need a great space of shrubbery, paths, and rockwork, where in gardens of the usual villa type you would have lawn, but, reckoned by the number of flowers and general effect produced, it is cheap.

The art of growing alpinists and hardy plants is a far higher art than that of bedding-out, and no one need hope to succeed who does not attend to it himself or pay a better man than is found in the majority of villa gardens. For my own part I have still more to learn than to teach, and if any of your readers would like to compare my garden with his own, I should be only too glad to exchange visits, in the fullest confidence that I should thereby learn some new wrinkle, or find out some other good plant that does not need two men and a boy to attend to it, and twenty tons of coal a year to produce a proper temperature in which to grow it.

F. C. B.

Heatherdale, Woodford.

COLOUR IN THE FLOWER GARDEN.

THE well-intended article by "R. A. H. G." (p. 477) is unfortunately somewhat misleading, and will only result in the production of discordant combinations. The theory of complementary colour harmony upon which "R. A. H. G.'s" article is founded has long been proved to be totally wrong. To say that because the human eye, by gazing at red, for instance, becomes to a certain extent blind to that colour and more sensitive to the remaining colours, and sees a predominance of them where they do not exist, therefore these colours, either separate or in combination, will produce a colour harmony when seen together with red, is about as logical a piece of reasoning as to say that because Apple pie eats nicely after roast beef, therefore roast beef and Apple pie will make a nice dish in mixture. M. Chevreul's theory of complementary colour harmony was founded on what science has since demonstrated to be a fallacy. It was supposed that there were only three colours in white light, and that the overlapping of these colours produced the intermediate shades; so long as the atomic theory of light was entertained, this was tenable, but the instant it was conclusively shown by experiment that light was the result of waves or vibrations in an imponderable ether pervading space this theory of colour could no longer be entertained. The sensation of colour is produced by regular waves of the light ether reaching our eyes exactly in the same way as the

sensation of sweet sounds is produced in our ears by regular waves of the air. Probably the sensation of harmony between any two or more colours is produced in our eyes by certain coincidence in the waves that produce those colours exactly as sounds harmonise when two, three, or more waves of one sound are equal to one of the others, and discord is produced when none of these waves coincide. I am not aware, however, that this has yet been demonstrated, although I think, speaking from recollection, that the exact number of vibrations which produce some colours has been ascertained. Before

The vibration theory of light was proved it had been ascertained by experiment that mixed hues did not exist in the prismatic spectrum. The experiment was conducted by separating the pure yellow and pure blue rays from the others, and throwing them on one point. According to the combination theory they ought to have produced green, but they did not. The discovery that colour could be produced by vibration showed the reason of this. We might just as well expect two differing sounds played together to produce an intermediate note as that blue and yellow light combine to produce green, or that any two colours in the spectrum combine to produce an intermediate colour. The moment it is seen that every hue in the spectrum is distinct, the whole reasoning which supports the complementary theory of colour harmony falls to the ground; no combination of colour can be said to be necessarily a true harmony for any other colour or combination of colours. The whole theory was founded on what could be done with pigments and dyes, and produced discords and combinations which all colourists knew to be anything but harmonious. It was assumed that because a pigment which reflected blue when mixed with a pigment which reflected yellow produced a pigment which reflected green, therefore blue and yellow light produced green light—a most unwarrantable assumption, seeing we are totally ignorant of the properties of matter which enable certain substances to quench or absorb some colours and reflect others, and the same is true with regard to all other hues. The most probable reason why pigments when mixed reflect the intermediate colours which are not produced by any mixing of the colours themselves is that each particle of pigment when mixed still reflects its true colour, but the little streams of waves from the different pigments jar and ultimately produce waves moving at a rate of speed in proportion to the quantity of each pigment used, and which produce on the eye the effect of an intermediate colour. That something of this kind does take place can be seen by the naked eye when a piece of bright blue paper is covered with crossing lines of bright scarlet vermilion of about one-sixtieth of an inch in thickness and one-sixteenth of an inch apart—a purple shade is produced, but the purple does not seem to be on the paper, but to be rising or raying out from the lines where the two colours meet. When the paper is placed far enough away it looks pure purple, bluer or redder according to the quantity of each colour used. All mixtures of colour are blended by distance in the same way. White, grey, and black, are most likely produced when the waves are all jarred and wholly irregular, and bear the same relation to colour that noise does to music.

The true test of colour harmony is the eye of a good colourist, exactly the same as in music; the only true test of an instrument being in tune is the ear of a good musician. "Concord of sweet sounds" was enjoyed and discords detected centuries before it was found out why certain sounds produced the sense of harmony when sounded together, and in the same way an eye sensitive to colour will detect discord, and has always been able to appreciate harmony, although we are now only beginning to understand the physical facts which produce on our minds the sensation of colour. The only way to arrive at a true understanding of the harmony of colour is to study the colour work of the eastern nations—the Arabs, Persians, Hindoos, Chinese, and Japanese.

In the works of these nations we can see colour used in perfect harmony, with variety and confidence as to the result. With regard to ourselves there are differences of temperament and nature which affect our tastes. Dark people as a rule prefer a predominance of red and of decided contrasts; fair people generally prefer blue as a predominant hue, and delight in delicate contrasts, of related tints and silvery greys. The weakest perception of colour one meets with in this country is amongst the sturdy, common-sense, practical, brown-haired folks who form the bulk of the population. It is difficult, however, to convince anyone of his or her own defects. People who have

No natural perception of colour cannot be trained to arrange colours harmoniously by any code of rules, but those who have a natural feeling for colour can find out whether two colours harmonise by a very simple test. Place the colours separately on a grey, white, or black ground, and then place them together on the same ground. If they are brighter, richer, and fuller together than separately they harmonise, but if not they should not be placed together. Superficial observation must be guarded against. There is no more common error amongst gardeners than to imagine that because the flat or normal colour of nearly all leaves is green, therefore the background most suitable for all flowers is green. Accordingly we see beds of brightly coloured flowers placed against closely-shaven, bright green turf, and ninety-nine-hundredths of the gaudy glare of bedding plants is owing to that practice. Grass-green is a colour that no artist in his senses would ever use in combination with bright colour; it is simply ruin to every attempt at harmony, and is a colour which has almost to be banished from a decorative artist's palette. Yellow, pale pink, and other pale tints, purples, blues, and white are the only colours not injured by the colour of bright green Grass. The leaves of plants are green on a dull day and in-doors, but out of doors, especially in bright sunlight, there is scarcely a particle of green in their effect. The green colouring matter is in the middle of the leaf; the upper and under surfaces of the leaf are more or less colourless. Seen edgewise, as most leaves are seen, the green is seen about as much as the bottom of a pool of water is seen when looking along its surface. The upper surfaces of leaves are various shades of grey, the shadows a warm deep grey, varied with a very quiet olive and citrine where the leaves are seen in shadow; the leaves where the sunlight strikes through them are almost yellow when young and a golden green when older, and the only grass green is where the light from the sky strikes through the leaves on the shaded side of the plants. The whole effect matches in colour those dark marbled, ornamental, glazed earthenware pots, which can now be purchased, of various shades of dark bottle-glass colour, and which are about the most advantageous setting possible for cut flowers. Anyone can easily test the above statements as to the colour effects of plants by trying to match the colours in sunlight by holding up pieces of coloured paper against them from the window of a shaded room, and so matching the colour of each portion both 100 yards away and in the foreground.

Another blunder always committed in bedding is the use of bright colours in one or two shades only without any intermediate or related shades. If reds, blues, yellows, and oranges had been used as the soft, neutral greens of succulents are now used in carpet bedding, there would have been little to find fault with as regards colour. I remember noticing a very beautiful carpet, the whole of which was orange and blue; now, as pure colour, these two make a discord as horrible as two German bands playing tunes in different keys make when heard together; but in this carpet a beautiful harmony was produced; not one-sixtieth of the surface was pure colour. There were five or six shades of each colour, varying from the pure colours to nearly black. The pure colours, in mere specks, were separated as far as possible, and the opposing colours only met in their deepest

shades, such as indigo and deep chestnut. Where the facts of complementary colour will be of service in gardening is not in what to place to be seen together, but in what to place to be seen in succession. For instance, after the eye has been feasting on the gorgeous reds and yellows of a collection of show Tulips, it will just be in a fit state to appreciate blue, and may pass to a collection of choice Delphiniums. J. D.

DOUBLE DAISIES AND OTHER SPRING FLOWERS.

ALTHOUGH Daisies date back perhaps farther than most cultivated flowers, they appear to be fast rising in popular favour; and no wonder, for they have been greatly improved in size and quality of late. Instead of the "wee, modest, crimson-tippit flower," we have now Daisies with stems 6 inches or more in length, and with blossoms as large and full as those of a small Aster. In Gerard's catalogue, published some 300 years ago, several kinds are mentioned; and before then, according to William Turner, the Hen-and-chickens variety was in existence. And this is still a favourite sort in cottage gardens, where in several villages in Suffolk numbers of it may be seen adorning the borders. The common Daisy, pretty though it is, is very troublesome on lawns, and requires some perseverance to rid turf of its presence. This, however, does not detract from the value of the cultivated kinds, which are indispensable for the embellishment of gardens in spring, as they are among the first things to bloom, and they continue on in full beauty till quite late in the season. The prettiest effect I have seen produced by them is when used in combination with Forget-me-nots and common Primroses, with either of which they associate well. The way we have had them arranged is by planting a broad band of the double white Daisy near the Grass, then a deeper one of the red, with the centre of the bed filled in with the common Primrose, and the colour and softness of the whole is most charming. In other beds the arrangement of the Daisies is reversed; the reds are on the outside and the whites next the Myosotis, which mixture of shades produces a very pleasing effect.

Besides the Forget-me-nots and Primroses, there are various other plants that may be used with the Daisies, among which the best are the white, yellow, and blue Pansies or Violas, and the Silene and white Arabis, as they are dwarf and afford the requisite contrast of colour. The Silene is an annual, and may be raised in any quantity by sowing seeds in nursery rows in any spare ground in the autumn, from whence the plants can be lifted and transferred to the beds in the spring. In doing this they should be taken up with good balls of earth, that the check may be as little as possible; and when planted, it is necessary to give a watering to settle the soil about their roots, and they will then start off growing at once. To have Daisies strong and with good, well-developed crowns, on which their flowering freely depends, they must be well managed and cared for in summer, as every bloom has to be formed and packed up, as it were, during that season. To enable the plants to carry out this important part of their work, they must have good quarters to grow in, the best situation being where they can enjoy shade during the heat of the day, and in a position where they are handy to water. A north border under a wall answers well; but before planting the ground should be heavily manured and deeply dug, and the plants pulled apart and divided, when they may be either dibbled in in rows 9 inches or so asunder, or placed at that distance by the aid of a trowel. The latter way, however, is preferable, as the roots are less liable to be doubled up and injured or cramped than they are when a dibble is used, and the saving of time with this implement is not great.

In country districts common Primroses may be obtained from the woods when they are wanted for planting, but even these pay well for growing; and when once a stock is got, it is always advisable to keep them if room can be spared, as they give

very little trouble, and only require pulling apart and treating after the manner just advised for the Daisies. Ground under fruit trees, such as Apples and Pears, that cannot be utilised for any other purpose, does well for growing Primroses, as it is quite natural to them to be in such positions; and the same with Daisies and Violas or Pansies, as they are all shade-loving, and may be planted there, too. To increase Violas or Pansies, cuttings should be put in, and to obtain these it is necessary to cut back the plants a bit, which should be done as soon as they cease flowering, after which they soon break and send up a number of young shoots from the base. These form the cuttings, and to strike them they should be dibbled in in sandy soil under hand-lights, where they can be kept shaded and occasionally syringed or sprinkled with water to cause them to root. As soon as they do this, they should be planted out in rich soil, and there encouraged to make free growth till the autumn. Pansies and Violas may also be increased by division, as the numerous suckers or side growths they make soon root and form separate plants. The lovely Myosotis dissitiflora is best raised from seeds, as seedlings are always stronger and less troublesome to get up than cuttings, which take some time to root. To get Myosotis seed to germinate readily, it should be sown under hand-lights in finely sifted soil kept constantly moist by frequent syringing. S. D.

SINGLE PYRETHRUMS.

Now that single flowers are so fashionable, and single Pyrethrums in particular, it may be of service to describe the way in which they may be raised from seed. It must not be expected that from seed purchased in the ordinary way first-class varieties equal to those sold at a high figure can be raised in quantity. But from my own experience, I know that it is possible to get a fair proportion of good useful flowers well worth the trouble bestowed on raising them. I have been overhauling my stock lately, and I find I have secured a large number of plants from a single packet of seed purchased last spring. It is, however, only right to say that I examined the plants when in flower once a week, and those I thought worth keeping were labelled and the colours put to them. Now that the selected plants are ready for permanent planting, I find that the colours embrace white, red, bright crimson, dark crimson, bronze-red, and pale yellow, with several intermediate shades, and I confess that I am surprised at the size of the crowns and the large number of roots which they have made.

Sowing.—In order to get the plants to flower as early as possible the seed must be sown in February. A pan 6 inches deep and from 14 inches to 16 inches wide is not too large to hold a packet of seed. The pan should be well drained, and then filled to within an inch of the rim with fine sandy soil, which before sowing should be well watered. As the seed is rather small and thin, it must be covered very lightly with fine soil. The pan should then be placed in a warm house and kept regularly moist by careful waterings from a fine-rosed watering-pot. The seed is not long in vegetating, and when the young plants have developed four or five leaves they should have a light, airy position, so as to strengthen the plants with a view to get them strong, and to enable one to remove the pan into an ordinary greenhouse temperature early in April for a week or two. Early in the month of May they should be potted off singly into 3-inch pots, giving them a rather rich soil, and as soon as potted place them in a close warm frame or pit and treat them kindly for another month, and then harden them off and

Transplant them in the open ground where they are to flower. The position should be a rather warm one, the soil rich and deep, and broken up into fine particles, that the roots may soon lay hold of it. Under such circumstances it is surprising what rapid progress they make. We flower our plants in a border in the kitchen garden, planting them 1 foot apart each way, and under the treatment just described, we have them well

in flower by the middle of August. It is possible that a few semi-double flowers may be produced amongst them, but those who want them will know what to do with them. Our purpose is to get the best variety of colours in single flowers, which we take care to mark as they come into bloom. Inferior ones are consigned to the rubbish heap. J. C. C.

LAWNS: FORMATION AND TREATMENT.

THE Grass lawn has always been regarded as one of the best and most pleasing features of an English garden, and through all the changes of "style" which have taken place in regard to the floral decoration of our pleasure grounds no one has, so far as we are aware, ever suggested any alteration in regard to it or objected to its extent provided it could be kept in proper order. The lawn may be described as the frame in which the garden picture is set, and without which no garden can ever look as it ought to do any more, than fine paintings and other works of art can be displayed to advantage in an unfurnished and unsuitable building. Seasons may vary, and our flower beds may vary with them, sometimes be successful, and sometimes disappointing, but in our peculiar and fitful climate the Grass lawn is always sure to afford satisfaction and pleasure, provided it has been properly made at the outset, and properly treated afterwards. A lawn should be spacious, in proportion to the size of the garden, even, smooth, always green, and pleasant to walk upon. To have it like this, it must be well made and well kept, but most depends on the making of it; and the main points to consider in regard to these matters are the levelling, drainage, trenching, or digging, sowing or turfing, and keeping; and these we propose to treat of separately.

Rough levelling.—This term applies to lawn making, whether the ground is intended to be flat or undulating. As a rule the latter feature predominates, only tennis lawns and croquet grounds, &c., being laid out quite flat and level. Levelling undulating ground consists in simply filling up hollows and reducing knolls or hillocks on the give-and-take principle, so as to give the surface an even and pleasing contour without disturbing the general form of the ground, except in the case of slopes and terraces, which must be set out accordingly at the beginning. In cases where the ground is very uneven it sometimes becomes necessary to remove the good surface soil temporarily, and level the subsoil, or even remove a portion of it from the place—work which involves considerable expense. On no account should the good soil be buried under such circumstances, but be put aside to go on the top again when levelling is finished. Much needless labour and expense in forming a lawn on difficult ground may be saved by the judicious planning and planting of the ground, and no steps should be taken in regard to the lawn till the shrubberies, clumps, beds, and walks, &c., are all set out, and their position and levels ascertained; as far as possible, all heavy planting should also be finished beforehand. All tree roots and large stones should also be removed from the ground, particularly the former, which if left will decay in time, causing the soil to fall in, and making the surface very uneven and unsightly, not to speak of the fungi which the decaying roots generate, and which appear annually in the shape of masses of offensive Toadstools all through the autumn.

Drainage.—A general rough level having been affected, the drainage must be then seen to, the extent and nature of which will depend a good deal upon the formation. Thin and naturally dry soils are better without drainage, as it only tends to starve the Grass in dry seasons; but, as a rule, drainage is necessary to carry away superfluous water quickly, and prevent melted snow and heavy rains flooding the lawn for any length of time. For comfort's sake, lawns, like walks, should be dry. Drains 4 feet deep and from 15 feet to 30 feet apart, according to the situation, with a 3-inch tile in the bottom, and 6 inches of

broken stones or rough cinders above the tiles, and a ready outfall to a main drain of sufficient capacity to prevent "drowning," will be sufficient in most cases; but in retentive soils or swampy peat even more than this may be needed. As a rule, a good guide in such cases is the amount of drainage found to be necessary on the farm lands of the district; what is sufficient for these will suffice for a garden lawn also.

Trenching the ground.—The main beauty of a lawn consists in its fresh and green appearance, and to secure this for as long a period as possible throughout the year, the soil must be deep, rich, and dry; hence trenching in all cases is almost a necessity. It is rarely that a piece of natural ground is found to be of uniform depth throughout. Nor is it needful that it should be so; but it is important that the gradations from the shallow to the deeper portions should be gradual, and even otherwise the ground is certain to be "patchy," one of the worst faults a lawn can have. The finer Grasses and Clover will prefer those spots where the soil is deepest and richest, and forsake those portions where it is thin and poor, which will be usurped by Moss and weeds, and in dry seasons the latter will suffer first, and become brown and withered-looking, thus spoiling the appearance of the sward. We have seen lawns on which obliterated walks, that had not been trenched to the same depth as the rest of the ground, remained perfectly distinct by the nature of the vegetation produced for over thirty years afterwards. Whatever depth, therefore, the soil can be trenched, and which will depend upon the nature of the ground and the cost, it should be trenched to a uniform depth, and the subsoil in the bottom of the trench should be turned up rough with a strong fork as well; but any bad soil which may be dug up must be thoroughly mixed with the good soil, and not left on the surface next the sod, for bringing up bad bottom soils on a lawn ground is not like doing the same on ground constantly cultivated by the spade or plough. Proceed by opening a good wide trench the width of the piece, and turn over the ground in a regular manner till the whole is finished, and then leave it for a good while to settle. Afterwards the surface should be finally levelled, and if any manure is to be given it should be dug into the surface at the same time. If the soil be naturally good, no manure will be needed; but if poor it will be much benefited by the application of rotten farmyard manure, rotten leaves, or vegetable refuse. Good fresh loam, free from weeds, is also excellent for the purpose. This trenching and manuring should be performed as early in autumn as possible; and the winter rains and frosts will settle the soil better and more evenly than ramming or rolling, neither of which are advisable.

Laying down a lawn from seed.—This is by far the best plan of forming a pure, clean Grass sward, free from those weeds and coarse Grasses which mar the appearance of so many lawns, and which are inseparable from lawns made from the natural turf. When seed has to be sown, the ground, being already prepared as advised, should be made ready for sowing in April by treading (rolling will not do) the soil evenly, raking it smooth, and removing all stones and lumps projecting above the surface; after which the seed should be sown thickly, and harrowed in slightly by a short, blunt-toothed iron rake, and rolled down. Grass seeds, mixed in the right proportions, for the purpose, are most conveniently procured from respectable seed houses; but samples differ greatly, some "mixtures" containing more weeds and coarse Grasses than others, and which give the lawn quite a coarse appearance. Only the most respectable seed houses sell good Grass seeds, and with a list of the different Grasses which the mixtures are said to contain, no one should have any difficulty in procuring what they want. The quantity of seed to an acre should not be less than 50 lb., and if much more can be afforded all the better. As a rule, seed is sown much too thinly,

and years elapse before a dense turf is formed. By sowing thickly enough, however, and manuring judiciously, a good lawn may be had the same season the seed is sown. Remarkable examples of results from seeds in the course of a few months were exhibited in the grounds of the Paris Exhibition in 1878. Several English firms competed for the prize offered for the best example of lawn Grasses, each exhibitor being portioned out a considerable piece of ground, which they sowed and tended themselves. All the examples presented differences, some being fine and some coarse, just according to the proportion of the varieties of Grasses sown and the cleanliness of the samples; but although in each case the seed had only been sown about May, the Grass was quite thick and dense by the month of August and beautifully fresh and green. The seed had been sown thickly in well enriched soil, and the Grass had been regularly cut during the season, and the cuttings left evenly scattered upon the lawn by the mowing machine. Good seed is rather dear; but when we take into consideration the cost of procuring turf, laying it down, watering, rolling, and tending it, sowing is probably the cheapest plan, as it is undoubtedly the best in other respects.

Laying down turf.—For turf or sods the ground is prepared in the same way as for seed. The turf should be of the finest quality procurable; but it is only on certain formations and under certain conditions that it can be procured free from weeds and coarse Grasses. The sods should be taken off in pieces about 18 inches square, of an even thickness of 2 inches or thereabout, and brought to the place in rolls where it is wanted, and laid down at the same time that it is taken up. The sods should be beaten slightly by the spade as they are laid, and afterwards the whole lawn should be rolled frequently by a heavy roller in moist weather to render the surface level. In summer, should the sods shrink—as they will do in dry weather—the seams should be filled up with fine soil, to prevent evaporation and bind the sods together.

Turfing by inoculation.—This consists in chopping the sods up into small pieces, scattering them over the ground, and rolling them in. This plan is only resorted to when turf is too scarce to permit laying down the turves whole; but it answers very well, and if a few seeds are sown at the same time a very good lawn is formed in one season.

Keeping the lawn in order.—To keep a Grass lawn permanently in good order it must be cut regularly by the machine or scythe, by the former if possible, and periodically manured by means of top-dressings. When the clippings are left on the lawn manure need not be applied so often, as the short Grass acts as a manure much in the same manner as wood ashes; but the practice helps to propagate weeds—Daisies, Dandelions, Plantains, and the like, and is on the whole better not adopted except on very clean lawns. Under any circumstances the cutting of the Grass should begin as soon as the Grass begins to grow in spring, and be continued till it ceases to grow in autumn. A smooth, dense, carpety turf can only be preserved by these means, as the cutting prevents the Grass going to seed, and causes the root and fibres to spread until in a short time the turf becomes a dense velvety mass such as is only found on a closely shaven lawn. At the same time this constant removal of the short Grass is certain, sooner or later, just according to the quality of the soil, to impoverish a lawn, and the deficiency must therefore be made up by periodical top-dressings of manure in the form of guano, soot, or wood ashes, or a mixture of all the three, than which there is nothing better, and one dressing in spring, will be sufficient. To this end any garden refuse should be buried, and with it all the short Grass collected during the season, and as much earth as possible. The ashes can afterwards be sifted through a fine sieve and have the soot and guano added to them when they are used, which may be at the rate of 3 cwt. or 4 cwt. to the acre. The fine siftings

of coal ashes may also be applied with advantage alone, but more advantageously in conjunction with other manures. Two inches of coal ashes laid under the turf will prevent worms rising, and this plan may be adopted in the case of tennis courts and cricket grounds. In winter lawns should be frequently swept and rolled.

Weeds.—The most troublesome of those in Grass are Dandelions, Plantains, and Daisies, which when once established are difficult to eradicate. They may be kept out of a well-made lawn with little trouble by removing them as they appear; but where they exist in quantities, Daisies and Plantains are not easily got rid of, except by much labour. Dandelions may be extirpated by cutting the crowns of the plants off and pouring a few drops of carbolic acid on the root, but the operation may have to be repeated several times.

—Field.

Narcissus (*Corbularia*) **monophyllus**.—Mr. Redhead recommends planting this species on grassy banks (I presume out of doors). May I ask if he has established it and grown it successfully in that way near Manchester? I think this is one of the most charming of the whole *Narcissus* tribe, but I have been afraid to grow it anywhere out of doors. I purchased 100 roots of it the other day, and could easily plant it out if I thought it would succeed.—J. DOUGLAS, *Ilford*.

Yellow Ribbon Grass.—I send you what I consider to be a new form of the Ribbon Grass (*Digraphis arundinacea variegata*). I am aware that there are two or more distinct white variegations in this Grass, but I have not seen a yellow one in cultivation. I found it on a bank of the river Axe, in Devon, in the past summer, and forward a piece, although the markings are, at this late time of the year, rather pale. They were of a golden yellow earlier in the season. I may add that on the same bank, about a mile apart, I gathered a white variegation which promises to be distinct from the older ones.—J. M., *Charmouth, Dorset*.

Fuchsia Sunray.—Allow me to direct attention to this *Fuchsia* as a decorative plant, and also for bedding purposes. Planted out in a conservatory along with dark green-leaved plants at this time of the year, or, indeed, at any season, it has a fine appearance, its warm variegated foliage contrasting well with that of plants of a dark aspect. Last summer I bedded out a few dozen plants of it which did well and were greatly admired. Next summer I hope to bed out a quantity of it. It does well, too, as a carpet bedding plant. It is easily propagated in the spring. Anyone wishing to give it a trial may soon obtain a good stock of it by putting an old plant in some warm house or pit where it will soon make plenty of growth from which cuttings can be taken. These if inserted in pots or pans in a temperature of from 50° to 60° will strike freely, and if potted singly and gradually hardened off, they will make useful plants for almost any purpose. Cuttings struck in March or April, or even later, are best for carpeting.—G. HILTON, *Borogrove House, Mayow Park, Forest Hill*.

SHORT NOTES.—FLOWER.

Show Auriculas.—I would be much obliged if some of your readers would give me some information as to the best way to grow Auriculas for show purposes; also the best named varieties, and the best book upon the subject.—GREENOCK.

Epipactis latifolia.—In answer to Mr. Webster's enquiries in *THE GARDEN* (p. 455), allow me to say that I have on two occasions this season found two specimens of *Epipactis latifolia*—one with leaves and stems perfectly white, the other well and regularly variegated.—F. LANCHEBY, *Temple Combe, Henley-on-Thames*.

Hardy flowers for cutting.—How can I get a complete list of all hardy flowers grown (and worth growing) to afford cut flowers? I see the great importance of the subject, and shall be so glad if the readers of *THE GARDEN*, the very people who know, will help me. I want them for all possible seasons and in the greatest variety consistent with beauty.—J. H.

Variegated New Zealand Flax.—The New Zealand Flax is one of the best of fine foliaged plants for plunging out of doors in summer, or for planting permanently in the milder parts of the kingdom. In the Isle of Wight both the plain green-leaved kind and its variegated variety do well out of doors as decorative plants, and, singularly enough, the variegated form is the hardier of the two, and when well established its long sword-like leaves have a striking appearance. This Flax is one of the plants really well suited for cool conservatories, winter gardens, and similar structures. It is not fastidious as to soil; the leaves are easily freed from dust, and insect pests seldom affect either the type or the variegated form. Anyone having good, large plants of either kind will find that by turning them out of doors during the summer months they are greatly benefited, and, moreover, look happy, which is more than can be said of many subjects now-a-days employed in sub-tropical gardening. These Flaxes do not need a high temperature at any time; indeed, they are not injured by even a few degrees of frost. These, Yuccas, hardy Palms, and similar plants would add a real beauty to both our summer and winter gardens, and, with such material, plants that need a stove temperature need never be used for out-door decoration.—J. GROOM.

ORCHIDS.

VANDAS GROWN COOL.

I THINK "J. C. B." (p. 480) opens this subject at a very proper time, as it will cause a few of us to say what we think in reference to it, and thus probably save some of the Vandas from a winter's cooking to which they are subjected in many places. As he suggests, I have strong opinions on the subject—opinions not hastily arrived at, but the result of years of careful observation. Whenever I visit a place I make a note of what is doing well and also of what is doing badly, the conditions under which I found them, and I may say that I have received more information through inspecting badly grown plants than those in first-rate condition. With respect to Vandas of the tricolor and *suavis* section, I have always found them in bad condition wherever they have been grown in what is commonly called East India temperature; they have been scraggy and leafless at the bottom, the leaves thin, and those in the course of formation weak and inclined to fall forward. Such plants flower but sparsely and the individual blooms are poor. Free ventilation does much to improve matters even when Vandas are grown warm, so much so that by that means a few growers keep their Vandas in something like presentable condition, and are therefore inclined to combat cool treatment. To such I would say, try them in a cool, airy, intermediate house, and you will get better plants, more roots, and larger flowers.

The proper winter temperature for these plants is 50° at night and 60° by day, with a possibility of rising to 65° by sun heat; in this way extremes will be avoided, which, however useful as experiments, are likely to prove costly in the long run. Facts have, however, come to my knowledge which prove to me that Vandas may be grown much colder than I have stated. Some years ago a large, untidy plant of *V. suavis* Veitchi, which had been subjected to more heat than was good for it, came into my hands in early summer. I placed it in a house in which there was no artificial heat in summer and early autumn, and its rapid improvement as regards condition was remarked by all who observed it. Knowing that the house got very cold in winter, I several times, on the approach of frosts, thought to move it to a warmer house, but as often put it off because I could not find a place sufficiently high for it. The plant was in the further corner of a lean-to house which had a glass end, and while the blinds were being removed a small hole was broken in one of the panes close to the plant, which rendered its position anything but a confined one. At last hard frosts set in, and the house

in which the Vanda was growing ranged between 40° and 45° each night, the frost covering the glass close to the plant, and the frosty air blowing on it through the broken glass. At first I expected it to be killed, but I soon found that, far from being injured, its health still improved. I then resolved to leave it where it was during the winter and let the broken glass be as it was. Frequently during winter the thermometer in the house went below 40°, but the Vanda still improved until in spring its leaves were of a blackish green and felt like tin. In the course of time it sent up numerous flower-spikes, and was sold at a high price. That same plant has, to my knowledge, been reduced to a mere spectre by

Hothouse treatment, although it took years to exhaust the store of vitality gained by its twelve months' sojourn in a cold house. On its first flowering with its purchaser it was voted a grand variety, but each flowering afterwards was poorer than its predecessor, until the last time it flowered it bore but little resemblance to the first. My own opinion is that there are no bad varieties of *V. tricolor* or *V. suavis*, although some are exceptionally good. When properly grown in a cool temperature all are beautiful, and there is great variety among them. Excessive heat, while rendering the plants unsightly, lowers the quality of the flowers, and prevents them exhibiting their varietal distinctions. I could give many striking proofs in favour of reasonably cool growing of these plants and against hothouse treatment, but as the subject is fast gaining ground, a word now and then may suffice.

With respect to *Phalænopsis*, mentioned by "J. C. B.," my opinion is that although under certain circumstances they may be grown well in the temperatures I have just indicated for Vandas, as a rule they should not be allowed to go below 60°.

Harrow-on-the-Hill.

JAMES O'BRIEN.

THE A B C OF ORCHID GROWING.

THERE are few more beautiful Orchids than *Cœlogyne cristata*, and the fact of its flowering in winter adds greatly to its value. Moreover, it is by no means a difficult plant to grow, and a little attention to its wants, a little kindness and tenderness for its own peculiar likings will undoubtedly be rewarded with success. This Orchid until recently was considered a plant which required the usual Orchid house stewing. Indeed, I was told only last year by a gardener of great experience in Orchid growing that he did not believe this *Cœlogyne* could be successfully grown under cool treatment. But my own experience goes against this theory. It must, however, be understood what cool treatment means in this case. It does not mean 50° all the spring, or until the heat of June and July naturally raises the thermometer to a high point. In other words, I doubt if this Orchid could be successfully grown without a strong artificial heat at the time when it is making its early growth, and when the long tapering shoots in their brown sheaths are beginning to give promise of future fat, sound, Onion-like pseudo-bulbs. At that time it is notorious that this *Cœlogyne* likes abundance of water, and along with that stimulant (for water without any admixture is a stimulant to vegetable life) it is necessary that the vitality and strength of the plant should be kept up with a somewhat high temperature. High temperature at such a time is by no means so difficult to procure as in the dark cold days of December and January, and many people who have not an Orchid house, but who are nevertheless fond of Orchids, have an early vinery or warm greenhouse in which this plant will flourish wonderfully well. With the exception, then, of requiring a nice strong growing heat at the time of making its growth in spring and early summer, *Cœlogyne cristata* may be treated in the same way as *Odontoglossums* or *Lycaste Skinneri*—that is to say, an ordinary greenhouse with heat enough to grow *Primulas*, *Cyclamens*, and such like will do also for *Cœlogyne*, only that it will not bear so much exposure to air as those plants, but prefers a well

ventilated, but still atmosphere. Draughts are bad, I believe, for plants as well as for human beings; Orchids like a pure, well ventilated house, but no draughts. With regard to

Potting, the *Cœlogyne cristata* must be treated like other Orchids with the usual amount of drainage and the mixture of peat, charcoal, and Sphagnum, but it will be found an immense advantage to mix in carefully some pieces of thoroughly well-dried cow manure. The roots fasten on such pieces and feed and fatten upon them. Moreover, when the pot is full of roots, it is a good thing to give occasional soakings of manure water, not too strong, and made with guano, which is less clogging than any other manure. The *Cœlogyne* does not like to be in the fashion in this respect, and "something a little stronger than water" is evidently good for its nerves and tissues. Get the pseudo-bulbs plump and round and semi-transparent, and keep them so by frequent syringing while they are in strong heat, that is, two or three times a day, and by an occasional dip in tepid water to soak the whole of the material in which the plant is growing. In winter, when there is less evaporation, of course very much less water must be given—in fact, only enough to keep the bulbs plump without wrinkles. *Cœlogyne cristata* is singularly free from liability to

Insect attacks; in reality there is not much for insects to lay hold of. The leaves are narrow and smooth; the bulbs are likewise free from crevices or places where insect life is likely to thrive unobserved. But nevertheless close attention is necessary, for otherwise even this Orchid may become infested with mealy bug or thrips. The leaves will be all the better for frequent sponging in the growing season, and if they are attended to carefully, it is scarcely possible that the plant can be injured by troublesome insect pests. The flower buds, in the shape of long spikes, coming from the base of the bulb, should show themselves in October, and gradually, but slowly develop themselves into the beautiful white flowers, which will be lovely in the depth of winter. As in the case of all other delicate flowers, and especially white ones, it is necessary to be careful that they do not become spotted by water dropping upon them, either from the syringe or from the roof of the house, or from other and taller plants.

J. L. L.

Cattleya candida.—A very chaste Orchid comes to us under this name from Glasnevin. It is in the way, if not identical with *C. Harrisoniae*, though the bloom is almost white, there being but the faintest suggestion of lilac in it.

Mormodes lentiginosa.—Under this name Sir W. Marriott sends a very remarkable Orchid, both curious and handsome. The flowers grow in a dense spike, and are of the singular form peculiar to this genus. The whole flower is about 2 inches long. The sepals and petals are greenish yellow, the former reflexed, the latter hooded partially over the labellum, which is of a bright orange-yellow, and most curiously shaped and twisted; a delicious aromatic fragrance emitted by the flowers renders the plant even on that account desirable. It is quite a different plant from that figured in the *Botanical Magazine*, tab. 4455.

Cymbidium Mastersi.—Of this lovely Orchid, one of the finest of winter flowering kinds, an uncommonly fine spike is sent to us by Sir William Marriott, from Down House, Blandford. It carries no fewer than a dozen blossoms superior in size to those of the ordinary form, and having the lip beautifully blotched with purplish carmine on a white ground, and surmounted by a golden crest, the whole in lovely contrast to the pure white sepals and petals. What enhances the value of this Orchid, too, is its handsome foliage, which is long and Grass-like, produced in dense tufts, which recurve in a graceful manner on all sides. It is an East Indian Orchid introduced forty years ago. It requires the same temperature as other Orchids from that region, and treatment similar to that accorded to *C. eburneum* and other *Cymbidiums*.

Orchids at the College Botanic Garden, Dublin.—Besides quite a host of nice, small plants of the lovely and popular *Odontoglossum Alexandræ*, that grand *Dendrobe*, *Dendrobium formosum giganteum*, is displaying its great white blossoms in the Orchid house; so, too, are several plants of *Zygopetalum Mackayi*, notably a particularly fine variety much superior in the size and marking of the flowers to the original form; the best form of that lovely and sterling favourite, *Cattleya labiata*; the rather rare and one of the prettiest of *Cypripediums*, *C. Spicerianum*; the pretty rose-tinted and free flowering *C. Sedeni* and others; *Dendrochilum filiforme*. The *Pleiones*, or Indian *Crocus*, are just over, and the *Calanthes* are just commencing to add to the gaiety of the Orchid house not a little, and will continue to do so for weeks to come.—*Irish Farmers' Gazette*.

PLANTS IN FLOWER.

BEGONIA INSIGNIS.—A fine display of this Begonia, one of the best of all winter flowering kinds, may now be found in the gardens at Chiswick, where Mr. Barron has some dozen specimen plants of it profusely laden with large drooping clusters of soft pink blossoms—a sight worth seeing.

GESNERA OBLONGATA is a useful winter flowering plant. It has flowers in shape like those of a Foxglove, but considerably smaller, and produced in drooping clusters. Their colour is a bright orange-scarlet, a tint not common among winter flowers. We saw it lately in bloom at Gunnersbury House, where it is found useful in a cut state in combination with flowers of delicate tints. It is a woody plant, requiring a stove temperature.

BEGONIA MOONLIGHT is one of the most beautiful of winter-flowering sorts, being of good habit and never failing to produce a profuse crop of its charming white blossoms. Its foliage, too, is handsome, being of a deep green on the upper surface, overlaid with a satin gloss, while the under-side is stained with red. Mr. W. E. Gumbleton brings us some beautiful specimens of it.

CHINESE PRIMULAS.—We are forcibly reminded that the Primrose season is setting in by a rich selection of blooms of the Chinese kind from Messrs. Cooling, of Bath, who evidently possess an uncommonly fine strain of these charming flowers. The blooms, which are large and symmetrical in outline, vary in colour from snowy whiteness to the deepest magentas and crimsons. Some, too, are delicately flaked with various shades of purple on a light ground.

CHIMONANTHUS GRANDIFLORUS, a very superior variety of *C. fragrans*, is about the only flower that can brave the winter weather; a fine specimen of it in the gardens at Chiswick, trained against a wall, is now copiously covered with its deliciously fragrant blossoms. The flowers, which are stalkless, may be made to diffuse their perfume in a room by picking them and placing them in saucers of sand, or laying them in a bed of Moss, or, what is better, a cushion of mossy Saxifrage, which preserves them long in perfection.

JAPANESE CHRYSANTHEMUMS.—A selection of cut blooms of these, sent to us from Mr. Turner's extensive collection at the Royal Nurseries, Slough, includes some beautiful and choice varieties, showing in a striking way the wealth and beauty there is in the Chrysanthemum, and in the Japanese varieties in particular. From the thirty sorts sent we make the following selection: The pure whites comprise Album plenum, Meg Merrilies, Ethel, and Fair Maid of Guernsey. Among the yellows the best are Golden Thread, Fulton (very rich), and Peter the Great, the last an admirable pot plant. There is a large percentage of pink, lilac, purple, and crimson-tinted sorts, from which we select Dr. Audiguier, amaranth shaded scarlet; Gloire de Toulouse, rosy purple; Hiver Fleur, soft silvery rose; Mons. Castel, deep rich crimson;

Mons. R. Larios, a beautiful new sort, deep lilac shaded with white; The Sultan, rosy purple; Père Delaux, rich crimson; Tokio, reddish crimson tipped with gold; and Mons. Planchenan, silvery mauve. Orange, orange-red, and bronzy shades are likewise largely represented, the best being Bismarck, bright orange; Criterion, brownish red; Orphée, rich orange-crimson shaded with orange; Bronze Dragon, brownish amber. Most of these possess almost indescribable tints, and some, it must be admitted, much resemble each other in colour, though distinct in other respects.

PONTERERIA CRASSIPES.—This curious little stove aquatic, though long familiar in plant houses, is not often seen in flower; in fact, it is rather the other way. It is at present finely in flower in the College Botanic Gardens, Ball's Bridge, and its beautiful spike of delicately tinted flowers can compare favourably with that of the allied and recently introduced *Eichornia*. By the way, it occurs to us that the flowering of the *Pontederia* would be less rare than it is if it were treated rather as a marsh plant than as an aquatic, and confined to a rather small-sized pan.

CHRYSANTHEMUMS AT THE COLLEGE GARDEN, DUBLIN.—There is just now a number of choice varieties of Chrysanthemum in flower in the cool plant houses at the University Botanic Gardens, Ball's Bridge. With Mr. Burbidge, the curator, the Chrysanthemum is an especial favourite, and he has brought together a number of varieties—new and old—the whole making an effective display in combination with the other plants in the houses, and in detail calculated to interest admirers and growers of this gay enlivener of the duller months of the year.—*Irish Farmers' Gazette*.

AMBOYNA LILY (*Eurycles amboinensis*).—Of this extremely ornamental bulbous plant there is now in flower at Glasnevin a fine specimen, bearing on one umbel no fewer than twenty snow-white blossoms. The Amboyna Lily is a plant of which one sees too little now-a-days, though it was grown by Philip Miller at Chelsea 150 years ago. Its flowers are not particularly handsome, but the foliage is ornamental, being large and cordate, after the manner of that of some of the large-growing Funkias. It is a stove plant, requiring treatment similar to that usually given to *Eucharis*.

CYRTANTHUS MACKENI.—Flowers of this beautiful Cape of Good Hope plant are sent to us by Mr. Moore from Glasnevin. It is a bulbous plant of the *Amaryllis* family, producing grassy foliage and erect flower-stems about a foot high. Terminating the stem is an umbel consisting of about half-a-dozen blossoms, tubular, and about 3 inches in length. They all look one way, and are of waxy whiteness with golden-tipped stamens. It habitually flowers with us in winter, and a more charming plant for a moderately warm greenhouse could not well be. It is unfortunately still very scarce, and has not, we believe, yet found its way into commerce.

IVY-LEAVED PELARGONIUMS.—Herewith I send flowers of some of our Ivy-leaved Pelargoniums, which I find to be admirable for winter blooming. The plants from which the flowers were cut were gay throughout June, July, and August. They were rested a short time in September, and now they are in fine bloom again in a temperature between 50° and 60°. The variety Anna Pfitzer seems to bloom the best, and is quite a gem in a cut state. The growth is all that could be desired, the shoots now being from 12 inches to 18 inches in length.—T. SMITH, *Papworth Hall, St. Ives*. [Beautiful examples of this valuable class of Pelargonium.]

COSMOS BIPINNATUS.—The most interesting and beautiful plant in bloom at the present time in the Horticultural Gardens at Chiswick is this Mexican Composite, which is grown to perfection in pots. It is a most elegant plant, having delicate slender foliage like that of the Fennel, and blossoms in form similar to a single Dahlia, but about half the size. The colour is a delicate shade of mauve, which contrasts charmingly with

the golden disk and feathery foliage. A more beautiful winter flowering plant could not well be, and its extended culture is inevitable if the Chiswick plants are exhibited. These plants have been raised from seeds collected from plants growing on the great central plateau of Mexico at an elevation of some 8000 feet or 9000 feet, and habitually flowers in October and November. It is not new in gardens; on the contrary, it occurs in many of the principal seedsmen's lists as a half-hardy annual. It may be seen in most seasons in the herbaceous ground at Kew in the Composite beds as an elegant annual, from 3 feet to 5 feet high, and covered with large mauve blossoms. For late summer flowering it requires to be sown in March and April, but will flower earlier if sown in heat in February. For winter flowering in pots it should be sown in summer, and the plants grown on well till flowering time. It is also known as *Cosmea bipinnata*, and its popular name appears to be *Maravilla*.

HOYA IMPERIALIS.—Of this singular Bornean climbing plant some flowers are sent to us from Glasnevin. It is certainly the noblest *Hoya* we have in cultivation, but, like many other rare and interesting plants, the flowers are seldom seen. They are fragrant, some 3 inches in diameter, with five fleshy divisions to the corolla arranged in a star-shaped manner. Their colour is a rich purplish chestnut, lightening towards the centre, which is of ivory whiteness. They are produced in umbels of from nine to fourteen from the axils of the fleshy leaves, which are from 6 inches to 9 inches long. Its successful culture seems to depend on a high stove temperature, with liberal treatment as to soil. Though some forty years or more have elapsed since this striking plant first became known in gardens, it is even now only to be met with in botanical collections.

GARDEN DESIGN.

GROUPING IN LANDSCAPE GARDENING.

THE effective grouping of garden vegetation, whether indoors or in the open air, is without doubt one of the most difficult of all subjects to deal with connected with ornamental gardening. A garden may abound with an infinite variety of plant life, but if not disposed in an effective way, the fullest expression of its charms is lost. It is one thing to plant, but quite another thing to plant effectively, and to do the latter successfully requires true artistic taste, arbitrary mechanical rules being inadmissible in such matters. To plant well the landscape gardener requires not only an intuitive perception of the beautiful, but a thorough knowledge of the materials with which he has to deal—their aspects, habits, sizes, variability of tints, and rates of growth, besides an acquaintance with the soils and localities best suited to their requirements, and above all, the faculty of seeing with the mind's eye, so to speak, the ultimate effect of his work. In short, the artist in garden design requires the feeling and appreciative discernment of the landscape painter, only instead of working with pigments, the landscape gardener has to deal with living materials, affording wider scope as regards form and colour. Such being the case, it is not surprising that incongruous mixtures are so prevalent in gardens, especially in those of small extent, and that examples of correct taste in grouping are of such rare occurrence. One of the chief causes of this is doubtless the desire to have as much variety represented as possible; hence the inartistic mixtures so often seen. A few simple materials used so as to exhibit their fullest beauty are by far the best, and cost less at the outset.

The correct grouping of trees, shrubs, or flowers requires much forethought and skill—far more than is usually bestowed upon it. Take, for example, the shrubbery of the ordinary type; in it there is no attempt to group effectively, but the result is a heterogeneous mass, deciduous and evergreen, of subjects widely different from each other in aspect and habit, and requiring diverse

conditions of growth. As a rule, the area they occupy is not sufficient for a tenth of the number of plants which it contains; hence, in the struggle for life, none are able to assume an individuality so as to display their true character. Besides, the practice of crowding in ordinary shrubberies there is a constant repetition of certain kinds of shrubs of the commoner class which produces a monotonous and uninteresting effect. The common Laurel, for instance, handsome though it is, when repeated *ad nauseam* becomes objectionable. In a garden of small extent two or three good sized masses of it are sufficient, and under such circumstances it is appreciated. The same principle holds good with regard to other shrubs, bold groups at wide distances apart being more effective than a few of a sort frequently repeated. Shrubs should never be planted on the stick-them-in-anywhere system. Groups as a rule produce the best effect when composed of one species and its varieties, and even then care is required in order to group artistically, notwithstanding the fact that the materials are capable of producing the happiest effects. For example, with respect to shrubs, *Rhododendrons*, *Kalmias*, *Gaultherias*, and *Andromedas*, all belonging to the Heath family, go well together, but attempting to harmonise these with *Thorns*, *Roses*, or *Spiræas* would end in failure. Indeed, to intermix deciduous and evergreen growth so as to produce a harmonious effect requires skill. One of the cardinal rules, be it remembered, in ornamental planting is that the best results are obtained by making masses of either one kind or a series of allied kinds in form and colour. Variety may be obtained by placing in juxtaposition to these, masses which would blend with them in outline and tint, but violent contrasts are inadmissible. In ornamental gardening Nature should be our guide, though not too closely followed. In natural scenery the most pleasing pictures are those which consist of an aggregation of individuals of one kind, such, for example, as broad breadths of *Daffodils*, *Bluebells*, *Wood Anemones*, and *Foxgloves* among herbaceous plants and large expanses of *Broom*, *Gorse*, *Heath*, and the like amongst shrubs. In woodland scenery, too, the finest effects are produced by trees of a like character planted in masses. For instance, how much more picturesque is a group of weather-beaten Scotch Firs unassociated with other kinds of trees than the same tree interspersed, as one often sees it in artificial plantations, with a heterogeneous mixture of deciduous and evergreen trees. Beautiful examples of this mode of

Nature's grouping abound in northern latitudes, and, carrying our observations beyond them, we find the same thing in southern climes until the Tropics are reached, where, in the primeval forests, a chaos of confusion reigns supreme. The annexed illustration shows well how the Date Palm groups itself in oases in the Sahara Desert. In natural groups of this description there is unity of expression. Here there is no formality, no regular outline, no uniformity of size, and no regular distances between the plants. Like effects might be produced in our garden landscapes provided the materials with which we work were properly used. I have in my mind's eye a beautiful group of *Yuccas* which I once saw in Mr. Ellacombe's garden at Bitton. It consisted of some dozens of plants planted with an irregular outline, and forming a bold promontory. Such a group, when in flower, must be a sight not often seen. The *Yucca* is peculiarly well adapted for grouping, and when met with in numbers the stiff formality of the single specimen so common in gardens is destroyed. A long list might be made of plants possessing similar characters ready at hand to adorn our garden landscapes. Mentioning only a few, we have the *Pampas Grass*, *Arundo Donax* and *A. conspicua*, *Bamboos* in great variety, the large growing *Polygonums*, *Gunneras*, *Ferulas*, *Heracleums*, the *Pandanoid Eryngiums*, and many others. Among shrubs very beautiful effects might be produced by grouping in isolated masses the finer types of flowering shrubs, such as *Syringa*, *Phila-*

delphus, *Ribes*, *Forsythia*, *Spiræa*, *Cydonia*, *Genista*, *Berberis*, *Azalea*, *Clethra*, *Weigela*, &c. As a rule, however, such materials are only to be found intermixed with crowds of common evergreens, although large, irregular masses, consisting of from a dozen to a score of plants of various sizes, would render a garden very charming in flowering time; even the few genera mentioned would produce bloom the greater part of the year.

The outline of groups is a matter of primary importance. In order to be picturesque both the ground and the sky outline should be irregular, otherwise there is a "clumpy" look about the masses which fails to produce a pleasing effect. The ground outline should be irregular, having numerous retreating bays or indentations and bold, projecting points, so as to produce strong shadows as a relief to the reflected lights ever present on foliage. This rule applies both to marginal and isolated masses, but it is, of course, much easier to give variety to the outline of isolated masses than to such as form a boundary or margin usually skirted by a walk. Whether in regard to shrubs on a lawn or trees in a park isolated groups should always have detached or outlying specimens at their more salient points, thereby enhancing their appearance, for in Nature an unbroken or formal outline is rarely if ever met with. Detached specimens, however, must not be planted at the openings of the bays, otherwise the varied outline will be destroyed. Nothing looks worse than dense masses of trees and shrubs with a rounded, billowy sky line. To obviate this plants of varied habit must be used, but with care, so as not to introduce too many kinds. These need not necessarily be placed in the groups themselves, but in front or behind them or at the sides, in any position, in short, in which they can be made to blend with the general mass. For example, the sky-line of *Rhododendrons*, which is invariably rounded and formal, may be varied by placing in deep bays such columnar trees as *Cypress* and *Juniper*, or pyramidal *Holly*; on a larger scale of planting the *Lombardy Poplar* and trees of similar habit may be brought into requisition for relieving the outline of round-headed woods. The great point is to produce variety, which, however, must not be overdone. One or two spiral trees might give the needful variety to a group, while a third might perhaps spoil the effect of the whole; hence the necessity for good judgment and an artistic eye in ornamental planting. Care, too, is required in harmonising the tints of foliage and flowers, so as to bring light-foliaged or light-flowered kinds in front of dark backgrounds, and thus set both off to increased advantage. In all cases ample room should be allowed between each plant, so as to enable it to attain full development, otherwise half its beauty is lost. If shrubberies were managed rightly, we should see every shrub assuming its proper shape, and fully developed in every part. Vacant spaces between shrub and shrub ought to be filled with colonies of spring and summer flowers, bulbous and otherwise, and in such places, provided the soil was enriched, they would attain greater perfection, and produce a more beautiful effect than in hungry dry borders.

W. GOLDING.

Magnolia Campbells.—In your notice of Mr. Mangles' statements concerning the fine specimens of this magnificent flowering tree to be found at Mr. Crawford's, near Cork, at the last meeting of the scientific committee of the Royal Horticultural Society you say that it has not yet bloomed in Europe; this statement, however, is not in accordance with facts, as I think you will find that it not only blooms annually, but also ripens seed on the banks of the Lago Maggiore in at least one garden of that lovely region, that of the nurserymen, Fratelli Rovelli, and probably also in others, such as that of Prince Pierre Troubet-skoy at Intrà. I fear that in this country we never have sufficient heat in summer to ripen the wood up to the blooming point.—W. E. G.

LEAVES FROM THE SOUTHERN ALPS.

Why should I joy in any abortive birth?
 At Christmas I no more desire a Rose
 Than wish a snow in May's new fang'd shows;
 But like of each thing that in season grows.

When the winter is so wet and sloppy, as it is this August, 1882, flowers, even when they do show themselves, have a generally limp and bedraggled appearance, giving those who look at them that uncomfortable sense of something feeble and precocious lying out in the cold to which the sight of wholesome black earth disintegrated by the weather would be preferable. Hardy Primroses of all kinds have flowered abundantly, but with the exception of an occa-

though they are, make way for the Chrysanthemum, the final and perhaps grandest effort of the dying year, and to see the Chrysanthemum in its turn yield to the rigour of winter. But who that knows the difference between a Rose and a Dandelion has ever seen the Daffodil, or the Auricula, or the Crocus go without regret, and without a wistful, forward glance over the long time that must pass by before they again appear. The reason of this lively appreciation of spring beauties is partly that spring flowers are less flaunting and more chary of their favours, no sooner appearing than they hurry away to make room for their successors, and partly that our sense of the beautiful has taken on a keenness of edge

but the tints of the other varieties are not pure or decided. Yet they are attractive, too. My varieties are, I suspect, *H. olympicus* and *H. atropurpureus*. The first is of that greenish white which one comes by-and-by to like from seeing it in such flowers as the *Devoniensis* Rose; the other is, I am afraid I must confess it, liver-coloured, with a green again washing into the red. But it is the perfect shape of the cup, the firm consistence of the petals, and the beautiful droop of the head that make up the grace and charm of the flower. The Pear-shaped buds hang like pearls from the centre of the asperulate bract, and the tassels of stamens which surround the pistil of the expanded flower give a softness and finish



Wild Date Palms in Algeria, showing Nature's way of grouping vegetation.

sional tuft of the common yellow, cosily sheltered in a nest of Ivy, they have not looked happy. A bunch of Violets might have been gathered any time during the winter, the variety that comes forward in this accommodating way being the long-legged, heavy-headed purple Czar. On the whole I do not care much for these winter waifs. It is a good arrangement that we should have a season of dull, black, flowerless Nature to whet our appetites by a little fast for the coming feast of spring. Those who live in tropical countries where there is abundance of bright coloured blossoms all the year round cannot know that most delightful of all delights, the feeling that spring has come and winter has ended, and that the sap is bounding in the veins of every living thing with that young strength which comes of rest. Towards the end of the year the eye and mind get satiated with a surfeit of flowers, so that one does not sigh to see the Dahlias, magnificent

by a period of inaction and rest. But even the dead months are not altogether dead. There are certain plants which flower and seem to be in happy circumstances in sunshine, or snow, or rain, or even Scotch mist. I have a group of such things before me now in a large specimen glass. They are two varieties of Hellebore, a few twigs of Hazel in catkin, a bit of yellow Jasmine, a few sprays of *Berberis Darwini* and *Diosma ericoides*, and a branch of the old double Wallflower.

The Hellebores, or Christmas Roses, of which I have but two kinds—the more is the pity, and neither of them the niger—are plants which gain upon me year by year. The Christmas Rose (*Rose de Noël*, as the French call it) is one of those flowers whose beauty depends on expression. The true Christmas Rose (the dwarf *Helleborus niger*) has in sheltered positions great purity of colour, being of a lustrous ivory white,

to the whole. The many-fingered *Aralia*-like leaves, with their thickly-veined and quilted surface and strongly serrated edges, arch over the ground and make a good setting to the flowers. Some of the spotted varieties look curious and attractive. The Hellebore is a flower which probably has a hopeful future when hybridists take it in hand. My plants shed abundance of seeds, and a considerable number of seedlings come up every spring round the parent plants, so that one might suppose that the varieties might be easily naturalised in woodlands.

Berberis Darwini, with its small, glossy green, firm and prettily-spined leaves, and its multitudes of drooping clusters of orange flowers, slightly flushed outside with a delicate apricot, is one of our most valuable winter shrubs. Late in the autumn its orange racemes begin to show colour, and it goes on without interruption to bloom through the dead months. Apparently the nec-

taries must contain a good store of honey, for one morning I found a bell-bird (*Anthornis melanura*) busy extracting the nectar after its own graceful fashion. It is a pretty sight, unfortunately becoming every year more and more rare, to see a little band of these honey-suckers hovering over the blossoms of some shrub or flower. It is a plain-looking bird on first acquaintance, but after you have heard the liquid, mellow notes—not much like a bell, or like any other instrument with which I am acquainted—and after you have watched its playful, almost waggish, flight from tree to tree, you get to love the bird as much as you love the merle or the mavis. The bell-bird, or the makomako as the Maories, with their love of reduplication, have named it, is about the size of a redbreast, and is of a dull olivaceous green colour, very pretty in certain lights. Its note is different in timbre from that of any British bird, though there is one native, the parson-bird or tui (*Prothemadera Novæ-Zelandiæ*) which has a very similar note. The song of the bell-bird—if song it can be called, which song is none—has not the continuity and recurrence of phrases which distinguish the song of such birds as the skylark or the nightingale. It consists rather of a succession of separate notes, silver-toned and mellow, interrupted every now and then by a sharp, guttural, coughing sound, or a succession of sounds which Mr. Walter Buller compares to the noise of a policeman's rattle. When the mellifluous notes of the bird suddenly change to this curious guttural it has a very comical effect, the songster seeming to be waggishly burlesquing his own song. Nothing gives me greater pleasure than to see these birds—or, indeed, birds of any kind—in my garden, but the sight of the bell-bird is unfortunately becoming less common every year. It is fast disappearing from many parts of the country, and I am afraid from this neighbourhood amongst others. During this season the flowers of the native Fuchsia (*F. excorticata*) afford it a supply of honey. This Fuchsia is one of the few deciduous and one of the least attractive New Zealand trees. Just now its leafless stems are plentifully hung with its somewhat livid-coloured bells, so that the bell-birds may easily be watched as they dance in and out amongst the branches, sucking the nectar from the blossoms, or chasing each other in friendly sport.

Birds.—Whilst on this subject “it may not be impertinent to add,” as Gilbert White would say, that I had the great delight the other day of seeing, for the second time, goldfinches in my garden. A flock of no fewer than nine alighted on a small colony of Groundsel—a weed which, of course, in any properly ordered garden would not have been there, but I should willingly grow Groundsel on purpose—or worse than that, Thistles—if it would insure me the constant presence of the goldfinch. My fine flock of nine were not long alighted when they were disturbed by an irruption of cats, which had screwed my courage to the sticking point of investing in a supply of strychnine, to be presented, as opportunity offers, to all the feline riff-raff that frequent the premises. If the bell-bird, like many native birds, is disappearing, it is satisfactory to know that the goldfinch and many other English birds, introduced into the country by the Acclimatisation Society, are steadily on the increase, although there are certain acquisitions, such as the *Passer domesticus* and the greenfinch, on the introduction of which farmers think we have no reason to congratulate ourselves.

Now 'tis the spring, and weeds are shallow rooted.

—HENRY VI., part ii.

Signs of spring.—In the month of August things begin to be on the move. The sap in deciduous trees is now ascending. The Weeping Willow twigs are beginning to be tipped with a filmy green, and the Silver Wattle (*Acacia dealbata*) is a mass of fluffy golden blossoms. The Wattle is one of those trees which, like the Blue Gum, we owe to our sister, Australia, and though it is not largely planted—being a great robber and suffering nothing else to flourish near it—yet when in full bloom it is one of the prettiest sights

to be seen in an antipodean garden. And then the scent in the evening, when a plantation of Acacias—

Fanning their odoriferous wings, dispense
Native perfumes—

must be bracketed with the pleasant scents of Wallflowers, Mignonette, Violets, *Daphne indica*, and *Magnolia*. But cut a spray, bring it into the house, place it in your specimen glass, and, six hours after the room will be filled with the “rankest compound of villainous smell that ever offended nostril.” The roots, too, of the *Acacia* emit an offensive odour if, in process of digging, any of them should chance to be bruised or cut. It is a quick grower. I have one in my garden which I raised from seed, and though it was early thrown upon its own resources, and has had to fight for its bread with other trees as voracious as itself, it has made very satisfactory annual growth. Other varieties of *Acacia*, too, are common enough in our gardens, but I am not well acquainted with the nomenclature of this large family. The *Acacia lophantha* is often seen in great beauty and of considerable dimensions. A finely grown specimen has a fine effect, the peculiar glaucous green of the Fern-like foliage being quite distinct from other foliage effects. The green that comes nearest it is that of the *Melanthus*. The primrose Bottle-brush flower of the *lophantha* is not particularly striking, though in Australia, the home of the *Acacias*, they probably grow luxuriantly and are more beautiful than with us. Another very common and very handsome species is the *Acacia armata*, diminutive specimens of which used to be favourite greenhouse and window plants at home. Here it is used as a hedge plant, though not largely. When old enough, if kept well trimmed, it makes a somewhat formidable fence. As a single specimen it grows into a very handsome semi-arboreous shrub. It seems subject to a determination of sap to the head, and the branches fall over in very graceful curves, pretty at all times, but particularly pretty when they are strung with their little flocculent balls of primrose down. This *Acacia* is remarkable for the large number of foliage variations into which it runs. While looking over the grounds of a friend who has a remarkably fine collection of Australian and New Zealand shrubs, he called my attention to a young hedge of *Acacia armata* which formed his boundary fence, where several styles of foliage, dense and rare, smooth and spiny, were seen in plants growing side by side. Whilst in this garden I may mention some very fine specimens of several varieties of *Kakeas* (also characteristic Australian shrubs), which in spring are smothered with blossoms, each individual blossom looking as if it consisted only of stamens. But the bloom, though singly inconspicuous, makes up in quantity what it wants in size of individual flower, and most of the species give out a very sweet perfume. The flower is succeeded by a hard, two-chambered nut, varying in size with the species, from that of a Marrow Pea to that of a Walnut, and containing in each chamber a black-winged seed. August is the *Crocus* month on this side of the world, and ought to be

The Snowdrop month, but this lovely little flower so pretty with you will not be coaxed into acclimatisation with us. Do what we will, the Snowdrop, which I have seen growing by the acre in Scotland, will not consent to live in our climate beyond at the most one or two seasons. We plant a clump which may bloom well enough for the first year; the second season a small percentage may reappear, but ultimately they all inevitably vanish. If you search for the bulbs that have failed to send up Grass, you find that there is nothing left but a thin, white thread, which by-and-by also vanishes. It is a great pity that we cannot grow the Snowdrop, for, besides that it is one of the earliest and purest and most graceful of flowers, it has of course for us expatriated, transplanted, infraequatorial folks a peculiar sanctity of association to which no other flower, not even the Rose itself (my apologies to Canon Hole), can lay claim. Last year I received from London five varieties of Snowdrop, which in due

course flowered about the middle of our summer. This year only one variety—the Crimean—has appeared; but it is showing the flower-spathe and is robust enough, so that I am in hopes that *Galanthus plicatus* is vigorous enough to withstand the mysterious influence which is so deadly to its weaker brethren. Another spring flower, for whose appearance I am looking with some anxiety, is the *Chionodoxa Lucilæ*, which bloomed with me last year, and which I should be very sorry to lose. If the Snowdrop is coy in our climate, the same cannot be said of

The Crocus, another lovely flower. Plant your bulbs in a massive row in blocks of one colour—golden yellow, pure white, purple of all shades, amethyst to the richest Tyrian—and leave them to increase and multiply; and on a bright day in August stand so that the row lies between you and the sun, and then describe what you see if you can. Perhaps the *Crocuses* that are most beautiful on close inspection are those with a groundwork of delicate pearl-white, veined and netted with lilac and purple. But for richness of effect, what could equal a serried mass of the large yellow and deep purple as they open their cups to the sunshine on a warm August morning? And if a few early bees are fussing in and out, robbing the pollen pillars of their saffron, they help to convince one that spring has really come. But the most poetic of bees, the big, lazy, droning, hirsute bombus (*Scoticæ*, bumber)—the “red-hipped, bumble-bee” of good Monsieur Cobweb—we have not yet succeeded in importing, notwithstanding the praiseworthy efforts of the late Frank Buckland to send us some. Our wish to have the bumble-bee is not a matter of mere sentiment, its presence being necessary to effect the fertilisation of the red Clover, of which at present we must receive all the seed supplies from England or America. In these days, however, when New Zealand beef and mutton are sold fresh in the London market, we may by-and-by expect to receive a cargo of refrigerated bumble-bees. But to return from this digression on red Clover and bumble-bees to the subject of *Crocuses*, I should like to ask whether the yellow *Crocus* ever produces seed in England. In my garden all the varieties except yellow are abundant seeders, seedlings coming up every season, self-sown, in hundreds, but never a pod is seen on the yellow. To compensate this, however, Nature has arranged that the yellow shall increase much more rapidly by multiplication of bulb than by any other colour. Indeed, the other colours increase but slowly, the quickest way to raise a supply being to save the seed, when flowering bulbs may be had in three years' time. As to the best way of planting, I strongly advocate planting in lines along the outer edge of borders. They certainly look well in clumps, but as they last in flower but for a short time, the bunches of Grass soon grow unsightly and give the border a very untidy appearance. Besides this, unless they are very carefully marked with durable labels, they stand a good chance of being displaced and perhaps destroyed with the spade. If planted in a row on the outside of the border, the untidiness is at any rate kept in one line, and the bulbs require no marking. I have in my garden two pretty long rows of them. One is a straight row inside a Box edging, the other is a wavy line following the outline of one side of my lawn. The wavy line, as might be expected, is the more beautiful of the two when it is in the full flush of its beauty; but whether it is the want of such protection from wind and weather as the Box edging gives the other, or whether it is that the greedy roots of neighbouring Spruces and a voracious Cabbage Palm go foraging in amongst the bulbs and rob them of their proper nourishment; whatever the reason may be, the *Crocus* flowers in the wavy line are not individually so fine as those in the other, and their glory is departed when the Box line is at its best.

PAKEHA.

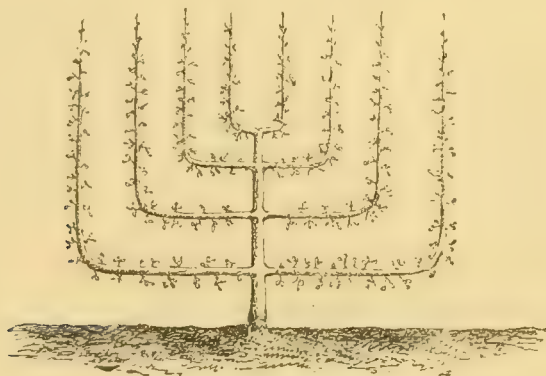
Sending flowers and plants by post.

—While thanking Mr. Ward for the information he gives us in THE GARDEN (p. 427) as to his

method of packing flowers, I should like to say a word or two about those to be forwarded by post. After some years' experience I find that there is nothing like a tin box for this purpose. Flowers and plants thus sent, with a very little damp Grass (not wet) added, will travel for several days and yet be quite fresh when opened out. For anything very special, fasten the edges of the lid with gummed paper. As to the now very common card boxes, never trust them to convey anything of value. I have repeatedly received plants thus packed which, on the box being opened, were found to be quite withered up and useless.—C. F. MERLWOOD.

FRUIT GARDEN.

Pear growing for profit.—Would some of your practically experienced Pear-growing contributors, such as Mr. Wildsmith or Mr. Coleman, kindly answer the following questions in THE GARDEN?—1. What varieties of late Pears would be the most profitable to grow for sale on a brick wall about 8 feet high, having nearly a due south aspect, just a little east in it? The soil is of varying depth, but generally 2 feet to 3 feet deep, resting upon gravelly chalk, and grows good crops of Wheat, Barley, and Turnips, and is a decidedly early soil and warm. 2. What stocks had the Pears best be worked upon? Taking the height of the wall (8 feet), I am thinking of



Palmette Verrier trained Pear tree.

using Quince stocks and trained trees, as in the annexed illustration, to secure uniformity of flow of sap in every part. This would only give each tree a development of, say, 64 square feet on the wall, but being on the Quince stock, I think I could best maintain the fruitfulness and healthiness of the trees, and control undue vigour by occasional root pruning. I should add that the situation has a slight slope to E.S.E. By late Pears, I mean Pears whose fruit is ready from the early part of December and onwards to the end of February, to come in when the glut in October and November is over, as I suppose these sorts would be most remunerative. Of course, first-class quality, and as far as possible handsome looking Pears, seem desirable. Would other forms of training be more advisable? Would cordons inclined 45° be better?—S. S.

Grapes for a cool house.—Allow me to call the attention of your correspondents (p. 476) to the fact that "W. L." (p. 389) asks for a suitable variety of black or white Grape for a cool house, a vague term certainly, but one that is generally understood by gardeners to mean an unheated house, or else a house with only just sufficient piping to exclude frost. If this really be "W. L.'s" circumstances, then the Grapes named (p. 476) as being suitable are just the opposite of that, unless it be Buckland Sweetwater, mentioned in "P. G.'s" list. Possibly this variety might do well in such a structure, though it is

rather doubtful; the old Dutch Sweetwater would certainly do better, and as a companion to it the Black Hamburg might be expected to do first-rate. Alnwick Seedling, Golden Queen, Mrs. Pearson, Trebbiano, Muscat of Alexandria, and Lady Downes, the other varieties mentioned as suitable, all require a long season, and more than the average amount of artificial heat to bring them to maturity, so that it would be useless to plant these kinds in such a structure. I am surprised to learn that Alicante and Gros Colmar do well under such conditions. It is a most unusual circumstance, and for the benefit of others "W. L." should record how he obtains such results under conditions so exceptionable. With the highest culture Royal Vineyard never exceeds a second-rate state as to quality, and being at all times an uncertain setter, even when artificially fertilised, it is scarcely deserving of culture at all.—W. W. H.

RUSSIAN APPLES.

CONCERNING these Mr. A. Webster writes as follows in the Proceedings recently issued of the Montreal Horticultural Society. The name Russian is broadly applied to all Apples developed from the Russian or Astrachan Crab wherever they may have originated, and also to those descendants of other species that have originated in Russia or have been acclimatised there. The Astrachan class are noted for the large, thick foliage, stout but often

profitable. McMahon's White, also of Wisconsin is less known, and is claimed by the introducers to be the hardiest, handiest, and best winter Apple known. A short trial here shows it to be vigorous and hardy, and a specimen from Wisconsin shows the fruit to be large and handsome, but the quality too much like that of Haas, and not so late as Pewaukee. Several hundred varieties have been lately imported from Russia by the Department of Agriculture and others. Of these I have tested several, some of which are valuable; others are of no especial merit, and some are worthless. I give a few brief notes which I hope may be of some use to other experimenters.

ANASAPFEL ROTHER (Red Duck Apple).—This proves to be a very hardy tree; an early and abundant bearer of medium sized, yellowish white, sub-acid Apples of very good quality, a few days earlier than Red Astrachan, and less acid than that variety, much like Yellow Transparent.

LANGERFELDSKOE (Longfield's Apple).—A hardy, productive, handsome and good winter Apple that keeps until March. Size, small to medium. Englisher Pepping (English Pippin) seems to be identical.

POLSATOE HEIDORNS (Heidorns Streaked).—Tree of slow growth, moderate bearer of small streaked, sweet Apples, very beautiful, and of delicate texture. August.

NEJOLOWSKOE (Negoloff's Apple).—Moderate grower, tardy bearer, of good size and fair quality. October.

ZARSKI ZARS (Tars Thorn).—Tree of moderate, but strong growth, of upright spreading habit, the scions and spurs having a peculiar, stiff, thorny appearance, extremely hardy; fruit large, coarse, firm, watery, bitter and worthless. September.

RUBEZUINOGRADNI (Cut Wine Apple).—Tree of spreading habit, fruit medium red, white fleshed, acid and good. October.

GETMANSKI BOB (Getman's Bean).—Tree a slow grower of peculiar, irregular spreading habit, tardy bearer, fruit large to very large, striped, magnificent, flesh firm, crisp, of most excellent flavour. October.

POPALORA POLASATAGA (Popoff's Streaked).—Tree moderately vigorous, upright habit, round head, fruit medium or small, somewhat irregular sutured, fine, tender, delicate, mild, sub-acid and aromatic. August.

CHARLAMOWSKOE (Charlamoff).—Tree of unrivalled vigour and hardiness, spreading habit, good bearer, fruit large and handsome, resembling Duchess, but more conical in form, less acid, and of much better flavour than Duchess, but, like Telofski, somewhat coarse, and must be used when firm, as it grows watery and turns black soon after ripening. September. Recommended for localities requiring extreme hardiness.

SOTOROFSKA (Zolotoreff's Apple).—A large, very productive, and good Apple, ripe in October. Tree of fair vigour and hardiness.

SUISLEPPER (Switzer).—Here we have a hardy, vigorous, upright, spreading tree, a good bearer of fine, fair, handsome Apples, valuable for home use or market. Fruit medium to large, yellowish white, shaded and often covered with red, which is dark in the sun, juicy, half fine, rather tender, with a fine sub-acid, slightly quince-like flavour, more like French than Russian Apples. A good keeper for its season, which is September and October.

GOLUBINOE BELOE (White Pigeon).—This I have not fruited here, but have seen it in other grounds. The tree is vigorous, hardy, and an abundant bearer, and is considered to be one of the best and most profitable summer Apples. The fruit is of good size, white splashed with red, of good quality, mild sub-acid, with a peculiar flavour, which Dr. Hoskins characterises as "a delightful mingling of Apple, Pear, and Banana flavour, very agreeable to a refined palate."

NEEMEZKI KALVILLE (German Calville).—Tree a fair grower, early, and very abundant bearer,

short scions, and constitutional hardiness to endure the extremes and sudden changes of temperature that mark our northern climate as well as that of Russia. Several of these varieties are already well known and famous in our markets, and favourites in our gardens and orchards. Tetofski, Red Astrachan, Duchess of Oldenburgh, and Alexander need only be named here; with these every reader is familiar, or can find them described in standard works. White Astrachan is beautiful, good and extremely hardy, and may take the place of Red Astrachan in the severest climates. Peach of Montreal shows such marked characteristics of foliage, growth, hardiness and fruit, as to raise a presumption that it belongs to this class, although history is silent as to its parentage, and it was imported from France. Of American varieties of this class, Haas and Ben Davis are best known; both have wonderful vigour and productiveness, with a good degree of hardiness, but the quality and flavour of the fruit is not such as to please tastes educated by the use of our best Apples. Of newer sorts that are attracting attention, Wolf River, a Wisconsin seedling of the Alexander type, has remarkable vigour and hardiness of tree, and magnificent fruit of fair quality, in season from October to February. A good show Apple, and fine for baking, but too bitter and astringent for dessert. Pewaukee, also of Wisconsin, is a seedling of Duchess of Oldenburgh, is vigorous, an early and abundant bearer of fine large fair Apples of good quality, in season from November till March. Likely to become popular and

fruit large to very large, flattened ribbed, sub-acid, good. October.

SKWOSNOI SCHOTOI (Yellow Transparent).—This is a thrifty growing, very early, and abundant bearing tree, the fruit medium yellowish, fine, tender, juicy, sub-acid of very good quality; ripens with the earliest. There are several varieties in this class, having a marked resemblance in tree and fruit, including White and Green Transparent, Red Duck, Charlottenhaler, Sweet Pear, Grand Sultan, Moscow Pear Apple, and probably others, all good, and some one at least of them should find a place in every garden.

SKWOSNOI SELENNOE (Green Transparent).—Much like Yellow Transparent, but smaller, more conical, and a less vigorous tree.

SKWOSNOI BELOE (White Transparent).—Tree a slow grower, early and profuse bearer, fruit small, white often with a blush of red in the cavity around the stem, an elegant and excellent little dessert Apple, but too small for market.

SCHARLOTTENHALER GOLBA (Charlottenhaler Apple).—This is a thrifty tree, an abundant bearer, and one of the most profitable early Apples for home use or near a market. The fruit is medium, but may be grown large by thinning the small fruit, or, better still, the buds. The colour is very light and the flesh tender, and does not ship and keep very well when ripe, but is an excellent companion Apple for Red Astrachan. Its season commences and closes ten or twelve days earlier than the Red Astrachan.

WEINAPFEL ROTHER (Red Wine Apple).—A handsome Apple, of good size and quality, acid. August.

PLODOWITKA CUADKAJA (Prolific Sweet).—A most beautiful and excellent sweet Apple, ripe in August and September.

BEEL WOCHINS (White Wochins).—Tree slow grower, early and good bearer of large, smooth, handsome sub-acid Apples, ripe in September. Not equal to Duchess for general culture.

MIRONE SACHARNI (Sugar Barbel).—Tree of medium vigour; a good bearer, fruit medium, yellow striped with red, sweet and good. September.

PETROWSKIE (St. Peter's).—Tree moderately vigorous, good bearer, fruit handsome, small, striped with red, fine and tender for a Russian, of good flavour and quality, characterised by Dr. Hoskins as the Russian Early Joe.

ZITSONNOE ZARSKOE (Imperial Citron).—A good grower and great bearer, fruit of good size and fair quality, but not of special value. September.

KRUPNEENA (Enormous).—This is perhaps the largest of the August Apples. Tree hardy, a spreading grower, with stout shoots, a good bearer. Fruit large to very large, of light colour shaded with red, somewhat coarse, but of fair quality for so large an Apple, of good sub-acid flavour.

BORSBORFER (Borsdorf).—This is undoubtedly the best winter Apple among the new Russians that I have fruited. The tree is hardy, a good grower, with a round bushy head; not a very early bearer, but gives promise of sufficient productiveness as the trees grow older. The fruit is of small to medium size, flattened, skin smooth and glossy yellowish green with a warm cheek in the sun, texture firm and fine, flavour mild, sub-acid, rich and good. It is rather firm for eating, but is one of the most elegant and delicious baked. It is in season all winter and spring, being a first-rate keeper, valuable for home use, but may be too small for the general market.

REPKA MALENKA (Little Seedling).—A very late keeper. Tree moderately vigorous, an enormous alternate bearer, so that the fruit is small; if thinned it attains a fair medium size. It is too hard to be eatable until warm weather in spring, when it gradually ripens, and is tender, juicy, and of fair quality and flavour.

BOSKLONOWKA (Bosklonoff's Apple).—This is a very fine hardy tree, a slow bearer, and the fruit of medium size, yellow, sweet, bitter, and worthless. Shall regraft the trees in the spring.

ERDBEERAPFEL (Red Calville).—A hardy enormous bearing tree, fruit red, rather small, acid, and highly flavoured. One of the best pie Apples, lacking only size.

DLIMOE (Long Apple).—This variety evidently gets its name from the tree, which has few and long branches, thickly studded with short spurs, each of which is crowned in season with a rosette of beautiful little red Apples of good flavour and quality. This variety may prove to be of special value for ornamental training.

GRUSCHEFFKA SLADKAJA (Sweet Pear Apple).—This name is evidently misapplied, as the Apple is not sweet, but is a fine sub-acid Apple of the Yellow Transparent class.

TETNERKRASNOE (Red Teat).—This tree is a wonderful bearer. The fruit, if judiciously thinned, is large to very large, red, sub-acid, and of fair quality and flavour only. September.

BELLE DE BOSKOOP.—This remarkable new Apple was imported from France a few years ago by Mr. Charles Downing, the veteran pomologist, of Newburgh, N.Y. It is an enormous grower while young, and a prodigious bearer in alternate years. The fruit is of good size and colour, with the smooth glossy skin that characterises the Russians. It is remarkably solid, with very small core and few seeds, firm, crisp, brittle, and juicy, with the exquisite flavour that characterises the best French Apples. It seems to possess all the requisites of a popular and profitable market winter Apple. But a short trial here does not give satisfactory evidence of hardiness, and I mention it to caution cultivators in the cold north to test it prudently until more is known of its ability to endure our climate.

I cannot close without urging all cultivators who can to cross the hardiest and best of the Russian Apples with the hardiest, tenderest, finest, most juicy and highly flavoured Apples of other classes and raise seedlings. The field for improvement in this direction is very large and promising, and seems to be the next step in developing our pomology.

GATHERING PEARS.

I AGREE with Mr. Allan's remarks as to the importance of letting late-keeping Pears hang on the tree as long as possible; there can be no question that more Pears are spoiled by premature gathering than in any other way. In fact, the best time to gather each kind of Pear is a matter that requires special study, as many really grand sorts are periodically ruined through premature gathering, notably Knight's Monarch, a variety too frequently shrivelled and worthless from want of hanging long enough on the tree, and I might instance several others; on the other hand, many of the early kinds of Pears are almost flavourless if left to ripen on the tree, but if gathered and ripened indoors are really delicious. No definite rule as to gathering can, however, be laid down, as seasons vary greatly and Pears take a long time to ripen. Some sorts, such as Marie Louise, will last several weeks if gathered in succession, but other equally good Pears are by no means so accommodating; if gathered too soon, they shrivel instead of ripen, and are in that condition nearly useless. One of the greatest inducements to premature gathering is the liability of getting the fruit injured by tomtits, that peck holes just above the stalk. This causes the fruit to rot, and most vexatious it is to find large quantities of the finest fruit injured in that way apparently through sheer mischief, as only the smallest portion is eaten. The only way of utilising such fruit is to at once use it for culinary purposes. Trees on walls should be covered with some small meshed netting, and in many places I have seen small nets used to enclose any specially fine fruit, but this is nearly as much trouble and only half as efficacious as netting the entire tree; and when the net is bagged up at the bottom, as is done for Peaches, the fruits that drop do not get bruised. As soon, however, as they part so readily as to drop, owing to their own weight, they may safely be gathered and stored in a cool, but not too airy

a place, for too dry an atmosphere causes fruit to shrivel instead of ripen, and although ventilation is necessary to carry off exhalations, anything like currents of air in fruit rooms should be avoided. A thickly thatched roof is one of the best coverings for a fruit room, and double walls, with an air chamber between to prevent fluctuations of temperature, will be found to be a great boon not only in the keeping, but in the ripening of Pears.

J. GROOM.

Seafield, Gosport.

GARDEN FLORA.

PLATE CCCLXVI. THE SOBRALIAS.

(With a coloured plate of *S. xantholeuca*.)

The Sobralias are Central American Orchids, mainly of terrestrial habit, bearing large and showy Cattleya-like flowers, on the apices of slender, Reed-like, or rather Bamboo-like stems. The generic name Sobralia was given by Ruiz and Pavon in compliment to F. M. Sobral, a Spanish botanist. About a dozen species and varieties are or have been in cultivation. Of these *S. decora* is figured in Bateman's "Orchids of Mexico and Guatemala," t. 26; also in Reichenbach's "Xenia Orchidacea," p. 30. Its small flowers open in succession for some time. *S. dichotoma* is from New Granada; *S. fragrans*, also from New Granada, is figured in the "Botanical Magazine," t. 4882. Of *S. Liliastrum*, from Bahia, there are two forms: the one white, with a rosy lip; the other with lip of a golden yellow colour in the throat, and the perianth deep rose. There is a figure of it in "Lindley's Sertum Orchidaceum," t. 29: *Sobralia macrantha* has been figured many times, which is itself no mean recommendation of a plant's beauty or interest. *S. Ruckeri* is illustrated in "Xenia Orch.", t. 142; and of *Sobralia sessilis*, a fugacious species, the blossoms fading after a day's expansion, we find three figures, viz.: Bot. Mag., t. 4570; Bot. Reg., 1841, 17; Moore's Orch. Plts., t. 1. As a rule, but one flower expands at the same time, but strong growths produce three to seven flowers, or even more, in succession. As an Orchid for exhibition, there are but few can rival

S. macrantha when it is well grown; specimens bearing from twenty to fifty flowers were not at all unusual in the palmy days of Chiswick and Ealing Park. It is indeed a great pity that *Sobralia macrantha* was ever called "an Orchid," since it grows so freely under the treatment given to Anthuriums or stove fine foliaged plants even of many kinds; indeed, were it necessary, one could mention cold greenhouse plants of far more nice cultural requirements. *S. macrantha*, when luxuriant, attains a height of from 5 feet to 7 feet, its slender leafy stems being terminated by flowers nearly as large as those of *Cattleya Warneri*, and singularly like them in colour also. The blossoms of this species are, however, rather fugitive, rarely enduring longer than three days in beauty; but, as we have said, the fading blossoms are quickly replaced by a succession of expanding buds, so that the plants remain three to four weeks in full beauty. Mr. W. Falconer, writing in THE GARDEN some years ago, mentions that this is a splendid Orchid in the form of a large

Growers or introducers of new plants will oblige us much by early intimation of the flowering of new or rare species, with a view to their representation in our "Garden Flora," the aim of which is the illustration in colour, and in all cases where possible life size, of distinct plants of high value for our gardens.



specimen, but it is a sly-flowering plant when small. We saw a noble plant of it at Dalvey, N.B., the other day, which every season produces scores of flowering growths. It occupies a tub 3 feet in diameter, and is growing in a compost consisting of rough, fibrous peat, Sphagnum, and crocks. The tub is placed on a central stone table in a span-roofed Orchid house, and the shoots or Reed-like stems, of which there are quite a forest, vary from 3½ feet to 5 feet in height, and run up to within a foot of the glass. The night temperature of the house is about 45° in winter and 65° in summer. As regards watering, it obtains an abundant supply both at root and overhead in summer, but in winter, owing to the low temperature at which the house is kept, it only gets enough to keep the growths fresh and the roots from suffering, and not a drop overhead. The roots of this *Sobralia* being fleshy and very brittle, the greatest care is exercised in re-potting it, an operation, however, only needed at intervals of several years, as by keeping it pot-bound it is more floriferous than if it were permitted to have more root room. Red spider is an enemy liable to attack the foliage in hot summer weather, and its leaves are also liable to black spotting similar to that of *Calanthes*, unless ample drainage and ventilation are provided. I always found it to grow best in a warm Orchid house or plant stove when placed near to a door or ventilator. When *S. macrantha* is strong and well established, weak sheep manure water adds vigour to its blooming powers, and some growers add dried horse droppings to the compost of charcoal, brown fibrous peat, and crocks in which they grow this species. One famous cultivator once showed me a fine specimen potted in loam, fibre, and charcoal on a well-drained bottom. One more word as to

Culture. Do not elevate the collars of *Sobralias* above the rim of the pot. Drain the pots or tubs in which they are grown thoroughly. In summer time when they are growing they like a deluge at the roots and constant showers overhead at least three times daily; and during winter, if you wish to keep the plants fresh and leafy, never allow the roots to become dry. I have a firm conviction that no terrestrial Orchid with perennial roots, as these *Sobralias* have, likes its roots to be dry at any period of their existence. On the other hand, many pseudo-bulbous epiphytes with perennial roots actually enjoy a dry time after their annual growth is formed, but on this important point I have to say something at another time, and as I want the matter to be fairly and fully criticised when I do broach it, I say this much in order to induce cultivators to give this important subject of Orchid roots some thought.

Of *Sobralia macrantha* there are at least four distinct forms. *S. m. nana* blooms at 2 feet in height, and has fine rosy lilac flowers with the characteristic ruby-violet staining on the lip. The true dwarf form of *S. macrantha*, which Mr. John Day used to grow so well, and which is popularly known as "Woolley's variety," is a splendid plant, having flowers fully as large as the tall growing type. *S. macrantha splendens* is similar to the type; perhaps the flowers are a trifle smaller, but the colour is more intense and so very effective. *S. macrantha pallida* has soft pale rosy sepals and petals, with a more highly-coloured lip. Of all the various forms of this fine old Orchid, however, there are none more distinct than

S. macrantha albida, of which Mr. B. S. Williams exhibited a plant at South Kensington some eight or ten years ago. The stems are 3 feet to 4 feet in height, and bear soft creamy white flowers (suggestive indeed of *Cattleya Warscewiczii* delicata, or a good white *C. Trianae*), the involute lip being of a rich rose or soft purple-lilac tint, which contrasts beautifully with the pale segments, forming a charming combination. Some day perhaps Mr. Grant Allen, or other observer of Nature as a colourist, will tell us how it comes that so many of these rosy purple or lilac-purple South American Orchids now and then yield us white varieties. For example, let us for the moment allude to *Lycaste Skinneri* alba, *Lalia anceps* alba and *L. anceps Dawsoni*, *Cattleya Trianae* alba as instances of this variation from the normal or typical colour of the species. It was once whispered to me that there was a white *Calanthe Veitchii*; so I went to see it. Pure white it undoubtedly was; but I rather think Mr. Dominy would call the plant *Calanthe nivalis*, which indeed it was.

All travellers in Central and Southern America are unanimous in their praises of the *Sobralias*, some being deliciously fragrant, and tell us of the gorgeous effects there produced by them, just as eastern travellers are eloquent when speaking of that lovely marsh Orchid, *Bromheadia palustris*, which carpets wet jungly ground with its thickly matted roots, and bears its *Pleione maculata*-like flowers on slender leafy stems which knock against the traveller's knees at every step. As a matter of fact, however, the *Sobralias* of the west are represented eastward by the lovely *Arundina*, which also bears gorgeous white, yellow, and crimson-purple blossoms aloft on reed-like wands which wave and tremble in the warm breeze as they rise above a carpet of *Selaginellas* or of *Ferns*. *S. Liliastrium* is a showy species with white blossoms produced in July and August. It formerly used to be a very attractive plant in Mr. Rucker's collection, but is now rarely seen. *S. Ruckeri* is also a rare and beautiful plant. It produces three or four flowers on a spike, which, being all expanded at the same time, are most effective. Its blossoms are also more enduring than is usual in this genus, remaining fresh for a week or ten days.

S. Roezli is a distinct species from Tropical America, not yet, as I believe, introduced to our gardens, nor is Mr. Bull's grand introduction, *S. Cattleya*, which has thick waxy petalled blossoms, which endure fresh for a considerable time. The sepals and petals are brownish purple in colour, the lip being rich ruby purple, and so very attractive. The texture of the segments is nearly that of *Cattleya Mossiae*, this species being in this respect related to *S. Ruckeri*, which the late Mr. Rucker was particularly proud of possessing as unique in his collection.

The *Sobralia*, of which the annexed illustration is a faithful portrait, is readily distinguished from its congeners by its soft, yellow flowers, borne, as is usual, at the apices of leafy reed-like stems. It is named *S. xantholeuca*, and the figure was prepared from a specimen which flowered some time ago in the Royal Exotic Nursery, at Chelsea, in company with Woolley's variety of *S. macrantha* and another equally beautiful dwarf kind which Messrs. Veitch grow under the name of *S. macrantha nana*. To some extent even the tallest growing of *Sobralias* may be dwarfed if they be elevated near to the light

ere their shoots start into growth; nevertheless it is impossible to make a tall growing form of *S. macrantha* as dwarf as Woolley's variety, or as the variety *nana*, that is, supposing all the conditions of growth are equal.

All *Sobralias*, even our old friend, *S. macrantha*, are so beautiful when well grown, that one regrets that they are not oftener seen in collections of Orchids or among stove plants at exhibitions than they are.

F. W. B.

PROPAGATING.

Propagating Hollies.—What is the best way to propagate Hollies, and when is the best time to insert cuttings? How long will they take to root?—G. H. [Hollies may be propagated by means of cuttings, but the process is so slow, and the risk of failure so great, that such a method is of little or no practical value, and is therefore seldom followed. The common Holly is readily increased by means of seed which may be sown in the open ground; when the young plants are large enough they are often employed as stocks on which to graft or bud the different varieties. The seeds will not come up the following spring after sowing; therefore they should be kept in a heap mixed with soil for the first season, as treated in that way they are not so liable to get dry as in a seed bed; besides, trouble of keeping the bed clear of weeds is thus avoided. If so treated, sow them the next season, that is to say, a year after being gathered, when they will come up the following spring. Budding is performed about the same time as with Roses, viz., in July and August, and the mechanical portion of the operation is also much the same. Grafting may be done at almost any season if the stocks are in pots and can be kept close, but when out of doors spring is the best time. The Holly succeeds much better when grafted by some of the various modes of side grafting than when the stock is cleft for that purpose. In speaking of the want of success in raising Hollies from cuttings, exception must be made in the case of the miniature *Ilex crenata* and its varieties, *Fortunei* and *variegata*, all of which strike readily from cuttings put in pots of sandy soil and kept in a close frame.—T.]

Ferns are propagated by spores, division, and by young plants that are formed on the ends of the fronds; several of the *Aspleniums* and a few other genera form them all over the fronds, when they are termed viviparous; while one species of *Cystopteris* produces little bulb-like formations on the under-sides of the fronds, which, when mature, fall off, and are soon transformed into plants. Some genera are easily got from spores, and a few are very difficult to raise at all, while others, again, seem to germinate and form what is called a prothallus, that is the first stage of growth, when they appear to be stationary. I have grown plants in a twelvemonth 3 feet high from spores; they are generally thought to soon lose their vitality, but I have known many instances in which plants have been obtained from spores taken from fronds that have lain in a herbarium several years. The following genera are amongst the most difficult to obtain from spores: *Angiopteris*, *Marattias*, *Gleichenias*, *Todeas*, *Hymenophyllum*, *Platycerium*, *Trichomanes*, and a few others, while some genera grow very freely, and a few make their appearance throughout the house where once grown. The best way to raise them from spores is to sow them in pots or pans on little crumb-like pieces of peat; placed in a close case they will soon germinate. When large enough to handle they should be pricked off in a mixture of peat and sand, and ultimately potted into single pots. Some of the species of *Adiantum*, *Asplenium*, *Blechnum*, *Gymnogramma*, and *Pteris* grow as freely as weeds, and some of the common species of some genera are sure to make their appearance with the more choice ones; and in some cases not one of the species supposed to have been sown will appear, but all will be of some other species. There does not appear to be any authentic informa-

tion on the fertilisation of Ferns, but it is generally admitted to be in the prothallus state. In some species there are a great many varieties, and most of them come true from spores. *Pteris serrulata* is one of the most prolific in this way. It is really astonishing to see the two extremes—one with a broad crested apex, while another terminates in a thread-like tail. Some of the *Gymnogrammas* terminate in crested forms, and are of garden origin, while a few others are imported from their native haunts; such, for instance, is *Microlepia hirta cristata* and a few others. Ferns were said formerly not to have seeds or spores, and came no one knew how, although Gerard knew in his time that they had spores or seeds. There was a great deal of superstition about Fern seeds for many ages. Propagation by division is easily effected with all the creeping rhizomatous species and several of the erect-growing ones. When divided they should be kept rather close until they begin to grow, when they may be treated like the established ones. In the species which form the young plants on the fronds they should be pegged to the soil and rooted before being separated from the parent. There are a few which produce young plants at the base of the frond, which, when mature, should be taken off and put into a pot, with the base of the frond on the surface of the soil, and should be kept close until rooted, when they may be treated as established plants.—*Sandford's "Exotic Ferns."*

Curculigos.—These Palm-like plants are readily increased by suckers, thereby having an advantage over most Palms of which it is necessary to procure seeds. *C. recurvata* as soon as it gets pot-bound, as a rule throws up suckers in quantity, but if more plants still are required, cut up the large roots into pieces of about 1 inch long, insert them in pots of sandy soil, taking care that the top of the cut root is just below the surface, and plunge the pots in a gentle hotbed in a stove. In this way young plants will quickly push up, and as soon as large enough and well rooted, they should be potted off. The variegated form of this *Curculigo* does not produce suckers nearly so freely, and even when they do come up they have often a large proportion of green in the foliage; indeed, if pushed on too fast the produce will be nearly all green. When good variegated suckers are taken off, they should if possible be kept a little close till root action recommences, but not sufficiently so to cause the white portions to decay, as they are rather susceptible to damp. When first potted, the leaves should be supported by means of a small stake, as they are brittle and snap off easily.—**ALPHA.**

Chrysanthemum sports.—What is the best way of propagating these?—**R. H.** [Cut back the plant slightly, that is to say remove the old flowers and about 6 inches of the upper parts of the branches from which it is desired to propagate. This partial cutting down will cause the plant to start into growth, and when the young shoots are long enough for cutting take them off, put them in pots of sandy soil, and keep them somewhat close till rooted. If the plant is not partially headed back, the shoots that spring from the upper part are so weak as to be of little use, and then the more solid portion of the stem does not break out so readily. If the sport forms the greater part of the plant, remove all of the normal type, but if limited to perhaps a single branch such a proceeding might prove fatal to the whole; in that case it is better to remain content with only cutting it back, but more severely than the sporting branch; as the young shoots appear rub off any that are not necessary to keep the sap in circulation, or they may rob the branch to be propagated from of some of its energies. The best heat in which to keep the plant in order to encourage growth is a greenhouse temperature, such, for instance, as that in which it has flowered.—**T.]**

White scale on Camellias.—This is about the time of year when many begin to look for the presence of white scale on their Camellias—a great mistake. My experience tells me that we

ought to commence cleansing Camellias when the buds first show themselves, and from that time until they bloom we should look them over carefully once a week, with a piece of clean linen damped in pure water. One often finds a difficulty in cleansing the young buds and leaves without breaking them off or injuring them; in that case I find it best to take an ordinary camel's hair brush and use pure water. If this process is not begun early, it not only entails an immense amount of trouble where many plants are kept, but also great patience, and the loss of many buds.—**G. F.**

PLANT PROTECTION.

TEN degrees of frost, which we had early in November, seemed to come like a messenger in haste to warn us of the near approach of winter, and to inform us that we are not going to escape, as we did last year, without cold, but that we must cover up and protect our plants if we wish to preserve them. It is too late now to think about *Chrysanthemums* which have been spoiled by the wind and weather, but there are other things of great value now coming in, chief among which are Christmas Roses. Hardy as these are, they are all the better for shelter, as under cover of old lights, cloches, or hand-glasses, the blossoms are not only kept from being splashed and damaged during heavy rains, but they come more pure in colour, and are then of increased value for cutting. Anemones, too, that were raised from seed sown in the spring, and which are still showing flower, may be protected in the same way, or lifted with good balls and placed in cold frames where they can have plenty of light and sun, when they will go on pushing up and unfolding their blooms for some time to come. Those who have choice *Pentstemons* and *Antirrhinums* they wish to preserve will find a good way of doing it is to place a shovelful or so of half rotten leaves around their collars, which is the vital part, and if they be preserved from injury there they will break and grow fine and strong in the spring. Some take them up and pot them, or strike cuttings from them, and then let the plants stand and take their chance, but although it is a good plan to have some young ones, those that are established and can be kept through the winter yield by far the most flowers and make the best show. A good way of managing herbaceous borders where there is a general collection of plants is to mulch the entire surface, and the best material for this purpose is leaf soil, as it lies loose and does not unduly obstruct the air, and being non-conducting it excludes frost, besides which it is highly beneficial to the roots of all plants, which search it out and feed on it with avidity, as may be seen when they are growing in a state of nature with rotten leaves on the earth near. Cocoa-nut fibre also answers well as a covering, but whenever used it should be raked off again in the spring, as to fork it in is highly dangerous, for when buried in the ground it often breeds fungus, which parasite ruins the plants. For shrubs and Rose beds there is nothing equal to fresh raked leaves, which in the case of shrubs, such as *Bays*, *Myrtles*, *Euonymus*, and others of that class, may be pushed in round the necks of the plants and in amongst the lower branches, and kept there by the use of a handful of Bracken and a branch or two of Laurel or other evergreen to hold them in place. Roses may be treated in a similar manner if dwarfs, as it is easy to cover the ground thickly among them, and keep the leaves there by the same means as mentioned above, and if Roses are protected in this way, whatever amount of frost we may get will do them no harm. The next best substitute to leaves is long, coarse Grass that has become dry and withered, or hay, which may be drawn in among the plants, and have a few brushy sticks either laid over or stuck in around. Straw, too, that has been trampled on in stables and made soft is also good for covering Roses, but as it looks more littery and objectionable than hay or Bracken, it should be hidden by having evergreen branches as well. It was advocated by a writer to dig and earth up Roses and bury the tops in that way, but in doing so much labour

would be entailed, and great damage to the roots ensue, as it would let frost in instead of keeping it out. Far better is it to apply leaves, straw, Bracken, or hay, as either can be made use of quickly and removed; but where there are only Perpetuals to be cared for, a heavy mulching of light, half-rotten manure will mostly render them safe. Any on walls, such as the *Maréchal*, *Climbing Devoniensis*, and *Céline Forestier*, may be brought a little together by unailing their branches and covering them with a mat, which can be taken off and put on again as required. Magnolias may also be protected in the same way or by the aid of Fir boughs, which break and soften cutting winds and thus obviate their sting. **S. D.**

KITCHEN GARDEN.

BETROOT.

RED Beet is appreciated by most people, and may be used in several ways. It is considered to be very nutritious, owing to the percentage of sugar which it contains. Being of easy culture, it may be successfully grown even by cottagers. The very dark-leaved varieties are often grown in mixed flower borders and sometimes as edgings to flower beds, but that does not prevent the roots being used for culinary purposes when lifted in autumn. The soil most suitable for the growth of Beet is a light sandy loam, which should be well drained, as Beet delights in a dry subsoil.

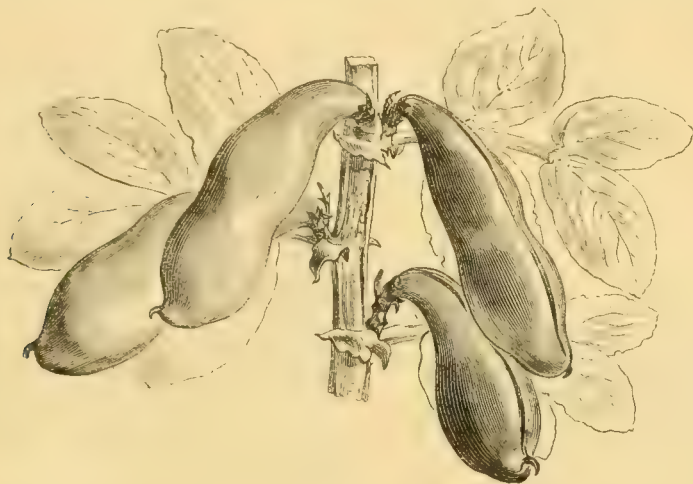
Cultivation.—For this crop select a piece of ground that is free from shade, and which is of an open, friable character. Early in the autumn trench it from 2 feet to 3 feet deep, ridging it at the same time. Ground which was well manured for a previous crop will be found to be rich enough for Beet, as medium sized roots will be found finer in quality than those which have grown to a large size; the latter are coarse in growth and seldom possess a good dark colour, one of the principal points in well selected Beet. Early in spring level down the ridges with a digging fork, breaking the soil into as fine a mould as possible; repeat this operation a second time before sowing, when the ground will be brought to a fine tilth, and clean straight roots free from side growths will be the result. If the soil is light, tread it firmly before drawing the rows. The seeds may be sown the last week in April or first week in May. After sowing and covering, beat the drills firmly with the back of an iron rake, when the surface may be raked level. As soon as the plants are up hoe between the rows to keep down weeds. When the plants are 3 inches in height they should be thinned out to 9 inches apart and hoed frequently until the leaves cover the ground. About the middle of October the roots should be carefully lifted, using a strong spade for the purpose, as care must be taken not to graze the skin or break the tap roots, for if broken they will bleed, and instead of being a fine dark colour when cooked, will be pale and of little use either for salads or pickling. The leaves should be cut off about 2 inches above the crowns. It is always desirable to lay the roots in a dry place for a few days before storing them; they may afterwards be stored in a dry shed or cellar, and must be carefully guarded from frost. Mix sand or clean sifted coal ashes among the roots as the operation of storing proceeds; this keeps them fresh and prevents them from shrivelling during the late spring and summer months. They should be looked over several times, picking out any which may happen to be rotting, as they would be sure to destroy any lying close to them. Beet may also be stored in clamps in the garden, covering them first with turves, cut thin as for turfing lawns, or if turf is not at hand, dry straw may be used, covering the clamp over to the depth of 2 feet with soil. In this way Beet will be found to keep sound until late in the following summer. If seed is wanted either a few roots may be left in the ground during winter, or a few selected roots may be stored and planted out in spring in a corner where there is no danger of their being

fertilised by other varieties. During the summer they will throw up their flower-stalks, which require to be supported with a stake to prevent them from being broken off. Cut the stalks as soon as the seed is ripe, placing them in a dry situation until perfectly dry and well harvested, when the seeds may be threshed out and kept in a dry place until required for next year's sowing.

Varieties.—The Egyptian Turnip-rooted comes into use early in the summer, grows to a medium size, is of good colour, and excellent in flavour. Pine-apple Short Top is also a good variety which grows to a useful size. Nutting's Dwarf Red is one of the best for a general crop, being of a fine dark red colour and good in flavour. The Chelsea Beet is also a fine variety, especially for small gardens, being dwarf and producing roots of a medium size, dark in the flesh, and excellent in flavour. Dell's Beet has fine dark foliage suitable for decorative purposes, and it produces roots of good quality. Cattell's Dwarf is likewise a fine variety, which should be grown in

are soft and fleshy, and not at all suited to run into or exist in clay or stiff soil, but they are thoroughly at home in porous material. It is an old-fashioned plan to put a quantity of branches under an Asparagus bed where the soil is heavy, but it is by no means a good way, as the boughs soon rot and make the ground beneath worse than if they had never been there. Making the beds high and dry, with a wide, deep trench between each, is another common mode of procedure, but it has nothing to recommend it, and may be condemned as a waste of ground, resulting in inferior produce. In short, I dislike Asparagus beds of any kind, and would never form them or advise anyone else to do so.

The best way of growing this esculent is to plant it row after row on level ground, and allow plenty of space between the plants. Having the roots only 1 foot or so from each other, or crowding them together in any form, will never result in fine-sized produce. I have seen Asparagus beds the summer growths of which formed a perfect



Improved Windsor Bean (Vilmorin).

every collection, producing, as it does, roots of an extra dark colour and good in flavour.

W. CHRISTISON.

Broad Beans.—Messrs. Vilmorin write in reference to my remarks on Broad Beans that the illustration of the Improved Windsor given (p. 362) is identical with their Julianne Bean, a useful variety, and superior to the Improved Windsor, for the accompanying representation of which I am indebted to that firm.—J. MUIR.

NOTES ON ASPARAGUS.

THIS, the most delicious of all vegetables, is more generally cultivated now than it was a number of years ago. At one time it was almost exclusively confined to the gardens of the wealthy, but now everyone fortunate enough to have a garden has an Asparagus bed. Here we have half an acre or more devoted to it, and this extent will probably be doubled in the spring, as none of our vegetables are so useful or acceptable from November until June as Asparagus. Low, damp ground or a stiff soil is ruinous to it, and those who attempt its culture under such conditions will never succeed. If the roots should live it will only be for a short time; they will dwindle away and perish here and there, or wholly before they have yielded a satisfactory return for the outlay connected with their culture. I have planted Asparagus on very stiff, half clayey soil, in soil loose on the surface, but retentive underneath, and in places where it was light throughout, and in the latter it succeeded as well as one could desire it to do, but under the other circumstances just named it was never satisfactory. Now we plant nowhere but in the lightest of soil, and never experience any failure. As is well known, the roots of Asparagus

forest, a mass of stems and weeds. Such plantations could not be expected to yield superior produce. Under the improved system of culture, mainly made known through THE GARDEN, plenty of space is allowed both crowns and roots. The tops are never crowded, and therefore there is abundance of room for ordinary routine operations, and the young heads come up strong and succulent. For years we have not planted any of our Asparagus roots closer than 3 feet apart each way, and as every alternate root is lifted for forcing, many of them are 5 feet and 6 feet asunder. Referring to the soil in which these are growing, I may remark that it is very light, but previous to planting it was all trenched up to the depth of 20 inches. As this went on a large quantity of all kinds of vegetable refuse was placed at the bottom of each trench; afterwards a slight coating of manure was forked into the surface, and when finished the ground was altogether in a suitable state for the reception of the roots. One piece done and planted in this way half-a-dozen years ago has gone on improving annually, and now I would not exchange my Asparagus plantation for any other I have seen. In preparing quarters for

Subsequent plantations, all have been treated in the way just described. Where there is no choice of soil, all being heavy, I would begin preparing for Asparagus by trenching and adding the refuse as has just been suggested, and a large quantity of sand or rough grit should be forked well into it previous to adding any manure. Ashes, which are sometimes used to lighten heavy soil for certain crops, should not be used for Asparagus, as I never found the roots do well where they came in contact with them. Wood ashes are not so objectionable, and if mixed with

a quantity of general charred refuse, they are very acceptable. Amongst artificial manures, ground bones are the best for Asparagus, and horse droppings, especially in the case of heavy soils, are better than cow manure. When the soil, however, is properly prepared at first, no extra additions are required for some years, and then they should be chiefly applied as top-dressings, unless the roots are far enough apart to allow of some dwarf crop being grown between the rows, when it may be necessary to dig or fork in a quantity of manure before sowing or planting the catch crop. Now is the time to prepare for

New plantations to be made in the spring. Trenching should be seen to without delay. An open, sunny, dry spot is not too good a situation for Asparagus; in fact, nothing is too good for it, and extra attention in respect to it will not be thrown away. In order to keep up an annual supply of roots for forcing or for any other purpose, there is no better plan than sowing an ounce or two of seed every spring. This may be done in any corner, as the roots will be transferred to properly prepared situations when one year old. We sow every April, and in the following April the plants from this sowing are planted in good soil about 2 feet apart, and next season they are sometimes all transplanted again at distances of 3 feet and 4 feet apart, or every other one only is taken to fresh quarters. Asparagus may be transplanted at almost any age with the greatest success provided it is not kept long out of the soil; but when the roots are allowed to dry up, it is a long time before they get over the check they thus receive. It is for this reason we always prefer home-raised seedlings to bought-in plants; the former can be taken up and planted again before feeling the change, but the latter often suffer much in transit. Lately we have lifted many scores of roots for forcing, as it is about this season we take up all that we require to keep us going throughout the winter. They are lifted immediately the stems wither. The latter are cut off, and to keep the roots comfortable until wanted for forcing they are spread out in cold frames and covered over with some old mats or hay. Lifting them in this way may do them no good, but at the same time it does them no harm; our main object is convenience, as should frost or snow occur it is a difficult matter to get them dug up, but when stored away in frames they are ready at all times. As soon as all the roots we want for forcing have been lifted those remaining are mulched with juicy manure, and it is astonishing how well they sprout up in spring when this protection is removed and forked into the surface around each crown.

Forcing Asparagus is a favourite practice with us. We have been cutting a dish of it almost every other day since the end of October, and will go on doing so for some months yet to come, but there is no secret in forcing thus early; a very great amount of heat is not even necessary. It is, however, most desirable that the roots should be well developed, and above all well matured, and the only way to insure this in such seasons as these, or indeed at all times, is to avoid the old system of crowding the roots and growths together and grow them so wide apart that each root may be regarded as an isolated plant and not a matted bed. Quill-like growths are the rule as regards the latter, but substantial heads, 1 inch or more in diameter, are the kind we are accustomed to cut from plants set widely apart.

CAMBRIAN.

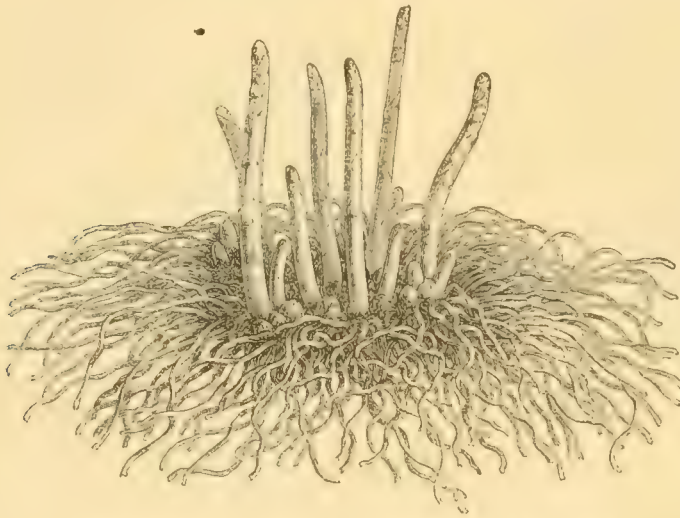
ASPARAGUS ON THE FRENCH SYSTEM.

HAVING for some years cultivated Asparagus on this system, a few practical hints and observations in reference thereto may not be without interest. Some who prefer green Asparagus to that which is blanched condemn the French method of culture, forgetting that by it green Asparagus can be had quite as well as by the old-fashioned bed plan, by simply leaving the ground level instead of raising mounds of soil over the plants. Where fine Asparagus is desired either green or white, the French mode of planting in single rows 4 feet

asunder, and from 2½ feet to 3 feet apart in the rows, must be infinitely superior to crowding three rows into a bed 4 feet wide. To those who have not already tried this plan and are thinking of doing so now is a good time to begin. Choose an open, sunny piece of ground and well manure it; then bastard trench, working part of the manure into the lower spit; after the trenching is finished no more is needed till planting time; then mark out the ground as for Celery with this difference, the trenches need not be more than 3 inches deep. The ridge of soil can be cropped with Lettuces, French Beans, or any small crop until the Asparagus is thoroughly established, when there will be no room for other crops. In order to have the right kind of plants for planting, the best way is to grow sufficient to enable one to select the most promising, as a good percentage of fine heads depends upon the right kind of plant being chosen in the first instance, *i.e.*, in the one-year-old stage. When the young plants have made growths 2 inches in length, the last week in March or early in April then is

The time to take them up for planting, choosing those that have one or two stout shoots in preference to those that have a greater quantity of weaker growths. My impression is that

spare them; moreover, if a plant dies out entirely it is an easy matter to replace it. Another advantage belonging to this plan is the following: If the weather should prove hot and dry during the cutting season, a good thick mulching can be applied between the rows, followed by a heavy watering, which will keep the plants in active growth during the hottest weather, whilst otherwise a check would occur from drought. I attach the greatest importance to this mulching. From the annexed representation it will be seen that the roots take a lateral direction, thus gaining complete possession of the 4-foot space between the rows, a fact which shows that the manure and water are applied to the very place from which the plants derive their supplies, and where, but for the mulching, they would suffer most from exposure to bright sunshine; moreover, the hotter the weather the more rapidly will the heads come through, provided the ground is kept moist. It has been recommended to remove the mounds of soil from the crowns in the autumn and to give a top-dressing of manure. We formerly adopted this plan, but since the winter of 1879 we have discontinued it, having found that our plants suffered severely from the hard frosts of that winter, owing no doubt to the total absence of snow when the frosts were most



Well developed stool of Asparagus, the result of allowing ample space.

the plants which show greatest vigour in their early stages maintain it throughout their whole existence, and what is of great importance to the cultivator is the fact that such plants bear but few, if any, seeds. I may mention that in the second plantation which we planted here this selection was rigorously carried out, and the result is that a large proportion of the plants employed are beriless or seedless, and consequently grow with greater vigour. Before I was aware of this fact, thinking to procure seed from some of the finest heads, I allowed them to grow away a month before we finished cutting in order that they might not be fertilised with pollen from weaker growths, all the others being cut until the end of the season, but what seemed strange to me at the time was the fact that not one of these stout shoots that were left produced a single seed.

Blindness, a frequent cause of failure on the bed system, is not entirely absent from the single row plan. It is caused in this way: Some plants start earlier into growth than others, and as all are cut till a given season, it necessarily follows that the early plants are cut more severely than the later ones, until not a bud is left for growth the following year. Such plants, therefore, are what are termed blind, and die. Single rows, however, present greater facility for avoiding failures of this kind than the bed plan, as by placing a stick down near the weak and early plants the gatherer is enabled to

intense. We find it now a safer plan to manure between the rows in the autumn, leaving the uncovering and manuring of the crowns until the sharpest of the winter is over.

The best manures are moderate dressings of salt, seaweed if obtainable, bone dust, and burnt vegetable refuse, all excellent fertilisers. We also use Horsfield's garden manure, which is largely composed of dissolved bones. A top-dressing of this is given before the mulching, and is evidently a valuable aid in the production of fine Asparagus. Formerly our Asparagus on the old system was of the poorest description, being about the size of stout Wheat straws, but under the French plan fifty heads often weigh upwards of 9 lbs., and some of the stems of this last season measured 9 feet in length.

WM. ALLAN.

A TRADE LIST

DEMANDING more than ordinary attention is that published by Messrs. Armitage & Sons, Huddersfield, entitled "Notes on Vegetable Gardening, Mushroom growing, lawns, croquet and cricket grounds." Its aim is stated to be simply to show a cottager how he can grow a sufficiency of certain things to satisfy the wants of his household at a cheaper rate than he can buy them in the market, and this we think has been pretty well carried out, as the following extract will show:—

Beans, Broad, are generally a safe crop, and

two or three good rows may grow all that most households require, say about one dozen good dishes. A moderately rich and dry soil should be selected in an open situation. Sow first row, early variety, in February, and follow with the remainder in March and April, when the ground can be worked. Beans sown early crop much better than late ones. Make them double rows by stretching a line, and make a groove with a spade about 3 inches deep on each side the line, and plant the Beans about 3 inches apart. When grown up they form one row; distance between the rows say 4 feet.

Kidney Beans.—For these the soil should be a very light, mellow, and well-drained loam. For the early and late crops a sheltered border is the best situation, or in a single row about a foot from a south fence, otherwise the situation cannot be too open. During May and June sowings may be made every three weeks, but one sowing of runners in May will suffice. The seed inserted during the hottest period of summer should be either soaked in water for five or six hours, and laid in damp mould for a day or two, or the drills be well watered previously to sowing. Earth up the plants early, as it keeps the stems from being broken by the wind. Dwarfs may be kept in production late into October. The pods of both kinds are always to be gathered while young; by thus doing, and care being had not to injure the stems, the plants are rendered prolific and long-lived. The seeds should be inserted in drills, either singly, 2 feet apart, or in pairs 8 inches or 10 inches asunder, and each pair 3 feet distant from its neighbour. The seed is buried 2 inches deep, and 4 inches apart in the rows. Runner Beans do best trained against a wall with a south aspect.

Brussels Sprouts yield an unfailing supply of Sprouts during winter and early spring. The first crop should be sown at the beginning of March, for pricking out towards the end of April, and final planting at the end of May. Another sowing should be made about the middle of April for final planting in July. Very well manured ground for this crop is necessary. Plant the same as with Cabbage. Borecole or Kale, same instructions as Brussels Sprouts.

Cabbage, white and red.—Next to Potatoes, doubtless the Cabbage is what most people like to cultivate in a cottage garden, as it is little trouble to get a good crop if the ground is fully manured with thoroughly decayed stable manure. The first sowing should be made about the first week in March, so that a supply can be obtained in September and October. The time for sowing the general crop is the end of July, the seedlings of which may remain in the seed-bed all winter, or part may be pricked out in October. A severe winter will often destroy the autumn sowings, when it will be necessary to replace them by sowing in a sheltered place in March and April, which will make plants for planting out in May. When sowing, the soil should be well worked. The seeds should be sown about a quarter of an inch deep, and should be gently raked over, and a top-dressing of charcoal dust added to keep off insects and to stimulate growth. Some growers prefer to sow all seed in rows, being better to clean the weeds out, and seed more certain to get covered. The plants planted out for heading should be supplied with liquid manure once every week. Run the hoe amongst them to keep down weeds. If the ground is stirred about them the plants thrive better.

Cauliflower.—For this favourite vegetable select well-drained ground, which is all the better if Celery has been a previous crop upon it. As more care and protection are required to get young plants ready for planting out than most plants, it may be more convenient to buy plants when ready. Plant them out 2 feet apart in the row, and 3 feet between each row. As soon as the flower begins to form feed them twice a week with a plentiful supply of strong liquid manure. Seed plants are without any difficulty grown if seed can be sown in a cold frame, and soon as they are large enough to handle prick them out in the

frame, and they will be quickly large enough to plant out in the open ground. Sow a little seed twice in February and March.

Carrots.—The first sowing for the production of plants to draw whilst young should take place in a warm border early in March. At the close of this month, or preferably in the first half of April, the main crop must be sown, though, to avoid the maggot, it is even recommended not to do so until its close. In May sow for production in autumn; the soil should be warm, light, and rich, dug full two spades deep. With the bottom spit turn in a little well-decayed manure, but no general application of it to the surface should be allowed. For sowing, a calm day should be selected. Sow thinly in drills 12 inches apart, and in beds not more than 4 feet wide, for the convenience of after cultivation. The larger weeds must be continually removed by hand, and when the plants are seven or eight weeks old, or when they have got four leaves 2 inches or 3 inches long, they should be thinned, those intended for drawing young 4 inches to 5 inches apart, and those to attain their full growth to 10 inches; at the same time the ground must be small-hoed.

Parsnips.—The soil for these should be a rich, dry, sandy loam, and the deeper it is the better, while the situation cannot be too open. Trench the ground two spades deep, a little manure being turned in at the bottom. Sow at intervals from the end of February till the beginning of April. The seeds should be sown in drills 12 inches apart and half an inch deep, the beds not more than 4 feet wide, for the convenience of weeding. When the seedlings are 2 inches or 3 inches high, they should be thinned to 10 inches apart. Maturity is indicated by decaying of the leaves, when the roots may be taken up as required. They are never injured by the frost, but on the other hand are rendered sweeter. In February and March all that are left should be taken up, or they will vegetate. They may be preserved in sand.

Peas should be sown in sheltered borders in February, and in the open from March to May, at intervals of about three weeks; the same kind of row made as for Beans answers very well, the seed sown about 2 inches deep, the rows about 2 feet apart for very dwarf kinds, and 3 feet to 5 feet for taller kinds. With the very early rows when the plants begin to show, hoe up soil on each side, and at once stick them, getting a quantity of Bracken, straw or some material to lap amongst the stakes close to the ground, which makes a wonderful protection. For the general crop or later varieties, hoe the soil to the plants and stake them when about 3 inches high. Wrinkled varieties are no doubt best, but require more sun to mature and fill the pods than round kinds. Sow one round and the rest wrinkled, getting different varieties for each row. The height of the Peas must be determined by what length rods can be got. The ground having been liberally manured, the seed carefully got in, with summer weather in summer season, an abundant crop will be the result, making this work done a pleasure and a profit.

Potatoes.—The Potato plot in gardens of the size here dealt with cannot be a large one, and must necessarily be confined to early varieties, such as can be got up and used each day when ready. The growing and storing for winter use is not worth attention in this case. As it is very important to sprout the sets, get the seed early enough, say February or March, and lay them in boxes with a little saw-dust amongst them to sprout. They must not be placed where it is over-warm; the shoots will be strong and of a purple colour when ready for planting. Dig and complete one row at a time, well manure it, plant the sets about 12 inches apart and 6 inches deep, then rake the ground level, continuing the rows 3 feet apart, planting as you dig each row so as to avoid trampling on the ground. When the stems are nicely above the surface, hoe the soil to them from each side nearly covering the shoots, and thus protect them from cold winds.

Savoys.—First lot of seeds should be sown during March, the plants of which will be ready for pricking out in May, and for final planting early in June. The second sowing should be about the middle of April, the plants to be pricked and planted out at the same intervals as the others. These two sowings will supply the table in autumn and early winter. The plants should be set out about 2 feet apart, and watered copiously until established. Liquid manure should be applied once a week until the heart is formed.

Spinach.—The round-leaved or smooth-seeded is best for spring and summer; the triangular-leaved or prickly-seeded for autumn and winter. The soil for the round-leaved variety should be a rich, light, moist loam, in an open situation; but for the triangular-leaved and other winter varieties, a light, moderately fertile and dry border. Liquid manure is highly beneficial to them, and when made of blood and the most fertilising matters, the greater the benefit. Sow of the round-leaved variety early in February in a warm situation, to be repeated in larger but still small breadths, at the commencement and end of March, and to be continued every three weeks until the middle of June.

Turnips.—The soil should be a light rich loam. Sowing may commence in April, a small portion on a warm border. These will be fit for use during June. The sowing to be repeated in the beginning of May. These sowings are to be repeated in small proportions at monthly intervals until the beginning of July, when the main crop for the supply of the winter may be inserted; and finally, small crops at the commencement of August. Sow in drills, 12 inches apart, and very thin. Thin the plants when they have four or five leaves about 2 inches in breadth to at least 8 inches asunder from each other. In November, before the setting-in of frost, some of the bulbs must be taken up, and the tops and roots being removed, preserved under shelter in sand.

The quantities of seed needed to produce the different vegetables generally in use are also given, and some valuable remarks on herbs and salads—altogether a very useful catalogue.

PROTECTING AUTUMN-SOWN PEAS.

OUR earliest sown autumn Peas are now 2 inches above ground, and when all young Peas attain that height at this season protection of some kind is of great advantage to them. The first thing we do is to draw a little soil up to them, not very close, but banked up on each side. This breaks the wind to a considerable extent, but more is wanted in cold, exposed situations. Coddling of all kinds must, however, be avoided. To draw them up now through close covering or warm protection would ruin them as regards withstanding the weather during the early spring months. Spruce or Laurel branches and similar material are commonly recommended, but many of them give too much protection, and exclude both air and light. After trying those and many other things, I have come to the conclusion that old Birch brooms are the best of all protectors. Here we use hundreds of these in the season for sweeping in the pleasure grounds, and when they get too short and scrubby they are stored to be used as occasion may require for staking and supporting low growing plants, such as French Beans in pots, and also for protecting autumn and spring-sown Peas. The little twigs are pushed into the ground on each side of the rows a few inches apart, and as they are generally branching, they do capital for breaking the wind, and also for keeping the birds from the young growths. They exclude little or no light, and while they afford protection in a variety of ways, they do not draw the plants up too tender. As growth goes on they support it, and they are allowed to remain for that purpose. Peas often fall to one side before large stakes are put to them, and that does not increase their chances of well-doing, but when fenced in with birched twigs they are not very liable to be checked in this or in any other way.

J. MUIR.

SEASONABLE WORK.

FLORAL DECORATIONS.

J. HUDSON, GUNNERSBURY HOUSE.

OF plants that flower now and form useful subjects to use in a small state for indoor decoration, *Poinsettia pulcherrima* stands in the first rank. Where intended for indoor purposes a previous course of treatment specially given should be resorted to. They should have been grown as near the glass as possible in an airy house or pit in which the minimum temperature does not fall below 55°. By this somewhat cool method of cultivation the showy scarlet bracts will not perhaps be quite so large as if grown under warmer conditions, but they will be found to withstand the change better when transferred to the house. Another useful plant at this season of the year is *Aphelandra aurantiaca* Roezli, the brilliant terminal heads of which are most effective at this dull season of the year. Its silvery foliage, of handsome proportions, likewise greatly enhances its beauty. As a contrast to this variety, *A. nitens*, which has foliage of a dark bronzy hue, should be grown. We used to grow *Roezli's* *Aphelandra* from seed extensively, and the young plants were most useful for decorative purposes. Grown and flowered in 4-inch pots, and clothed to the soil with foliage, they make first-rate decorative plants. They do not, it is true, last long in beauty, but the display they make when in that state amply compensates for this deficiency. Small standards of the different varieties of *Epiphyllum truncatum* are likewise excellent. Their pleasing shades of colour and the freedom with which they flower render them at all times valuable adjuncts to the decorator. All of these aforementioned plants will be found the best just now amongst flowering subjects for warm or heated rooms. Of plants also grown for the sake of their flowers and that are useful for cool rooms, entrance halls, staircases, and corridors, the following are among the best, viz., *Cyclamen persicum* (for small vases), *Erica hymalis*, *cafra*, and *melanthera*, *Epacris Kinghorni*, *Vesta*, *Magnum Bonum*, and *impressa carnea*, *Bouvardia Hogarth*, *Vreelandi*, and *Alfred Neuner* (I think this latter kind will prove a good, reliable, decorative variety), *Libonia floribunda*, *Primulas* in variety, *Roman Hyacinths* (three bulbs in a 4-inch pot), and the *Paper-white Narcissus*. With such as these a frequent change can be made, and that is the essential point to be aimed at, though frequently in many instances overlooked. The plants, instead of being often changed, are allowed to remain till their beauty is over, and thereby sustain injury. Plants of *Arum Lily* with one spathe only will be most effective, choosing a position where they will harmonise with the surroundings.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Forced flowers.—Where a house or pit exclusively devoted to the forcing of flowers for winter exists sufficiently roomy to keep pace with the demand, it is one of the most useful structures which a garden can possess, and in large establishments it should be divided to permit of different temperatures being kept up, so as best to answer the degrees of heat which the various plants to be forced will bear; for amongst the hardy kinds of plants generally used for winter forcing there are many, as, for instance, *Dielytras*, *Spiraeas*, and some shrubs, that if subjected to a temperature such as required to bring other things on at a reasonable rate, become so much drawn, and their flowers so soft that they have a poor weedy appearance, and flag immediately they are cut. Those who have not had much experience in flower forcing cannot be too often urged to stand all such plants as well up close to the glass as they can possibly be got; when so placed, they will bear much more heat without the flowers opening soft and of little use than if the same temperature was applied to them when at a considerable distance from the light. Where a structure or struc-

tures such as here indicated are not available, all sorts of shifts have to be made by putting the plants in early vineries, Pine houses, and general plant stoves, where there is usually too much heat or moisture, or both, to force most plants of a hardy nature in a way that makes their condition when in bloom satisfactory. But where by necessity the work has to be done in a temperature that is too high, the best way of meeting the difficulty is to stand the plants at the coolest end of the house, and to use temporary means to get them as near the roof as possible. As a white flower, *Spiræa* (*Hoteia*) *japonica* is one of the most useful; immense quantities are now brought from abroad in the same way as *Lily of the Valley*; they are to be bought cheap, and the advantage in their case over that of home-grown stock is that they usually come in quicker with less forcing, no doubt consequent on the more sunny climate they have been grown in and their earlier maturity. Where this *Spiræa* is wanted in as soon as it can be got, the plants should be put in heat early, as there is no certainty of their uniformly coming into flower within the same time under similar conditions of heat. *Dielytras* must not be kept too warm especially at this early season, or the stems become drawn, and the flowers are meagre and washed-out in colour. *Hyacinths*, *Tulips*, *Narcissus*, *Scilla sibirica*, and *Crocuses* should now gradually be put in warmth to succeed the Roman *Hyacinths* and the earliest larger kinds. *Hyacinths* in glasses for rooms, when the Moss or water used has got fairly occupied by roots, should be put in a little warmth. *Lily of the Valley*, sufficient in proportion to the demand, should be started once a fortnight; this plant, if the crowns or clumps have been well prepared, will stand as much heat as almost anything in cultivation.

Hardy shrubs for forcing.—Amongst hardy shrubs there are few that are more beautiful, or that can be brought into flower with so little forcing as *Laurustinus*, its natural season of blooming favouring early development. This year they are unusually full of flower. The best practice with this plant is to grow a sufficient number permanently in pots; standards, dwarf or tall, such as in favour on the Continent, are both pretty and useful, admitting as they do of being arranged in greenhouses and conservatories so as to stand up above other plants, thus relieving the otherwise formality. Where plants are not kept permanently for the purpose, small bushy examples from the shrubbery or reserve ground may be used. In all cases where hardy shrubs have to be transferred from the open ground to pots care should be taken to subject the roots to as little interference as possible, otherwise it is liable to affect the bloom. Where its colour is not objectionable, *Azalea amena* should hold a prominent position in hardy forced shrubs; for freedom of flowering it has few equals. Amongst hardy *Azaleas* the mollis varieties, being early bloomers, are the best suited for forcing, but they must not be subjected to too much heat, as if much hurried the naturally short duration of the flowers causes them to fall in a few days after they open, especially if the plants are put in warmth early. Of sweet-scented flowers that will last well when cut there is nothing better than *Lilac*, if wanted in a white or blanched condition, similar to the French productions of this plant. It is needless to say the forcing must be carried out in a darkened place, but where the pure white colour is not an object there is no necessity to resort to this. The natural substance of the flowers of *Lilac*, even when produced in strong heat, is a contradiction to that of most other things, as it is such as to prevent their drooping when cut; consequently, like *Lily of the Valley*, they will bear almost any amount of heat. In selecting *Rhododendrons* for early forcing it is necessary to be careful that the sorts are such as bloom naturally early; any kinds light or dark that have a disposition to open their flowers in the open air before the return of warm weather is such as to admit in ordinary seasons of their escaping frost are the sorts best adapted for the earliest forcing. In the introduction to

heat of all such stock as the above judgment should be exercised, so as to regulate the supply in accordance with the demand. Where flowers in the quantities now all but generally required are wanted, the means at command in the shape of room for forcing through the winter months are usually taxed to the utmost, and unless care is taken not to have more in bloom than wanted at any particular time there is likely to be a comparative scarcity afterwards.

Stove winter blooming plants.—Such portions of the stock of *Poinsettias*, *Euphorbias*, *Begonias*, *Thyracanthus*, *Eranthemums*, and *Serico-graphis Ghiesbreghtii*, as are intended to bloom latest through the winter will now require careful management so as to draw the line in the matter of warmth between bringing them on to bloom earlier than they are wanted and keeping them too cool, for if the latter happens they will be of little use. A drier condition of the atmosphere, with only sufficient moisture in the soil to keep the leaves from flagging, will be found a suitable medium to subject them to. In the case of the earliest brought on lot of all plants that will produce a second head of flower, such as *Euphorbia jacquiniæflora*, *Plumbago rosea*, &c., I have found it advisable to supply them regularly with manure water during the time the first bloom is being brought on; not only does this benefit the first flowers, but it strengthens and stimulates the plants for the second effort, which must necessarily be in proportion with the strength the plants have left in them.

Roses.—The supply of flowers for the first two months in the year will so far depend upon the condition the plants are now in, that unless they have been kept warm enough to have made shoot-growth and set, or be about setting their buds, no present treatment can remedy the defect, but to ensure flowers even later on the heat must be so regulated as to keep up free growth without over-excitement. In light houses, especially if they are of considerable size, with the plants well up to the glass, the night temperature should be from 55° to 60°. With pot *Roses* for winter forcing, again, successional bloom is of the first importance, for, as a matter of course, after the first head of flower is produced, unless the plants have enough strength in them to push strong growth, the later bloom will be wanting unless where additional plants are brought on to succeed the first, a course that requires both more means and material. To keep up the necessary vigour the plants must be regularly fed all through the time they are bringing to maturity their first crop of flowers, so that as these are gathered they may at once push more growth. Clay's manure is the material that most of the great growers for market use for *Roses*; it is applied to the plants regularly every few weeks, and they will bear it in greater quantities than those who have not tried it would suppose; yet it is well not to give too much at a time, as where the plants are overdone it sometimes causes the leaves to fall. Continue syringing regularly to keep down red spider. Admit little or no external air; if this latter advice is scrupulously followed, there will not be much to fear from mildew.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Roses and spring flowers.—We are now (2nd inst.) having a real taste of winter, and if mulching of these has not yet been done, it should be forthwith. Though mulching of *Roses* is not an imperative necessity, as they winter safely without it nineteen winters out of twenty, yet there can be no doubt of its beneficial effects in ensuring robust growth, and for that reason alone it should be done. For the tender *Tea* and *Noisette* sections, any kind of a mulching is of the utmost value; good farmyard manure, smoothed down with a spade, and over this a couple of inches of *Cocoa fibre* refuse, is the perfection of mulching. By way of protection to spring flowers, a thin covering of fibre is desir-

able, and also for plants in the reserve garden that are intended to make good losses in the spring garden, or to plant out as summer bedders; such a surface covering, applied to summer bedding plants that are planted out in cold pits will save an immensity of labour in the way of mat protection, for, as a rule, if the frost does not get hold of the roots, the tops of *Violas* and *Pansies*, and even *Calceolarias*, will stand many degrees of frost. Australian *Dracenas*, *Phoriums*, and any plants of similar nature, as regards liability to injury from severe frost, are readily protected by a covering of fibre, leaf-soil, or cinder ashes applied to the base of the plants, and it may almost be desirable to mat up the tops of some of the finer plants, but this kind of protection should be given in such a manner that they can be quickly undone when there is a probability of mild weather setting in.

Bedding plants.—Old plants of *Pelargoniums* that were lifted from the beds will now have started into good growth, and should have all decayed portions of stems cut off and bad leaves removed, and if afforded plenty of light and a minimum temperature of 60°, they will produce good cuttings for spring propagation. As to root moisture, till the turn of the year, this should be rather sparingly applied, more particularly in regard to the tricolor section, which are somewhat impatient of too much water at the root at this dull season of the year. Autumn-struck plants will need little or no watering for the next month or so, and to prevent mildew, frequently go over them to remove all decaying leaves; give air freely when the weather is favourable, and if it can be accompanied with a little fire heat, damp will be the more effectually expelled. The tender kinds, such as *Alternantheras* and *Coleus*, are no trouble to winter where firing is plentiful, but otherwise it is risky work, and those who cannot command a temperature of 65° or 70°, had best exclude them altogether. Keep them well up to light and fumigate the moment there is the slightest trace of fly or thrips. *Alternantheras* and *Iresines* are very liable to attacks of these insects, and if the plants are anyways weakly, the more quickly do these pests increase. Finally, let all the kinds of plants be arranged as neatly as if they were intended for conservatory decoration, and this apparently small matter will not only be productive of pleasure, but serve to the better wintering of them, as they are sure to get more attention than they would if stood about anywhere and anyhow. Have plenty of extra covering at hand in readiness for very severe weather, such as *Bracken*, straw, or litter, to cover up cold frames that contain *Calceolarias*, *Echeverias*, and the like, such covering to be left on continuously so long as the frosts last, and not to be removed for at least a couple of days after a thaw has taken place.

General work.—Finish up leaf raking and stacking, sweep and roll walks, and where Moss-grown scrape it off, or else pick up the gravel with a fork, sprinkle over a little fresh gravel, and roll down hard, level turf, and fresh turf bare spots under trees, also dig out old tree stumps, and trench up ground for new trees that are to be planted; choice shrubs and trees should be top dressed as frequently as circumstances admit of. Young *Conifers*—all sorts—and *Hollies* are much benefited by surface dressings of suitable material; for the latter we use old *Vine* border soil, and for *Conifers* well decayed manure and light, sandy loam. For the most part the trees that we have to top-dress are on turf; this, therefore, has to be rolled back, the surface soil lightly loosened with a fork, and the dressing is then applied. The turf is then rolled back at once, but not beaten down, only levelled, and thus the trees get the full benefit of all the rain that falls. The clipping of hedges, and trimming into form evergreen shrubs, clearing out of drains and haw-haws, as also the wheeling of soil and manure, are all of them suitable operations for frosty weather when little else can be done out of doors.

ORCHIDS.

J. DOUGLAS, LOXFORD HALL.

East India house.—Those who have to grow collections of Orchids must understand something of the old saying, "Taking time by the forelock." There are, of course, some gardens where collections of Orchids are grown the owners of which know it to be their interest to provide a liberal staff of men to do the work; plants are cleaned, attended to, and potted when they require it in season or out of season. In most gardens this is not so, and those in charge have to do their best to make one class of work dovetail into another. This month's work is not usually so pressing as it is next, and if it is yet too soon to begin to repot or surface-dress Orchids, it is not too early to prepare for it. Besides getting the potting material ready, viz., clean pots, charcoal, Sphagnum, peat, clean pots and pans with teak baskets, the plants may also be looked over. If any of them require to be dipped to free them from insect pests, that must be effectually done before repotting them, because it is not possible to dip any of the plants after they have been repotted—not until the fresh potting material has become firmer on the surface. The nodules of charcoal and crocks fall off into the water when the pot or pan is inverted, but in every case it is best to have the plants clean before starting to pot them, and every opportunity should be seized between now and January to get the plants and the house thoroughly cleaned. The small white thrips are most insidious in their attacks, and the mischief done by them is often discernible before they are. In writing last week of the great value of the deciduous winter flowering *Calanthes* at this season, I said nothing of the arrangement of the plants. As they lose their leaves before the flowers open, it is necessary to place the plants amongst small Ferns or foliage plants. Mr. Swan, of Fallowfield, stated some time ago that by far the best plant for this purpose is *Gesnera zebrina exoniensis*. The spikes of the *Calanthes* have a fine effect rising above the leafage of these foliage plants; just in such a way would the spikes hang droopingly over the wild herbage of their native wilds. It is better to let the spikes grow and drop over the plants without any support; tying them closely up to sticks is clumsy gardening.

Cattleya house.—The same remarks as to making preparations for potting apply here as also for the cool house. Mr. Ward, when head gardener to the late F. G. Wilkins, Esq., of Leyton, a well-known and able cultivator, told me that he usually began to pot his East India Orchids soon after the new year; when that house was done, he went on with those in the *Cattleya* or Mexican house, finishing off with the cool house section. Of course, not anything like the whole are potted, but all are potted or surface-dressed. Besides the Orchids mentioned last week as being in flower in this house, there are numerous others easily grown and to be obtained at a cheap rate, and not the least valuable are the *Dendrobiums*; *f.*, as is sometimes desirable, they have been pushed forward in a warmer house, they had better be placed here just as the flowers begin to open. *D. nobile* should be in flower if it had been sufficiently rested. Do not omit to keep up a succession of flowers of this species by placing plants in heat at intervals. Those at rest may be kept in the greenhouse quite dry up to the shrivelling point. *D. Ainsworthii* is even yet too expensive to be much grown, except by those who may be termed Orchid fanciers and have plenty of money; but as it grows freely it may yet become common. It can also be raised from seeds by crossing *D. nobile* and *D. heterocarpum*. This last named species is also in flower at this season; it is a very desirable plant to grow, not so much for its beauty as for its sweet perfume. *D. moniliforme* may also be found in flower at the present time. Yet another *Dendrobe*, and a charming hybrid it is, should be in every collection for flowering now—*D. endocharis*; it has been raised by Mr. Seden in the Exotic Nursery, Chelsea, by

crossing *D. japonicum* with *D. heterocarpum*. It has many of the characteristics of the seed parent with the perfume of *D. heterocarpum*. The evergreen *Dendrobes*, such as *D. Farmeri*, *D. thyrsoflorum*, *D. Dalhousianum*, *D. densiflorum*, and others of this type have been with us very late in completing their growth; indeed, it was quite the middle of November before they had done so. Now they should be kept in a much lower temperature, and be comparatively dry at the roots, and there need not be much moisture in the atmosphere. Some of the small-growing *Cattleyas* of the *marginata* type form pretty objects at this season grown in small pans suspended near the glass. The treatment, as we are now approaching the depth of winter, must be kept at the lowest minimum point. I do not care to have the temperature above 55° at night, and if it falls to 50° on very cold nights, that would be a very good minimum. Higher than that unduly excites the plants. If the pipes require to be only slightly heated to keep up the temperature, then the plants are not likely to be injured by an arid atmosphere, but either way it is better not to have any water in the trough; rather trust to sprinkling the paths and stages.

Cool house.—That useful Orchid, *Lycaste Skinneri*, although it is sometimes grown in the *Cattleya* house, succeeds well in the cool section. We had some recently imported plants which have now very nearly completed their growth; they are rooting freely, and as they required repotting this was done. This Orchid likes a liberal proportion of good fibrous peat and rather more pot room than some Orchids. It is one of the easiest to grow, and, being obtainable at a cheap rate, is well adapted to the requirements of those who cannot afford expensive houses, and who have to grow their own plants. The flowers last long on the plants; they do well for cutting, and the plants with flowers may be kept for a long time in a sitting-room. *Odontoglossum bictonense*, now in flower, is an easily grown, distinct, and good species. The flowers, being neatly arranged on tall upright spikes, have a characteristic effect amongst most other species which have drooping spikes. This is another species that likes a good share of pot room and treatment very similar to that of *Lycaste Skinneri*. What a beautiful plant, too, at this season is *Sophranitis grandiflora*, and so distinct from the usual run of cool house Orchids! Its glowing red flowers are so freely produced whether the plants are grown in shallow pans or on blocks. In either case place them near the glass until the flowers open, when the plants can be arranged while in bloom where they are most effective. (See instructions as to temperature given last week.)

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Pines.—Directions contained in my last paper will still apply to plants in this department, but if any alteration is found necessary it will be on the side of lower temperatures in the succession pits when the weather is dark or unusually severe. Late starters now swelling off fruit, which will be found invaluable in the spring, will require a steady bottom heat of 85° to 90°, and a top-heat ranging from 68° at night to 78° by day, with a rise of a few degrees from sun-heat when bright, clear days succeed frosty nights. If the plants are plunged in near proximity to the hot-water pipes, see that the moisture is not abstracted from the roots by the material becoming too dry, but instead of giving copious supplies of water to the soil partially draw the tan away from the pots and give the bed an occasional watering with diluted liquid at a temperature of 90°. Keep the atmosphere in a moist, growing state by damping all available surfaces when the day temperature begins to rise, and again when the chink of air which it is possible to give is taken off about 1 p.m.; also keep the stem roots moistened with the syringe as often as they show signs of becoming dry. If not already done, get the pit intended for spring fruiters cleared out, scalded, and cleansed ready for use. Meantime prepare the tan or leaves by fer-

mentation and frequent turning to prevent burning; then place it in the pit, and allow the heat to decline to 90° before the plants are introduced. Look well to succession plants and autumn-potted suckers, and give enough water to the roots and plunging material, if over hot-water pipes, to prevent a check from drought followed by premature starting in the spring. Give strong successions which were shifted late the benefit of a light span-roofed pit if at command. Plunge them with their heads well up to the glass, let the minimum temperature range about 60°, and give sufficient atmospheric moisture to keep them steadily progressing throughout the winter.

Peaches.—Early house.—When the buds begin to show colour a slight rise by day may be indulged in on bright, fine days; but a gradual fall back to 45° or thereabouts at night will be advisable until the flowers are perfected and begin to unfold, when more air and gentle fire heat will be necessary. Look well to the fermenting leaves on the internal border, as the humid warmth from these is so much better than that obtained from the hot-water pipes, and, further, the necessity for constant syringing is greatly reduced, no small advantage in the dark, dull month of December, when complete saturation of the buds is not always desirable. If the roots have the run of an external border, this must be well covered with Fern or litter to keep out the frost, and tarpaulin may be used for throwing off snow and rain; but in these high feeding days an outside border attached to an early house is looked upon as a superfluity, the main points in the management of the roots of Peaches being good drainage, sound calcareous loam, frequently changed, and plenty of water at all times. If Strawberry plants, the forerunners of confusion in forcing houses, must be introduced, let them be well dipped in sulphur water to cleanse them from spider before they are taken in, then clear off the surface soil, ram well and top-dress with stiff loam and old cow manure. When the most forward trees approach the flowering stage, fumigate the house once or twice with tobacco paper. At this stage it is just possible that no enemy may have appeared in sight; but so destructive is green-fly when smoking is omitted that an operation so simple and inexpensive should never be neglected.

Succession house.—Prune, cleanse, and tie in the trees as opportunity offers, and keep the house well ventilated until the time arrives for starting. The first week in January is a good time to close the second house, as the earliest varieties form a close succession to the latest in the early house, and as Peaches cannot be kept for any length of time after they are ripe, a careful selection of kinds that will follow each other in their order of ripening should be made for every house. Assuming that the second house has been stripped and the lights properly repaired and painted, there will be no fear of the buds dropping for want of water; but where the roof is a fixture, copious waterings will be necessary, and immediately after the fall of the leaf will be the best time for internal painting. Keep the latest houses as cool and airy as possible to prevent the buds from getting forward in mild weather, and avoid using them for tender plants which cannot stand a few degrees of frost. When all planting is finished, re-arrange the reserve wall, without which a set of forcing houses cannot be kept going, and fill up all available spaces with young trees from the nursery.

Vines.—Examine inside borders in the early house as soon as the buds are fairly on the move, and, if necessary, give old Vines which cannot be over-stimulated, a good soaking with warm diluted liquid, also mulch the roots with rotten manure; renovate the fermenting material, and let the temperature range from 50° to 56° at night, and 65° to 70° by day. As old Vines generally break well, direct syringing may be moderated on dull days, but young ones which have not been forced early will require more careful management, as it not unfrequently happens that the most prominent buds take the lead, and unless timely attention is devoted to bending

down and sometimes rubbing out the terminal buds, unsightly blanks will be sure to mar the appearance of the house. When this stage of growth has been reached, strip the outside borders of Fern and shutters, and cover to the depth of 18 inches with fermenting Oak leaves. Make them very firm to keep in the heat, and replace the shutters above, but quite clear of the leaves.

Late houses.—Look over hanging Grapes two or three times a week, as this intensely damp weather is very bad for Alicantes, Gros Colmar, and Muscats, and one neglected berry soon mars the beauty of a bunch. Get rid of the foliage little by little, as it parts freely from the Vine, but do not take off any more laterals, at least where the Grapes are to be bottled, otherwise the wounds will give off moisture and colour when the bunches are taken to the dry atmosphere of the Grape room. Ventilate freely with gentle warmth on fine mornings. Keep the house quite close in foggy weather, and let the temperature range from 55° by day to 45° at night. Make a good selection of eyes from early prunings, and if young planting canes are wanted early in the spring insert in sods or small 3-inch pots before Christmas. Keep them in a cold frame for three weeks, then place them in or over bottom heat. Cut back to the required length or quite down to the pots yearling Vines intended for planting. Dress the cuts with styptic and keep them in a cold house until the time arrives for encouraging growth. If any lifting or border making in late houses is being put off until the Grapes are cut, take advantage of fine days for firing the Grape room and cut as soon as the leaves fall from the Vines; meantime get the compost properly mixed, ready for use, and protect from the weather. Prune mid-season houses, cleanse, paint, and put everything in working order, then throw open the ventilators at all times when the weather is not unusually severe.

KITCHEN GARDEN.

R. GILBERT, BURGHLEY.

WE cut our first dish of Asparagus this day (December 4). Our *chef* likes it green best, being better flavoured than when white. It is an easy matter to green it after it is cooked with water in which Spinach has been boiled, but the true Asparagus flavour is thus lost. We have a capital place in which to force it—an old Pine stove, so that by not covering the roots above an inch deep in soil the light greens the Grass with little trouble. We lift the roots from old beds, and plant young beds yearly containing about the quantity we lift for forcing; therefore, we have always a stock for that purpose. As to Rhubarb, we force Hawk's Champagne—the best variety to my knowledge—in the same pit; but we cover the crowns a foot deep with dry Oak leaves, and the Rhubarb comes up a fine crimson colour. Apples being a short crop, Rhubarb will be wanted in large quantities. Seakale we force in the beds in which it grows in the old-fashioned way, covering the crowns with boxes with lids to them. We use leaves only for this crop, with the exception of a bit of long manure over the leaves to keep them in their places. 11° of frost here last night rather caught us napping. To-day we are busily engaged protecting Lettuces and Broccoli of the earlier varieties. We have a large quarter of Broccoli laid on their sides on the principle that small heads are better than none; still, I like covering up with Bracken better, as in that way the size is not diminished, and unless the thermometer falls below zero we are generally safe. We also cover our Spinach with Bracken. It keeps the leaves green. Sharp frosts and sharp nor-easters brown all before them. Outside Mushroom beds are doing well. I gathered about 46 pounds on Tuesday, all from outside, very plump and fat. Keep the beds well covered, and if a mat be placed over all it will be found to be a great assistance. During cold weather I only open them once a fortnight, and gather all non-broilers—cups and buttons. Having a large Mushroom house, my daily supply is well maintained; but these indoor-grown Mushrooms,

parasols in miniature, are in no way equal to those grown outside. Keep a good supply of all small salads for use at Christmas-time.

NOTES AND READINGS.

BOTANICAL AND PUBLIC GARDENS.—In discussing the arrangements of botanical gardens it seems necessary to distinguish between purely botanical and public gardens, as many of our so-called "botanical gardens" have hardly anything botanical about them, and do not deserve the name; they are simply recreation grounds, and as such no fault of a serious nature can be found with them. It would appear from what has been written on the subject that the wants of the botanical student are very few and simple, and that a border and house or two with the plants set out methodically in rows and labelled to please him would completely satisfy all his wants. An apothecary's shop would serve for a model of a garden of this description; and if this be the scope of the student's desire, is there any reason why he should not be gratified? If, however, we once admit the principle that botanical gardens should be ornamental and beautiful, as well as useful for other purposes, then there is no reason why they should not be instructive models in that way as well, and teach the public what beautiful gardening is. The misfortune at present appears to be that the directors of such gardens do not appear to have made up their minds which of the two courses they should favour most—hence the confusion. Some of our botanical gardens are not very lavishly endowed institutions, and perhaps it would be as well for all concerned if they were all re-modelled on the apothecary's plan, and the ornamental part left to public parks and gardens.

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IS BEAUTY A FASHION?—Ruskin would probably say this was putting it at a low level, and abandoning the principles which govern art. In flower gardening things have happened that might well excuse some of us thinking beauty was really no more than a fleeting fashion, but it will never do to admit that in our progress towards better things. The most enlightened æsthetics of ancient and modern times have always entertained a higher ideal of beauty than this. Some of them say that "beauty" is synonymous with "good," and the moral sense, if nothing higher and better, tells us that goodness cannot be a fashion merely. Beauty consists "in many elements, powers, and proportions," fixed and unalterable, among the principal of which are order, harmony, expressiveness, chasteness, delicacy, perfection—things that exist independently of fashion, which can only attempt to conform to them. These we take to be the aim of modern teachers of beautiful gardening, and they would completely subvert their position if they were to admit fashion to have anything to do with it. Beauty and utility, too, go hand in hand, and in some senses mean the same thing, and the one need not necessarily be sacrificed for the other, as has been proposed in the case of botanic gardens. Nor does plainness and simplicity mean ugliness. A lecturer on beauty not long ago said the purpose of a chair was to be sat upon, but that a beautiful chair was just as comfortable as an ugly one, and there was no excuse for the furniture of the poorest cabin being ugly. As an example of fashion in gardening "the bedding-out system" may be named. That was a fashion and nothing more, and was as severe and restrictive in its features as the shapes and patterns of the *beau monde*, which tolerates nothing that does not conform to its rules for the time being. No, if we are to excel, or even advance, in gardening, we must start with a higher conception of the beautiful than mere fashion, and inculcate principles, which I take it is what modern gardeners worthy of the name are trying to do.

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DUMESNIL'S FERTILISING MOSS.—Since the article on this subject by a credulous and inexperienced writer appeared in "Good Words," the matter has attracted considerable attention, es-

pecially among the non-horticultural fraternity, it being just one of those subjects likely to arrest the attention of the superficial reader. The idea of growing plants in a fertilised rooting medium like Moss is not new, but it is suggestive. Some twenty years ago, or thereabouts, the exigencies of the bedding-out system led to the recommendation of Moss instead of pots for Verbenas, Geraniums, &c., which, we are told, would, if wrapped in Moss and plunged in a bed of soil and watered carefully, be just the right condition for planting at bedding time, and experience proved that it was so, only, unfortunately, the Moss system was more troublesome and more expensive than the potting and planting-out system, and it fell suddenly into disrepute. No one has ever doubted that plants would grow in fertilised Moss, and there was a time when Vine and Pine growers would have made their composts of nothing else if the Moss had only been readily procurable. As it was, they used turf torn from rocks and other surfaces, and which, when shaken free of the smaller particles it contained, was as near an approach to Moss as anything could be, and what Dr. Lindley would probably have declared to be an excellent equivalent. The practical question is, Of what utility is the Moss system? It does not dispense with the necessary moisture or food which plants require, and it may be safely asserted that Moss has not the holding qualities of loam, and cannot, therefore, be an economical root-feeding medium, for, after all, the soil is only a rooting medium itself, in which plants find stability, and it does not appear the fertilised Moss is anything else. There is, however, one class of plants the Moss system might probably be adapted for, and that is Orchids. It seems to be thought now that what all these plants want is an open, shallow compost of the texture of a horse-hair mattress, and probably the nearest approach to this would be a bundle of Moss, prepared so as to afford a good root-hold for the plants without its ever degenerating into a spongy mass. If we are to feed plants on the "chemical food" principle as applied to infants, and supply them with the separate constituents they need and nothing more, the Moss may in time come to be recognised as a proper kind of feeding-bottle for the purpose, but the agricultural chemist's dream not being quite realised yet, we shall probably have to wait a while.

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SOUTH KENSINGTON FLORAL COMMITTEE.—Things are not going on smoothly in this department, and dissolution appears imminent. It seems to us that the estimable Mr. G. F. Wilson, in another paper, begs the question in defending the committee as at present constituted, and "speciality men" in particular. "By their works ye shall know them" is the public test, and the public do not know who the members are or who gives the verdicts, but it will be a revelation to many to hear that "out of perhaps twenty members present, sometimes only a quarter of that number can be got to vote upon the merits of any specimen." No impartial outsider for a moment doubts that the committee has been instrumental in sending out quantities of rubbish, and as the fault probably lies somewhere it behoves them to find it out. It would be interesting to know who the brave "five or six" are on whom the voting business devolves. What a proportion of ornamental members there must be! There cannot be any doubt about the value of a committee like that at South Kensington, provided it performs its duties conscientiously and well. The committee stands in the same position to the public that the insurance society's doctor does towards those who employ him, and whose duty it is to prevent the former from being imposed upon. The certificate of the committee is a passport to the market, and it is perfectly well known that many of those who seek certificates are not so much ruled by merits of their productions as the chance of their getting the committee's recommendation. Such facts should weigh with a committee which can hardly be too critical and careful in all its deliberations if its opinion is to carry weight and be respected.

PEREGRINE.

COTTAGE GARDENS ASSOCIATION.

I SHALL not be surprised if in this matter I am met at the outset with the remark that cottage gardens already exist and have long existed in many of our towns and villages, and that their past history, with few exceptions, is not such as to encourage any new movement in this direction. I should at once admit the force of this remark if applied to these associations as they have been constituted and managed in the past, and rejoin that I propose to move on entirely new ground where the objections applicable to the past do not necessarily apply. Cottage garden associations have hitherto been considered too much a matter of charity or patronage, pet schemes of local magnates patronised by a class, encumbered with rules and trammelled by influences, religious, political, or social, which if good in themselves do not leave the tenant with that freedom and independence which is not only necessary to the full enjoyment of his holding, but which he is justly entitled to claim in return for a fair rental duly paid. In the scheme which I am about to submit for consideration I would lay aside all idea of charity and patronage, and seek to establish opportunities for improving health and storing food similar to those which the friendly society and the savings bank offer for the storing of money. I would accomplish this end by means of an association under the Limited Liabilities Company Act, in which shareholders would receive a fair amount of interest on capital invested. The chief objects I have in view in connection with this movement are recreation and thrift. I seek to provide a "hobby" for the humbler classes of society, employment for their leisure hours, free from the trammels of any one particular school of thought, employment that is at once recreative, healthful, and remunerative. Let me endeavour to show, first, that it is desirable to bring gardening within easy reach of the humbler classes of society, and, secondly, that the project is practicable.

Desirability of the project.—Am I not right in assuming that a "hobby" of some sort is almost necessary to men in every station of life to complete satisfactorily the sum of human occupation. The members of the upper and middle classes of society have, from their means, position, and influence, a power of choice in this respect, which the labourer, the artisan, and even the small tradesman do not possess. Can they live on from week to week and year to year performing their work industriously and spiritedly without a "hobby"? Or, if this in some cases be possible, would not the pursuit of one prove of incalculable benefit to them physically, mentally, and morally? I think it hardly necessary to bring forward evidence in support of the opinion that it would, and I think further that cottage gardening is a suitable "hobby" for most men in the station of life to which I have referred. It is not only beneficial in its influences on both mind and body, but, unlike many "hobbies," it teaches thrift, and is thus specially suited to their requirements and means, increasing their stores of wholesome food at a small cost. I think also that the subject has an educational as well as a moral, social, and economical aspect. In regard to the

Educational aspect, it seems to me that in view of a further extension of the franchise it has become very important that the adult masses should be educated in a manner that will enable them not only to see and hear, but to go one or two steps further—to think, understand, and judge for themselves. There have been demagogues in the past, there are demagogues in the present, and the number is not likely to decrease with the prospect of an extended franchise. Torrents of eloquence will be poured forth in the future ostensibly to awaken the labourer, the artisan, and the small tradesman to his true interests, but really to advance the views or interests of the declaimers. Now, cottage gardening strikes me as one particularly desirable mode of adult education; it deals with things rather than with words. The child who begins at school with the alphabet, and passes, perhaps slowly, but gradually onward,

accumulates knowledge almost insensibly, and during the process, thinking, understanding, comparing, and judging usually play a more or less conspicuous part. But the man, whether young, middle-aged, or old, who has not been taught to read, write, or calculate, or who has but a slender acquaintance with reading, writing, or arithmetic, stands in need of more practical, more direct, and quicker teaching. Now, I am of opinion that such teaching is best conveyed by bringing him in contact with some useful art in which he has to deal with objects rather than with words, and in which he can take a direct and actual working part. And gardening is an art of this character. Even cottage gardening demands and encourages not only working, but thinking, understanding, comparing, judging; does not occupy the mind with the present alone, but is continually carrying it backward into the past and onward into the future. My experience does not lend support to the opinion that you cannot get the working classes to think; it may have been true in the past, but it is hardly true in the present. If in a given number of men who undertake to cultivate plots of garden ground there is in the first instance but one thinker, he and his surroundings will gradually influence the rest. This is a work in which a little leaven leaveneth the mass. The majority may in the first instance copy only, but they will assuredly end by thinking, understanding, comparing, judging. This habit once contracted and applied to one thing will in due course be extended to others, and gradually the barren waste of mind will become more or less cultivated or fertile; the labourer, the artisan, the small tradesman will no longer be the sport of vain, pretentious men or the tool of demagogues, but reasoning beings, who can solve at least some of the plain political problems set before them. If these views be correct, I think it follows that cottage gardening is not only a valuable means of adult education, but a political safeguard, and likely to prove a material help in the establishment of that order of mind which is usually possessed of a sound political faith. I pass on to the

Moral aspect.—It is unquestionable that men of high moral attributes, rich and poor alike, are naturally drawn to gardening, and I believe it to be equally true that the pursuit of it, whether for profit or as a recreation, produces a love of order and a distaste for low and sordid pleasures. The physical exertion necessary for successful gardening is healthful to the body, and the interest arising from the ever-varying changes in the aspect of vegetables, fruits, and flowers is equally healthful to the mind, and this has an educational as well as a moral influence. The sequence of events is so rapid, so plain, so beautiful, that even the untutored mind can hardly help having forced upon its attention what we are accustomed to speak of as cause and effect. We sow the seed, and however limited our experience, upheld by hope, we rest assured that we shall see, and usually do see, in succession, the germ, the plant, and in some cases the flower and the seed again. The habit of reflection is thus perhaps insensibly acquired and cultivated and the moral nature is improved. I would here ask you momentarily to contrast the moral influences likely to ensue from a recreation such as this with those engendered by the too common practice of the cottager in separating himself from his family when his work is over and resorting to the unhealthy atmosphere of a tap-room and its surroundings. Once there, he too often spends his hard-earned wages in drinking and smoking to an extent which is both extravagant and harmful, and to which he is often stimulated by conversation and amusements which are the reverse of healthful. Do not, however, let it be supposed that I am passing an unqualified condemnation on these luxuries and amusements; it is the abuse of them only that I would condemn. Let the cottager smoke his pipe, quaff his ale, and chat with his neighbours if so inclined in his garden plot and elsewhere. Labour creates thirst; physical exertion needs rest, and happy the man who can be content to assuage the one and enjoy the other under the healthy conditions of his own

home or garden. Here, as in the ale-house, he may come in contact with men of his own age, men of the same mental calibre and social status, seeking one common aim while his energies are aroused by the desire to do as well or better than his companions; and as this is a kind of labour which naturally leads to healthy thinking while working, his whole nature is likely to be improved by the trains of thought awakened. As a means of

Social improvement with the humbler classes, cottage gardening must, I think, stand in the very front rank of accessory measures. It is the least selfish of social pleasures. It is at once social and profitable. A man's wife and children can help in the work, and while doing so, look forward to share the pleasures and substantial benefits of it day by day. While he engages in digging and planting they may perform the lighter work. Can there be a pleasanter sight than that of a cottager in his garden surrounded with his children digging and sowing in spring, watering and staking his early crops in summer, and collecting and storing his Potatoes, Onions, Parsnips, and Carrots in autumn for winter use? They sow pence in seeds, shillings in rent and labour, and ordinarily gather in half crowns in the value of the produce, and this without waiting for a longer period than the patience of an indifferently cultivated mind is equal to. It would be easy to provide statistics to show that the return of interest on capital invested is equal to what is here stated, but there is a shorter and equally certain road to this object—the admission of the cultivator—which will probably be considered satisfactory. "A. B.," a married man with a family, says, "I hold 24 poles of land, for which I pay 6d. a pole. Last year I sold off this plot sufficient to pay the rent and then had vegetables enough for my family nearly all the year round. My crops were Potatoes, Parsnips, Carrots, Onions, Cabbages, winter material, and Scarlet Runners. I believe those of my neighbours who work at it find the cottage plot a good thing." In reply to the question, "Does your garden plot pay you?" One cottager admitted taking no less than £10 in one year in prizes at the cottagers' show. Another: "It pays those who work, but some of them do not work, and they find it does not pay." Another: "It pays me very well, and would pay better if I could afford to buy manure. I keep fowls and rabbits, and use the little manure they make, and can see to an inch where it has been used." Another: "My crops would pay me well for my work if I could get them myself, but my garden is constantly robbed; even my Peas and Beans are taken." Another cottager told me that 12 poles of land was enough for any cottager. Another said the farmers in his neighbourhood did not approve of cottage gardens, as the men worked in them in the early morning, and went thence tired to their regular work. Another (an ungrateful man, I fear) replied as follows: "They said the plots were set out to help the poor, but it was the worst bit of land in the parish, and the rent more than the farmers paid for good land. With regard to the

Economical or utilitarian advantages of gardening, I hold the opinion that the working classes would benefit largely by the free use of fresh vegetables in diet. I say fresh vegetables, and what means are so likely to furnish them with such as a garden of their own? And it should not be overlooked or forgotten that the products of the garden are not exhausted by the vegetables and fruits raised for present or immediate consumption. There is a store of both for winter use; and as these are successively brought forth, and the family reaps the substantial benefits of their past labour, they are pleasantly reminded again and again of the delights of the garden in the summer time. If, as I hope, I have proved satisfactorily that it is desirable to bring gardening within easy reach of the humbler classes of society from an educational as well as from a moral, social, and economical point of view, I may now ask to be allowed to consider

The practicability of the project. I propose to establish a company under the title of The Cottage Gardens Association for

Great Britain and Ireland (Limited). This association is to be formed with the view of providing labourers, artisans, small tradesmen, and others with suitable plots of ground to be cultivated as gardens. The association proposes to accomplish this end by hiring on lease suitable plots of land as near as possible to towns and villages. As the principal object of the directors will be to develop gardening as a source of both recreation and profit to the humbler classes, they will not seek for large profits on the undertaking, but merely a fairly remunerative interest on the capital embarked. The preliminary expenses will be confined to the outlay actually incurred. It is proposed that the centre of the association should be London, with branches throughout the kingdom—the latter under local management, but subject to the general rules of the association. On each allotment there may be erected a greenhouse and arbour, the site and plans of buildings being first approved by the directors of the association or committee of management. In this scheme I think we have good grounds on which to establish a claim to the kindly co-operation of landed proprietors, municipal authorities, and the wealthy class generally. Surely it is not an insignificant or unimportant aim that would at once place within easy reach of the toiling millions a source of health, recreation, and increased supply of wholesome and nourishing food. I cannot but think that in this rich and populous and enterprising country shareholders will be forthcoming sufficient to set the association fairly afloat, and that once at work it will prove not only self-supporting, but yield a fair interest to the shareholders for their capital. I derive great encouragement from the fact that the love and practice of gardening among the humbler classes is to a great extent inherent, and is rapidly increasing, even under the difficulties which at present usually beset it, and it is reasonable to suppose that it would take a considerable development if small plots of suitable land in accessible places could be rented at a fair value. In the face of this fact there would, in my opinion, be little risk, and the prospect of a fair profit if representatives of the towns and villages in England were to rent land easily accessible, with the view of re-letting it to cottagers, artisans, and small tradesmen. A central association in London, inviting the towns and villages to form branches under local committees of their own choosing, conforming to one central code, except in minor matters, should meet with a ready response. No heavy responsibilities need be incurred, the expenditure in any one district being regulated by actual demand. No doubt there would in many districts be a difficulty in acquiring

Suitable land, but that difficulty does not seem insuperable, and is probably less now than at any recent period. But it may be said all land is not suitable for cottage gardening. Certainly not. In choosing land for cottage gardens there are many points worthy of being taken into consideration, such as position, quantity, quality, and rent. There is no position equal to that attached to the cottage, and where it is possible to acquire land adjoining cottages without land and attach it to them this would be the greatest boon. The cottages of our large landed proprietors usually have a small garden; but how often do we see rows of cottages existing and still being erected back to back with scarcely more land attached to them than the cottages stand on. In London and the immediate vicinity of large towns this may matter but little as regards gardening, however valuable a plot of land might be to the cottagers as a playground or drying-ground. But in positions where soil and climate permit of successful gardening, on sanitary and social grounds, no cottage should be allowed to be built without a portion of cultivatable land being attached to it, and I do not think that I am exceeding the bounds of propriety in urging this point on the attention of our local boards and rural sanitary authorities under whose supervision all plans of proposed new buildings must now necessarily pass. If they have not already the power of enforcing this it should be

given them by Act of Parliament. I should like, too, to see every country school teaching at least the elements of gardening, and every agricultural and horticultural association owning or renting a plot of ground and organising a plan by which they might re-let to the cottager and aid or advise him otherwise in his undertaking. If land cannot be obtained adjoining cottages, it should be as near to them as possible. A walk of a mile or two may not matter to the sedentary man who is constantly sitting at his work, but to the ordinary labourer who is standing or walking as well as working all day it is laborious and distasteful, and it involves a serious loss of time. Where towns are large and land in their immediate vicinity usually dear, a cheap railway fare to some appropriate spot would be a boon, and is probably one which railway companies might be disposed to grant. Nor am I sure that railway companies might not be disposed otherwise to aid the association. The unoccupied land adjoining many railway stations is wisely allowed to be cultivated by their *employés*, and they have other unused spaces which might be made available for cottage gardening, due provision being made for the safety of their traffic. Land taken for cottage gardens should be free from the proximity of large trees, although a certain amount of shelter if without shade and root intrusion is usually an advantage. If water is come-at-able, so much the better, as crops are often starved and sometimes lost for want of water in the dry weather. As to the

Quality of the land, the richer the better. It certainly should not be of that poor material known as a hungry soil. If not rich, it should at least be a soil that will answer to the application of manure at the hands of those who may choose to apply it. Poorness of soil is, however, of least importance in the vicinity of large towns, as manure there is usually cheap, and sometimes of no money value whatever. Land taken for cottage gardens should not be of a character that becomes too hard at times to be worked by manual labour; hence strong clays are objectionable; on the other hand, soils so loose and porous at the surface, or so near to sand or gravel that rain passes rapidly through them, are equally objectionable; what is commonly understood as a medium loam is the best of all soils for cottage gardens. It should, if possible, be a soil that will work at all times. The cottager, whose time is not often at his own disposal, ought not to have to wait for the soil to be in a proper condition to work; it ought to be ready at all times to suit his leisure. Depth of soil as well as texture or substance should be taken into consideration. Depth compensates in some measure for want of solidity, as the roots of plants will push deeper in light than in heavy soils in search of nourishment and support. A wet soil is always objectionable, and unless such can be thoroughly drained before the allotments are set out, it should be scrupulously avoided. With regard to the

Size of the allotments, they should, perhaps, vary from 10 poles to 40 poles each. A man with a family of boys would easily cultivate a much larger plot than one without them, and the larger plot would be a greater boon in finding them healthful and profitable employment in their leisure, and in providing a larger stock of vegetables and fruit for household use. Again, a man whose daily employment was gardening or similar work might probably not care for so large a plot as one whose occupation was sedentary, or whose hours of labour were less prolonged to whom digging, hoeing, and the various out-of-door operations of gardening would be a change. In every branch of the association there would, of course, be a separate managing committee, and this, with other matters of practical detail, would require a discriminating adjustment at their hands. If a large plot once granted was found to be indifferently cultivated, a smaller one should be substituted for it after due notice. There should be a cart road touching one point of each allotment, and a pathway for a wheelbarrow traversing its longest side. These, then, are what I should

consider the principal requirements of land purchased or rented for cottage gardens. It is probable that all these advantages will be rarely found in combination, but although all are desirable, all are not necessary for profitable gardening. Hence, in order to secure the right thing, a thorough practical knowledge of the nature and capabilities of land in those who have the purchasing or renting of it is of the very highest importance.

The question of rent is one for each committee of management to settle; it must necessarily vary in different localities and under different circumstances. Supposing a piece of land to be taken at £4 an acre, it would seem that the rates of 7s. 6d., 15s., 22s. 6d., and 30s. per allotment of 10, 20, 30, and 40 poles would not be an unreasonable charge for small plots after division, in order to cover preliminary expenses of management and any deficit caused by occasional non-payment of rent. If this proved too great a margin (and the preliminary expenses would be found to vary considerably), the surplus under this head might be returned to the tenants *pro rata* after the yearly balance of accounts was struck. It would doubtless be a safe plan to insist on the payment of rent in advance, but this, I fear, would shut out some whom it would be very desirable to reach. However, a difference might be made in the rental in favour of those who were willing to pay their rent in advance. There is one very important point in which the various managing committees might render essential service to the holders of allotments, namely, in securing for them the best quality and most suitable varieties of

Plants and seeds on the most advantageous terms. Bad seeds and plants are a serious loss to the cultivator, and it is best known to those who have had the most practice in gardening that some sorts of vegetables, fruits, and flowers are more profitable to cultivators than others. For instance, some varieties of Cabbage have the habit of spreading their leaves in such a manner that they occupy twice the space required by others without giving a corresponding return in the size of the heart. Again, some varieties of vegetables and fruits are more delicate and some less productive than others. To grow such, even if the quality were a shade higher, which however is not always the case, might suit the pocket of the rich, the taste of the epicure, or the skill of the educated gardener, but would hardly be a wise economy on the part of the cottager. A committee, or some members of a committee, might reasonably be supposed to know which were best or most suitable, and willing to use their knowledge for the advantage of the cottager. Such a committee or sub-committee recommending and supplying seeds and trees at cost price, would be likely to render him an essential service, by securing for him the most suitable article at the smallest cost. But of course, it should be optional on the part of the tenant whether or no he avail himself of the offer. Let us endeavour to show how this might be worked out. Suppose the committee offer to do this on condition that the cottager send in a list of his wants by a certain date, specifying quantities and varieties also, if he prefer doing so. These lists, when collected, should be sent to a reliable nurseryman or seedsman, who would likely sell a quantity at a lower price than he would charge the individual for the small quantities he would require to purchase. Cash payments would of course be required in this case. I have already mentioned that one cottager with whom I am acquainted admitted taking no less than £10 in prizes at one cottage show.

Cottagers' shows of vegetables, fruit, and flowers are very useful in stimulating the cottagers to exertion, but they should be so managed that no one exhibitor can take all the leading prizes, and they should draw the cultivator as a friend. The exhibitors should be divided into three classes—(1) cottagers whose ordinary occupation is other than gardening, (2) cottagers who

are employed in nurseries or private gardens, and (3) shopkeepers or small tradesmen, separate and distinct prizes being offered to each class of exhibitors. No person should be eligible to compete for prizes who rents a cottage at more than £20 a year. The largest number of prizes should be for vegetables, the next for fruits, and the next for flowers. The weight or number of each exhibit should not be large. In addition to the prizes for productions of the garden, the show would almost certainly be rendered more interesting and more useful if small prizes were offered to children for collections of wild flowers. The exhibits should be judged by gardeners or seedsmen, men of character and knowledge, that the awards may not be open to the suspicion of favouritism or incompetency, and that the articles brought to the front may be accepted as standards of excellence. The practical teaching conveyed by the awards of such men would be valuable to the cottager as a guide for the future, provided all exhibits were labelled with their proper distinguishing names. Perhaps there is no feature of cottage gardening as it is and has been in which the ideas of charity and patronage occasionally come out so disagreeably as at the cottagers' show. Let anyone enter the tents of certain of these exhibitions on the morning of the show when the cottager is bringing in his exhibits, and note the movements and bearing of some of the managers, subscribers, and patrons. I say a good many of them, because the ill-timed assumption of social superiority is not universal, nor even general, but it is nevertheless too common to pass without a word of comment. Sometimes the manager of the show seems to expect from the cottager the same amount of courtesy and address to which he is accustomed in the refined and educated circle of society in which he ordinarily moves, and grows indignant at the freedom, or irritated by the want of ready intelligence which he meets with. Hodge is civil of course, but he is probably excited and on new ground. If brusque in manner and slow in understanding "rules and regulations," this should not be imputed an offence. He does not mean it to be so, and can only shine according to the light that is in him. It has always seemed to me that the custom of accepting

Special prizes from individuals is open to objections, although I am sure they are usually offered from high and generous motives. At the ordinary flower show some nurserymen look on these as advertisements of the cheapest and most remunerative class, and perhaps their acceptance may be excused there on the grounds of finance; but at the cottage show, where very small money prizes are given, special prizes surely are not needed, and at both they open the door to a compromise of independence. Mr. A., whose sympathies are wholly utilitarian, gives 3s. and 2s. for the best and second best dish of Potatoes. Mr. B., who rejoices in the superiority of an æsthetic nature, gives a like amount for the best arranged bouquets. Mr. C., who is fond of the table, supports the cultivation of fruits; while Mr. D., who is of a domestic turn, offers 5s., or perhaps a guinea, to the domestic of unexceptional character who has lived longest in the same family. When the prize cards are placed on such exhibits, the names of the donors, as John Brown, Esq., are written in a large bold hand, while you must put on your spectacles to read the name of poor Hodge, who by his industry and skill has made two pecks of Potatoes grow where but one grew before. Again, when the prizes are distributed on the ground, which they often are in the afternoon of the show, the distributor has been known to give some kindly words of advice in the face of the company to some of the triumphant prize-takers. Now, I do not say that these mistakes and intrusions overbalance the good which results from the cottagers' show as it is, but I do say that they reduce the value of it, and are unworthy of the issues which naturally hang upon successful cottage gardening. If a cottagers' show is held in connection with cottage gardening, it should not be principally an outing for the local residents at large, but an exposition

of cottage industry and skill, and a gala day for the cottager.

WILLIAM PAUL.

Waltham Cross.

INDOOR GARDEN.

CHRYSANTHEMUMS IN POTS.

As the blooming season as regards Chrysanthemums is nearly over, and we shall soon have to commence operations for another year, I should like just to make a few remarks on their cultivation. The past season has, I should imagine, judging from the different collections I have seen and the different accounts I have read, been a very successful one. Abundance of bloom can only be had, through well ripening the wood, at the end of the summer. This I find is quite as necessary in the case of Chrysanthemums as in that of fruit trees. The past July and beginning of August were just what we wanted for ripening, which perhaps accounts for the large quantity of bloom which we have had. I secure my cuttings in March, pot them as soon as they are rooted into 6-inch pots, and as soon as possible I get them outside on a bed of coal ashes, where they can have plenty of light and air. As soon as they have filled their pots with roots, I give them their last shift into 8-inch ones, using a mixture of good turfy loam and well decayed horse-droppings. An old Mushroom bed is just what is wanted; then when I think they have filled their pots again with roots, I begin feeding them with liquid manure, guano water, or the drainage from the stable, both of which seem to suit them well. I find treating them in this manner to be much better than overpotting, as large pots encourage them to make rank growth, which cannot ripen, and consequently it becomes infested with mildew. Stake the plants as early as possible, and I find that growing them as bushes is best, although the finest collection I ever saw was grown as standards. In a long corridor they had a fine effect, but to grow standards one must have plenty of room, and bushes will give plenty of bloom if properly managed. It is a good plan to leave them outside as long as possible if in a well protected place, and mildew can be kept in check. As soon as frost sets in I bring my plants indoors, and give them all the light and air I can, ventilating all day and always watering early in the morning, so as to get the house quite dry by closing time; then the house is free from evaporation, which encourages mildew. By the treatment just described we preserve all the bottom foliage, which greatly adds to the beauty of the plants. I have two varieties just coming into flower, viz., Meg Merrilies and Sarnia, both whites; by keeping these two pinched in until the latter part of August, they will furnish a good basket of white flowers on Christmas Day.

W. R.

Melksham.

LUCULIA GRATISSIMA.

THIS fine late-flowering plant is certainly not grown so much as its beauty and delightful fragrance entitle it to be. It is a native of Nepaul, and was introduced in 1823. It is allied to the Peruvian Bark plants, amongst which it was originally placed by Wallich. The temperature of an ordinary greenhouse is hardly warm enough for it. It succeeds best in an intermediate temperature that is something between that of a plant stove and a greenhouse. It succeeds tolerably well as a pot plant, but is most at home when planted out in good soil and trained to the back wall of a lean-to structure or to the pillars or roof of a warm conservatory. It will also succeed well planted out in the pit or borders of such a structure, and grown in the form of a bush. A well-grown specimen in this form when in bloom is a most attractive object, independent of its delicious perfume. If trained to a wall or trellis of any kind it will bear cutting closely back, and this, if found necessary, should be done as soon as it has ceased flowering. It requires plenty of root room, and on this account succeeds better when planted out than where its roots are confined to a pot, and its foliage main-

tains a more healthy and rich appearance. But, whether planted out or kept in a pot, it ought to have abundance of water when growing, as if allowed to become too dry at the root when in that condition it is very likely to be attacked by thrip, the only insect enemy to which it appears to be liable. This, however, may generally be kept under by the use of the syringe and clean rain water, and, failing this, recourse must be had to fumigation. It is a plant considered somewhat difficult to propagate, but young plants can generally be purchased cheaply enough in any nursery. It is, however, increased by cuttings, which strike root somewhat strongly, it is true, yet with tolerable certainty. To accomplish this the cuttings should be taken off early in February, if possible with a heel, and inserted in well-drained pots, say 6-inch ones, a size generally found most convenient. The cuttings will be found to root most readily in pure silver sand, or a portion of finely-sifted leaf-soil may, if thought desirable, be mixed with it. After being inserted they should be well watered with a fine-rosed watering-pot, and when the foliage has become dry a bell-glass should be placed over them. The pots should then be set on a shelf in a temperature of not less than 65°, and they should be shaded during bright sunshine. When they are found to have become callused, the pots should be plunged in a brisk bottom heat, when they will soon emit roots; but if subjected to bottom-heat when first inserted, they are apt to damp off. The bell-glasses should still be kept over them until they begin to grow, when they should be removed. As soon as the cuttings have become well rooted they should be planted singly into small pots, and afterwards transferred to pots some 5 inches or 6 inches in diameter, in soil composed of about equal parts light turfy loam and fibrous peat. With proper attention and the advantage of a growing temperature, such plants will be large enough to flower somewhat late during the following autumn, and will be useful for decorative purposes. If the same plants are shifted early in the following spring into pots of larger dimensions they will, with proper attention as to watering, staking, stopping, &c., form fine-flowering specimens for the succeeding autumn. Some years ago the back wall of one of the plant houses in the gardens of Farnham Park, near Bury St. Edmunds, was clothed by a fine specimen of this plant, which annually furnished an abundant supply of blooms for cutting, as well as filling the atmosphere of the structure with its delightful perfume; and there used to be a noble bush of it in the great conservatory at Chiswick in years gone by.

P. G.

SHORT NOTES.—INDOOR.

Chrysanthemums.—Would any correspondent of THE GARDEN tell me if there is any large flowered variety of Chrysanthemum, Chinese or Japanese, of the same colour as Julie Lagravère?—D. E. W.

Seedling Lapageria (M. & Co.).—Handsome, but not so much so as some of the best varieties of *L. rosea* now in cultivation—at least in its present state—but it may yet improve.

Bleached Palm leaves.—How are Palm leaves bleached for winter ornament like those used in Italy on Palm Sundays? and is it possible to subject *Latania* to the same process as Date Palm leaves?—D. E. W.

Petunias.—Will some one kindly give me the names of six Petunias for exhibition, three double and three single, and how to treat them?—U. H.

Show Pelargoniums.—Would some one kindly give me the names of the six best Pelargoniums in cultivation for show purposes? also should I nip off the flower, or should I nip the wood, and when should such nipping be done? Any information on these matters will be gladly received.—G. H.

Boilers.—I shall be very glad if any of the readers of THE GARDEN can give me any information from practical experience relating to the working of Keith's patent sectional challenge boilers, whether they can be worked successfully, and what fuel and management are necessary for their successful working. Are they found more economical than other boilers?—W. M.

Roman Hyacinths and Violets.—Few flowers pair better than these two, and in this mixture the single Victoria Violet is preferable to the charming Marie Louise. A groundwork of the Victoria Violet with a thin crop of delicate spikes of the white Roman Hyacinth is the perfection of furnishing for small baskets, dishes, or vases. The contrast of colours as well as of odours is simply charming. Probably some of the white Bouvardias look equally well and even more elegant. But then very few of these stand well or long in water; whereas the Violets and Hyacinths are both very durable. The smaller spikes or mere offsets are the most suitable for use associated with the Violets. By the way, blue or purple Roman Hyacinths used to be offered by the trade to growers. They seemed, however, to be an inferior sort of our own wood Hyacinth. Could a really good early blue Roman Hyacinth equal to the white be produced and offered in quantity, the two would form a mixture probably as beautiful, though hardly so spring-like and fragrant, as that of the white, crowning a ground line of Violets.—D. T. FISH.

Oil stoves.—"T. P." (p. 482) asks for information as to the possibility of heating a greenhouse by means of an oil stove. If the object is merely to exclude frost, doubtless many of the oil stoves now in use will do that. I have lately seen several small conservatories attached to villa residences in this locality kept at quite a comfortable intermediate temperature, say from 40° to 45°, by means of oil stoves, while several degrees of frost were registered outside. I made a special visit to some so heated early in the morning, and found the oil stoves burning brightly and the temperature all that could be desired, and there were no unpleasant smells or fumes of any sort. In the cases mentioned the structures heated were about 10 feet wide by 12 feet long, and connected, as many such structures are, with the dwelling-house. In fact, the drawing-room windows opened into them, and imparted to them a good deal of warmth, and from their generally sheltered position they require less heat to exclude frost than a span-roofed house in the open exposed to every wind that blows.—JAMES GROOM, *Seafield, Gosport.*

NOTES OF THE WEEK.

APPOINTMENTS FOR THE WEEK.

Dec. 12.—Royal Horticultural Society: Meeting of the Fruit and Floral Committees at Kensington.

VAN HOUTTE MEMORIAL PRIZE FUND.—At a committee meeting held in reference to this fund on the 14th ult. it was decided to offer at the approaching Quinquennial Exhibition at Ghent, for competition among Belgian exhibitors only, two prizes consisting of works of art each of about the value of £12, one for stove and greenhouse plants in flower remarkable for fine cultivation (Orchids excepted); the other for eight varieties of *Imantophyllum* in flower.

ECHEVERIA RETUSA SPECIOSA.—In the last number of the *Revue Horticole* this handsome succulent plant is the subject of a coloured illustration. Its flowers bear a strong resemblance to those of the common *E. glauca*, but are of a much brighter orange-scarlet, and more plentifully produced. *E. retusa* is a native of Mexico, but the variety under notice was found by M. André at Nice, where it is largely grown for sale for decorative purposes in winter. It is also known as *E. retusa rubra*.

INFLUENCE OF MINERAL COMPOUNDS ON PLANTS.—A contribution to the settlement of the question as to how far the vital processes of plants are influenced by various mineral compounds presented by the soil to their roots has been made by Mr. F. C. Phillips, who has carried out a number of experiments with *Pelargoniums*, *Coleuses*, *Ageratums*, *Achyranthes*, and *Pansies*, planted in soils containing one-half per cent. of carbonate of zinc, copper or lead, or arsenate of lime. The

most strongly marked effect was observed to be produced by the arsenate of lime, and from the general results Mr. Phillips concludes (1) that healthy plants grown under favourable conditions may absorb through their roots small quantities of lead, zinc, copper, and arsenic; (2) that lead and zinc may enter the tissues in this way without causing any disturbance in the growth, nutrition, and functions of the plant; (3) that compounds of copper and arsenic exert a distinctly poisonous influence, tending, when present in large quantity, to check the formation of roots, either killing the plant or so far reducing its vitality as to interfere with nutrition and growth. It will be obvious that these conclusions have an important practical bearing upon the extensive use of Paris green (arsenic of copper) as an insecticide.

RIDDLEDOWN.—The Corporation of the City of London has acquired the manorial and other rights over a considerable extent of common land on the Surrey Hills, called Riddlesdown, by which it is hoped to secure to the public for ever the advantages belonging to this delightful resort. Riddlesdown is a long, irregular ridge of chalk, clothed with turf, and dotted here and there with clumps of Furze. For two miles or more it follows the winding course of the Godstone road in a south-easterly direction along the valley to which its green sides slope down, to rise again very quickly towards the opposite heights of Kenley and Coudson. The best service that can be rendered to Riddlesdown is to leave it in the wild condition in which it now is. Any attempt to improve it would rob it of half its interest.

POTATO DISEASE.—To obviate this, M. Jensen, of Neuilly, recommends, according to *The Florist*, three things: 1, "protective moulding," which will secure the crop to such a degree that, as a rule, you only find a trace of disease on lifting; 2, "protective lifting," or late lifting, which is to lift two or three weeks after the complete decay of the leaves, so that the tubers may not be exposed to the millions of spores on the green Potato shaws; and 3, "protective storing," which means burying the tubers in dry sand or dry earth, the sand being usable year after year without risk. By adopting this protective system, and taking care that it is well carried out, as explained in a pamphlet by M. Jensen, that gentleman maintains that the Potato grower will be master of the disease instead of being mastered by it, as he will be so long as he adheres to the old customs.

FLORA OF MADAGASCAR.—At a meeting of the Linnean Society, held on the 16th ult., Mr. J. G. Baker read a paper on the flora of Madagascar. It contained descriptions of 140 new species of polypetalous dicotyledons, obtained by the Rev. R. Baron and Dr. G. W. Parker. Some are of widely-diffused tropical genera, such as *Eugenia*, *Crotalaria*, &c.; others are of more familiar temperate types—*Alchemilla*, *Clematis*, and *Polygala*. Still others are characteristic of the Cape flora now noted for the first time from Madagascar, such as *Sphegamnocarpus* and *Sparmannia*. There is an interesting new genus of *Malpigiaceæ* (*Microsteira*) allied to the American *Hirea*. Representatives of *Hibbertia* and *Rulingia* are interesting, from their being characteristically Australian genera. Mr. Baron has rediscovered *Rhodolena altivola*, a showy plant, originally found by Du Petit Thouars a century ago. Dr. Parker has paid special attention to the drugs, esculents, and timber trees of the island, and catalogued 300 native names of the same.

MATERIALS FOR PAPER-MAKING.—Dr. King, superintendent of the Royal Botanic Gardens, Calcutta, states that amongst materials for paper-making, Plantain fibre has occupied some attention. It seems that during the dry months simple exposure of the sliced stems to the sun is a sufficient preparation for the paper-maker, provided the paper-mill be on the spot. What is still wanted is some cheap mode of removing the useless cellular tissue, so that the fibre may be shipped to England without the risk of fermentation during the voyage. The cultivation of the Plantain for its fruit is so universal over the warmer and damper parts of India, and its growth is so rapid, that the

conversion into a marketable commodity of the stems at present thrown away as useless would be an appreciable addition to the wealth of the country. The paper Mulberry of China and Japan (*Broussonetia papyrifera*) is being tried in the garden, as well as in the Cinchona plantations in Sikkim, as it is well known that the bark yields a splendid paper material. A plant which appears to be at present unknown, but which Dr. King thinks will prove a species of *Eriophorum*, is also favourably reported upon.

BOOKS.

THE FLOWERS OF SHAKESPEARE.*

The title of this book is rather misleading. The book is in no sense an account of the flowers of Shakespeare, but is a collection of twenty-four plates, each containing a bunch of flowers and a quotation from Shakespeare. The posies are rather prettily grouped, and we should like to see the authoress's original drawings, for we suspect that the lithographer and colourist have done scant justice to them. The colouring throughout is raw and vulgar, and the outlines blurred and indistinct. The Lady's Smocks, all silver white, are represented a muddy lilac, and the Violets (of which there are several) are all wrong in colour. There are some literary mistakes which might have been avoided. Shakespeare's Lilies are not the Lilies of the Valley, nor is his Woodbine the wild *Convolvulus*. Some of the flowers we cannot make out at all. The title page is surrounded by blue and white Daisies unlike any in Nature, and the last page is adorned with a butterfly which is quite new to British entomology. Altogether it is not a satisfactory volume, though it may pass muster as an illustrated gift book for Christmas.

"The Gardener."—We regret to announce the loss of a useful member of the horticultural fraternity which did good work in its day. The following circular has been sent to subscribers to *The Gardener*: "The publishers beg to inform subscribers that with the present number the publication of *The Gardener* will be discontinued. After having held its ground longer than almost any other gardening monthly, the demand for a rapid succession of information and news connected with horticultural subjects has placed monthly periodicals at a disadvantage.—December 1, 1882."

Luminous paint.—Can anyone inform me whether or not this would be injurious to plant life, and would the complete absence of darkness prevent the plants from resting?—M. or N.

Caterpillars (*J. E. Waiting*).—The caterpillar which was feeding on your *Chrysanthemums* is the caterpillar of the Cabbage moth (*Mamestra brassicae*); the best means of destroying it is to pick it off by hand. The wasp was an ordinary queen, which had probably been disturbed in its winter quarters. I could find no beetle in the box; besides the caterpillar, wasp, and leaves there was only the shrivelled up cast skin of a caterpillar.—G. S. S.

Names of plants.—O. R.—1, *Selaginella casia*; 2, *S. stolonifera*; 4, *S. caulescens*; 5, *S. involvens*; 6, *S. Schottii*; 7, *S. Mertensii*; 9, *S. viticulosa*. The numbered specimens omitted are either too small or damaged. Please remember our rule is to name but four plants at a time.—R.—*Cypripedium venustum*.—W. H.—*Epidendrum ciliare*.—G. Nisbet.—*Linum trignum*.—C. D. M.—*Oncidium varicosum* Rogersi.

COMMUNICATIONS RECEIVED.

B. & W.—E. S.—W. C.—J. J.—W.—*Sylvestris*—W. R.—V.—H. L. B.—J. G.—F. L.—J. S. & Sons.—H. K. G.—J. R.—J. D. E.—W.—H.—H. D. C.—*Cambrian*.—F. & Co.—C. & Co.—A. R.—J. D.—C.—J. C. & Co.—J. P.—W. W.—J. & B.—T.—R. H.—R.—G.—J. C.—G. H.—J. S. W.—W. T.—J. H.—J. D.—F. C. B.—J. S.—C. C.—Messrs. D.—L. S.—T. K.—J. S. W.—W. R.—W. J.—J. M.—C. G.—T. D. H.—W. J.—J. W.—W. M.—J. C.—A. D.—J. D.—G. C.—W. R.—J. L. S.—T. S.—W. D.—A. S.—J. B. & L.—E. M. N.—*Cambrian*—J. C. C.—J. G.—G. S. S.—D. T. F.—E. W.—L. Bros.—J. R. J.

* "The Flowers of Shakespeare." By Viola. (Samson Low & Co.)

"This is an Art

Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

COLOUR IN THE FLOWER GARDEN.

"J. D." has gone very exhaustively into this question of colour (see p. 499), but as my article was principally intended for the "small amateur," I am unwilling for the said amateur to consider it consigned to limbo as "misleading" without my breaking a lance in favour of the complementary theory. Nothing in my remarks will be found to imply the comparison that because Apple pie eats nicely after roast beef, they are bound to make a nice dish in mixture. To carry the simile a little further, I would have gone with the writer had he extended it to the eating of Apple sauce with roast goose (which I hope to do on Christmas Day), or the use of jelly with hare, haunch of mutton or venison. Nor yet can I agree with him when he says the theory on which my article is founded "has long been proved to be totally wrong," seeing that it is taught to-day in our scientific books on colour and practised every day by every artist. If we even go down to our "mural literature" we find the colour printer most careful in his contrasts and harmonies—I mean the artistic colour printer—his very secondary and tertiary hues being produced by overlapping his primaries. If we notice the most perfect stained-glass windows in our cathedrals, we find the primary colours constantly repeated and echoed in various shades, but yet the complementary code is always adhered to. Now, as we read in the fairly tale of the toad in the well and his adventures in search of "more light," so by pursuing this subject a little further a scintillation may strike someone, and myself, I hope, with advantage.

All that is said on the vibration theory of light *versus* the atomic theory is quite correct, but the practical application of the remarks only supports the few simple canons I enunciated: (1) that if any two primary colours are placed in juxtaposition without their complementary or completing third, there is discord; (2) that red harmonises with green, yellow with purple, blue with orange, thus introducing secondary colours; (3) that browns, greys, and olives amongst tertiaries are perfect harmonies. Therefore, until we are furnished with a list of harmonious arrangements, built up without calling the complementary code to its assistance, my remarks must hold good for the guidance of the particular class of cultivator I alluded to, viz., him whose garden or purse is not extensive enough to enable him to attempt more complex arrangements. When this new code is brought to the front and accepted by our artists, I will admit the downfall of the complementary theory. This may happen if ever the time arrives when the "music of the future" proves the harmonious combination of the notes do, me, soh sounded simultaneously to be discord; and as no theory of sound waves is likely to do this, so I apprehend no theory of light waves will ever prove discordant combinations to exist where there is evident harmony. The carpet alluded to by "J. D." of orange and blue in various degrees of strength—orange being composed of red and yellow—surely goes to support my remarks; and again, in the colour arrangements of eastern na-

tions, which are brought up in evidence, the three primary colours perpetually assert themselves in company. If in this carpet a beautiful harmony was produced, shall we be told that a room upholstered in "blue and gold makes a discord as horrible as two German bands playing tunes in different keys?" There is an admission here, by inference at any rate, that there are keys of colour as well as of sound; and if so, why are they not forthcoming apart from the complementary code?

Now, for practical good to be drawn from this correspondence, it is surely necessary to eliminate from it vexed questions of spectrum analysis *versus* the compounding of pigments. The necessity for doing this will be evident when I mention the opposition of the two subjects in mixing primaries—i.e., red, yellow, and blue light when mixed produces white, whereas the same mixture in pigments gives black. We want perpetually before us in the garden the knowledge of a few simple laws to guide us in planting, and such I have endeavoured to recapitulate. My remarks were not made in support of the bedding-out system, a system I dislike because of its unnaturalness, and which is scarcely practicable in small gardens. Yet "J. D.," in speaking of blunders committed in bedding, says, "If reds, blues, yellows, and oranges had been used as the soft neutral greens of succulents are now used in carpet bedding, there would have been little to find fault with as regards colour." This is surely in support of the complementary theory. So also in his concluding sentence, for he says, "After the eye has been feasting on the gorgeous reds and yellows of a collection of show Tulips it will be just in a fit condition to appreciate blues, and may pass to a collection of choice Delphiniums." Yet though I did not allude to bedding-out, I did say that the laws of colour harmony were applicable to the smallest as well as to the more extensive efforts in garden decoration; and if the unhappy bedder-out will apply the code by arranging his ribbon borders in distinct trios when using simple colours, for example, scarlet Pelargoniums, yellow Violas, and blue Lobelia, he will produce a harmonious agreeable effect, and (although absolutely colour-blind himself) possibly spare his friends or employers an infliction in consequence of his "want of taste."

No good at all can be effected by importing into the argument abstruse questions as to the correctness of either the atomic or the vibratory theory of light and colour. Suffice it that the application in our gardens of practical facts in artistic grouping will bring about tasteful arrangement, sweetness, and light where hitherto has been chaos, unless indeed the gardener has been gifted with an artistic eye. I must, very humbly, beg to differ with "J. D." when he says, "People who have no natural perception of colour cannot be trained to arrange colours harmoniously by any code of rules;" and though the existence of such people is very exceptional, I hold that by committing the names and arrangements of the complementary code to memory, and asking what colour their flowers would bear, a correct harmony could be made, just as one totally void of musical ear could be taught to strike a few simple chords on a piano. So in the garden let the colour-blind strike a simple third at any rate, and let him also who is endowed with only average natural perception gather from the whole subject some little information on the question of colour which may enable him to appreciate a few of the subtler

chords struck by more gifted cultivators, and gradually educate himself to duly appreciate those wondrous tones in the harmony of Nature, always before our senses and arranged by the Great Gardener. Our poets have shown us there is word music; our artists, colour music and our musical composers, tone music; and perhaps it would not require such a very high flight of the imagination to picture a host of trinities throughout the whole world, as to fill the mind with awe, and make it recoil from further contemplation; or else, lost in admiration of the marvels of created and developed beauty, seek a development of the appreciative faculty. Such we may do each in his own garden, be the same a Belvoir, a Cliveden, or only a few square yards in town.

R. A. H. G.

Horsforth, near Leeds.

ROSE GARDEN.

ROSE GLOIRE DE DIJON AS A WINTER BLOOMER.

It has often been said, and can hardly be too often repeated, that, take this fine Rose for all and all, we can hardly meet its like again. But of all its many merits, that of blooming right up to or right through the winter is among the most valuable. It is at once among the hardiest and most perpetual blooming of all Roses. The first quality has hardly been so often adverted to or fully recognised as it deserves. As a Tea Rose it stands alone in vigour and hardness of constitution. Amid the many and wholesale slaughter of the innocents, so painful to the rosarian, few have ever had to mourn a Gloire de Dijon among the slain; and it not only withstands the cold, but blooms on in spite of it. Though a frost of ten or more degrees binds its swelling buds in iron fetters to-day, a genial change has only to invite them to open on the morrow, and forthwith they expand as if nothing particular had happened in the interval. This capacity of being frozen with impunity is one of the most valuable characteristics of this fine Rose. The majority of Roses once severely frozen are crippled for the season; the shoots are injured, the blooms robbed of their colour, or fragrance, or both. But those of the Gloire de Dijon retain both colour and perfume, and seem little or none the worse. Probably part of this immunity from injury from cold arises from mechanical causes. The form and substance of the buds of Gloire de Dijon are well fitted to exclude moisture and resist frost. They are so full of Rose leaves as to afford no room for water, which falls off them almost as freely as off a duck's back. The form as well as the substance of the buds also assists in shedding off the moisture. Doubtless, too, the extreme doubleness and consequent compactness of the flowers arrests to some extent the penetrating power of the frost. Be all that as it may, the fact is patent that the Gloire de Dijon withstands cold better, perhaps, than any other Rose in cultivation.

On south or west walls there are few days from May to January on which half or fully opened buds of this Rose may not be gathered. It also does well on east and north walls, and on every possible mixture of all the cardinal points. In fact, where room can be found on walls, house, outhouse, stable, or fence, Gloire de Dijon Roses should be planted in every available aspect. This will do very much indeed to create and sustain a continuous succession of bloom throughout the year. This Rose should also be planted in mixed borders and shrubberies in beds and sheltered nooks and corners in all directions. It is also admirable for clothing arches, arbours, or summer houses, running up poles, forming pyramids, rough groups or bushes, or making hedges. A hedge of Gloire de Dijon alone, or with a few plants of Gloire des Rosomanes among it here and there for the sake of contrast is admirable.

No Tea and very few other Roses form finer or more effective standards than Gloire de Dijon; with skilful manipulation they can also be moulded into very effective weeping Roses, a form but seldom seen now-a-days. For such purposes only a few strong shoots, say from five to nine, should be allowed to grow, and bent down over a hoop or some other contrivance. These will then break and flower throughout a great portion of their length, and will form specimens of great richness and beauty—most unlike, in their flowing grace, the usual run of stiff and formal standard Roses.

But for sure crops of autumn flowers, running right into or through the winter, rather old and what may be termed stunted standard plants yield the most bloom. The autumnal harvests of beauty may be further enriched by the stopping of all the strongest shoots early in the season to within 6 inches or a foot of their base. They will then break back and produce several shoots each of less strength and much more floriferous. Should either of these secondary shoots prove abnormally vigorous, these might again be stopped in July or even as late as August, and from the fresh breaks thus forced probably the finest and most abundant crop of autumnal blooms and winter buds would be gathered, for it is emphatically true that either the weakest or the medium-sized shoots invariably produce the most and the best late autumnal or winter blooms. D. T. FISH.

LATE ROSE BUDS.

THOUGH the season has been cold and variable, Roses here have, on the whole, done fairly well. Late buds have been plentiful and good, and many of them have opened nicely on mild days. Queen of Bedders has been very fine; it is a good useful Rose, a good grower, and a most profuse bloomer; it will be grown very largely when it becomes better known. Géant des Batailles is a good useful Rose for furnishing a supply of nice buds late in the season; in hot weather the buds soon open out and spoil, but in September and October they are more lasting, and as they are produced plentifully, they are valuable. Gloire de Dijon is a well-known Rose, and one that is largely grown, its buds being in great request. With a plant or two against a wall, and a few standards in the open borders, buds can be had plentifully from the beginning of April till the end of October. Standards of this variety require a little management. If left alone they are apt to produce two or three shoots that will grow to 5 feet or 6 feet in length, and produce only one or two buds at the ends. Instead, therefore, of leaving these shoots to grow to this length, they should be stopped when about a foot long, when they will soon break, and throw out two or three young shoots each, and these shoots should also be stopped when a foot long, and they will break and each throw out two or three additional shoots; these last should not be topped unless in the case of a chance one that is growing too robust, when it should have its point removed. During September and October each of these shoots will produce one or more buds each. Standards that are kept stopped in this way are fine objects in the autumn, being covered with buds. When pruning in spring, the shoots should be well thinned, otherwise the heads will get too crowded. Souvenir de la Malmaison is another fine Rose, and is very useful for furnishing nice buds.—M. SAUL, in *Florist*.

Marechal Niel.—Are there two kinds of Roses under this name? "J. H. G." complains (p. 372) of the short period during which it blooms. There is one in a greenhouse here about four years old, belonging to a market gardener. I made its acquaintance in December, 1880, when I got some of its Roses, and from that time I got Roses from it every week up to August. Last December I again got Roses from it, and from that time up to October, when I got the last bud, amounting this year to between 300 and 400 Roses.—THOMAS R. HARRIS, *Chatham, Ontario, Canada*.

TREES AND SHRUBS.

HANDSOME EVERGREEN SHRUBS.

HARDY evergreen shrubs at no time appear to greater advantage than in winter, and if a garden is to maintain its character for cheerfulness at that season, the handsomest of the hardy evergreens must be freely planted. Allow me, therefore, to call attention to a few which, although well known, are worthy of a prominent position in all gardens whether large or small. The first I shall name is

The Elæagnus.—Of this there are two varieties known to me: one golden, the other variegated with silver. In all respects they are of equal merit; with us in the west of England they are perfectly hardy, and adapt themselves to any soil or situation. In growth they are moderately vigorous, forming handsome bushes about 6 feet high, and there is a degree of brightness about them that renders them very pleasing, especially when in the form of single specimens on Grass, a purpose for which they are eminently suitable where stiff formality is not required. They are also very suitable for the foregrounds of shrubbery borders. To me these plants never look better than in winter; the increased moisture and reduced light of the autumn months appear to bring up their colours much better than during summer. In point of colour the golden variety in our sandy soil will even compare favourably in winter with some of the best Crotons of our stoves. So distinct is the shade of yellow, that we cut the young shoots for house decoration rather freely in winter, and find them most valuable, as the stiff and leathery character of the leaves enables them to endure the heated air of warm rooms without deterioration for a week or more; not unfrequently they have to do duty even longer than that, and then seem bright and fresh compared with many other subjects.

Garrya elliptica.—Although this is oftener met with than the Elæagnus, it is by no means so much planted as its merits deserve; for it must I think be admitted that this Garrya is a winter flowering evergreen *par excellence*. In character of growth it resembles the Elæagnus, but in appearance it is altogether distinct, and when early frosts are not too severe to injure its flowers the long tasselled spikes that droop so gracefully are to my mind particularly refreshing. Like the preceding, we also cut the Garrya pretty freely for indoor decoration. These two plants and some flowering branches of *Laurustinus* tastefully arranged with a few bright flowers in a large vase make no mean ornament on a dull day in the month of December. We find no difficulty in growing the Garrya in any kind of soil or situation, but its proper place is no doubt in the front line of a choice shrubbery border. It is, probably, quite hardy even in the north of England; here, in the west, the severest winters do not injure it. The proper time for transplanting this plant I consider to be the month of April.

Osmanthus ilicifolius.—There are two varieties of this shrub, one dwarfer than the other, but of both there are white variegated varieties, and in appearance their leaves are very similar to those of a Holly. In the west of England they grow vigorously, and are very suitable for small beds or for the front lines of shrubberies. Where the soil is heavy, it is a good plan to see that the station for the plant is well drained, and that about one-third of peat earth is added to the soil. Though hardy in the west, I cannot say for certain that they will prove to be so in the northern districts of the kingdom.

Holly Golden Queen.—Although this Holly may be well known, I am persuaded that its character as a decorative object, when grown in the shape of a single specimen on Grass and under favourable conditions, is not so much appreciated as it should be. Several specimens of it hereabouts grown in this way are noble examples of what this Holly is capable of becoming when it has sufficient room for

proper development, but in crowded shrubberies it has no chance of showing its true character. To obtain well-developed examples of it it is necessary that the soil should be of good depth and not of a calcareous character, and plenty of room must be allowed the plant on all sides for the branches to have light and air. A well-formed plant should also be selected for planting in the first instance, and then it will be best to leave it alone and let it grow in its own way. It requires time, no doubt, to secure plants of such fine growth as those to which I have alluded, but when once obtained they are at all times, both in winter or summer, very striking objects. J. C. C.

Populus alba Bolleana, a new variety of the Abele from Tashkend, in Turkestan, promises to be a valuable addition to ornamental trees. Its chief and distinguishing character is its fastigate or columnar habit of growth, which, added to the beauty of its foliage, makes it a very striking tree. It is of quite a distinct aspect from the common Lombardy Poplar.—W. G.

Philadelphus microphyllus.—Of this new Californian shrub, M. Max Leichtlin, of Baden-Baden, writes in the *Florist* that it is of pigmy growth, and well adapted for planting on rockeries of limited extent. It proves to be quite hardy in his garden. The flowers are as large as a shilling and deliciously scented, the scent, which is strong, being something like that of the Strawberry. It has been introduced into Europe by Professor C. S. Sargent, of Harvard University.

Spiræa crispifolia.—This name turns out to be incorrect, and not to belong to the pretty little miniature described in *THE GARDEN* recently by me, having lately received it under this name from a Belgian nurseryman. The plant has now been recognised by the learned Russian botanist, Maximowicz, to whom specimens were sent for identification, as *Spiræa bullata* of his monograph of the family, and this name accordingly it should henceforth bear and be designated by.—W. E. G.

Half-hardy and variegated trees and shrubs.—What has been written in *THE GARDEN* regarding "herbaceous rubbish" forcibly applies to many worthless trees and shrubs that have been introduced of late years, and of which it may be truly said, selection has given place to collection. In visiting some nurseries, but more particularly private grounds, how often is one confronted with miserable, half-starved specimens of so-called new or rare conifers, that are more fitted for the rubbish heap than to remain as monuments of mercy and eyesores to all beholders. Not a whit behind these are many of the variegated trees and shrubs that are constantly being added to our collections, and of which we have more than enough already. It is, therefore, of the utmost importance in bringing before the general public any of the new and rare coniferous trees and shrubs, that such should not only be hardy, but have some peculiar fitness either for ornament or use. The effect which a glowing description, and perhaps illustration, of any plant has upon those interested in arboriculture should tend to make writers of such articles very guarded against encouraging the growth of plants not really hardy and otherwise suitable for our climate and wants. If this were done, there might be some chance of discriminating between worthless and really good plants.—A. D. WEBSTER, *Penrhyn Castle, North Wales*.

SHORT NOTES.—TREES AND SHRUBS.

Mulching Magnolias.—Will some of your correspondents kindly say if I have done right in covering the roots of a young *Magnolia grandiflora* with farmyard manure as a protection against the severe frosts which we may now expect? The *Magnolia* in question is growing in the centre of a Grass plot, and therefore has no wall protection, and this is a cold part of the world. Will it need any further protection should we have a severe winter?—E. M. N., *Chipping Norton*.

Cydonia vulgaris (G. P.).—This is the common Quince tree. The shrub, seen by you so named, must be something else.

Cotoneasters.—What lovely shrubs the large berried Cotoneasters are at this season of the year. While recently visiting some gardens in the neighbourhood of Wimbledon, I was very much struck with the beauty of C. Wheeleri and C. Simonsi, both as regards the habit of growth and the bright glossy red berries, which were very thickly set upon plants from 4 feet to 5 feet high and as much through. It is to be regretted they are not better known, for they are deserving of a place in every garden.—G. J. WARREN, *Balcombe Place, Sussex*.

Planting and pruning.—"J. J. G." (p. 459) writes as follows in reference to this subject: "Some are of opinion that severe frost will injure newly planted trees; this I have proved to be a fallacy. In order to test it I left young trees with their roots uncovered during severe frost, and planted them when thawed, and I found that they sustained no injury." "J. J. G." is to be commended for having gone to the root of the matter, but what affinity is there between newly planted trees and those left with their roots exposed? Happily, there are few unaware of the injury inflicted on the roots of trees through exposure to frost, or that loose soil—in other words, newly planted ground—is less susceptible to frost than hard, undisturbed soil, else "J. J. G.'s" statements might prove misleading to others who perhaps have not had his "long and extensive experience."—A. D. WEBSTER, *Penrhyn Castle, North Wales*.

The Tortworth Chestnut.—Nothing is more remarkable in connection with accounts of celebrated trees than the fact that the renowned Tortworth Chestnut is still alive. The Rev. C. Greswell, of Tortworth, has expressed the opinion, in an interesting communication with which he has favoured us, that during his residence of thirty-eight years in the neighbourhood the old tree has not much changed. He says "The trunk of the original tree is, of course, hollow and much decayed, but it has surrounded itself with a numerous progeny of strong and healthy suckers which give it still a very imposing appearance, especially in summer, when it is in full leaf. Like the Phoenix of antiquity, it may be said to have risen again out of its own ashes." It is believed to be more than a thousand years old, and is, in all probability, the oldest tree of its kind in England. In an account of it, published in 1825, in a work entitled "Sylvan Sketches," by the author of "The Flora Domestica," it is stated that even in the year 1150 it was called the great or the old Chestnut of Tortworth, a statement which would agree with Gilpin's information that it was "a boundary tree in the time of King John," or even in the earlier reign of Stephen. In 1720 it measured 51 feet in girth at 6 feet from the ground. In 1779 it had measured 54 feet in girth. Very old trees, however, naturally diminish in girth after a certain period by the decay and falling off of portions of the lower part of the trunk. This has happened, though not in a noticeable degree, in the case of the Tortworth Chestnut. Mr. Greswell kindly obtained for us from Lord Ducie's gardener, about the end of last May, an exact measurement of the Tortworth Chestnut. The result is as follows: Girth, at 3 feet from the ground, 49 feet; at 6 feet from the ground, 50 feet; north and south, 86 feet through; east and west, 88 feet through. "These latter statements," Mr. Greswell explains, "give an idea of the extent of space covered by the branches which have shot out from the trunk."—*Journal of Forestry*.

Bottling seeds.—In winter weather like the present, when most places are damp and clammy, it is difficult to keep newly-saved seeds from moulding and decaying. In order to keep all seeds safe, even in the dampest rooms, do not tie them up in paper bags at all, but get a number of clean, dry bottles and put the seeds into them when perfectly dry; if corked up, the seed may be preserved in excellent condition for any length of time. Insects, too, which often destroy seeds in

bags, can do nothing in the case of bottles.—CAMBRIAN.

FRUIT GARDEN.

ORCHARD HOUSES.

I HAVE an orchard house heated with two rows of 4-inch pipes, and one in which there is no heat at all, and I find that I succeed best with the house that is heated. Both are 50 feet by 20 feet, and run north-east and south-west. I have erected here houses from 546 feet to 66 feet in length; one is a span-roofed orchard house 190 feet long and 24 feet wide, with six rows of 4-inch pipes. Now, according to "Peregrine," it is a mistake to put hot-water pipes into an orchard house, but my own experience is in favour of them, and also that of my partner, who has for many years had the charge of those at Sawbridgeworth. "Peregrine" says, "All orchard houses for such things as Apples, Pears, and Peaches should never be heated and never closed from November till the trees come into flower the following season of their own accord, by which period scarcely any fire heat will be needed to keep out frost." My practice has been quite different from this. I generally close my houses about the middle of November and never open them till February. The trees are pruned about Feb. 22, they are then arranged, syringed if there is no frost, and a gentle fire applied. After the stoning process is completed I fire briskly. If "Peregrine" is right about pot trees, I have made a grievous mistake in purchasing so many Peach trees in pots as I have done. I have read in THE GARDEN all that has been written about orchard houses since its commencement, and I must say, if I were asked to give judgment on their merits or demerits, I should be rather puzzled as to what verdict to return, such has been the diversity of opinions expressed regarding them. I am a strong advocate for growing Peaches in pots and for heating orchard houses. My reason for this is my success with potted Peach trees, and surely a better reason could not be given. If I fail, I will record my failure in the pages of THE GARDEN for the benefit of others; if I continue to succeed, I hope others will not give up that kind of culture under the notion that it is difficult to grow Peaches in pots. GEO. A. PASSINGHAM.

APPLE AND PEAR CULTURE IN AMERICA.

By MR. WILLIAM C. STRONG.

At a time when our markets are inundated with American fruit, the following remarks from the Proceedings of the Massachusetts Horticultural Society, just received, may be of some interest to English growers. The similarity, says Mr. Strong, between these, our two most important fruits, would naturally incline us to make comparisons as to their merits. Yet, though they belong to the same genus, and though certain varieties of each species approximate to a close resemblance with the other species, they still retain their distinct characteristics, their uses remain distinct, and it is scarcely fair to draw a comparison between the two. The quality of some of our best varieties of the Pear in their natural state is so delicious that, in the opinion of most, the Apple could not be placed in comparison in this respect. Even the Gravenstein, Hubbardston Nonsuch, and Northern Spy would be neglected if in the same dish with the Seckel, the Doyenné du Comice, and the Easter Beurré. The price of dessert varieties of the Pear is decidedly in advance of that of the Apple. It is not an overstatement to say that marketable varieties of Pears will sell for from two to three and four, or even six times as much per bushel as corresponding kind of Apples. Then, again, the Apple is slow in coming into bearing; it is a long investment, and our cultivators are impatient for quick returns. The tree is homely, and of too coarse growth for small lots in the vicinity of large cities; it is often infested with garden caterpillars, and the fruit itself is very liable to be ruined by them. The Pear, on the other hand, is comparatively free from such pests. With the exception of blight (concerning which we may

not yet form definite opinions) it has no serious disease, and we expect, with a good degree of certainty, that judicious culture will insure a uniformly fair crop. It is, therefore, a natural result that the Pear is to a great degree superseding the Apple among cultivators in the vicinity of Boston. In my own experience I should say that the demand for Pear trees in this immediate vicinity is as twenty to one for Apple trees.

Pears not more profitable than the Apple.—It would be a false conclusion to infer from these facts that the Pear is of more intrinsic value, or indeed more profitable for general cultivation than the Apple. On the contrary, we believe that the Apple, though not attaining to the highest excellence as a delicious dessert fruit, is nevertheless the most important and valuable of all our fruits. We have only to consider its perfect adaptation to our soil and climate, the ease and permanence of its production, its keeping and shipping qualities, and its paramount excellence as a cheap and health-giving food, to admit that it is, indeed, the most indispensable fruit in the list. How, then, does it happen that Apple culture has so declined in this vicinity whilst Pear planting is continually extending? We have alluded to the local reasons, such as the suitability of the Pear for small gardens, its health and cleanliness and early productiveness, commending it to the favour of suburban residents. And as it is essentially a dessert fruit, comparatively transient when in condition for eating, it is the more desirable that it should be a home product. Apples, on the contrary, can be kept, stored, and shipped with comparative safety, and hence can always be bought at moderate rates; so low, indeed, that it seems cheaper to buy a few barrels as wanted than to hire help to care for the amount required for a family supply. Then, again, the Apple is so slow in coming into bearing that we are hoping our spare land will be wanted for building long before an Apple orchard would be in its prime. But all these reasons are local, and do not touch the main question—the profitability of Apple culture in Massachusetts. It is a fact which needs to be frequently repeated, that our State furnishes thousands of acres of hill-slopes capable of producing the very best results in Apple culture to be found on this continent. Taking quality into account, we should say this is not too strong language. We seem to have the desired medium as to extremes of heat and cold, as to poverty and over-richness of soil, and the suitable dryness of air in autumn to secure the highest excellence in the quality of this fruit. If we, then, admit that we have the facilities for producing this fruit, which is obviously a necessity in every family, so important that the supply is not likely to exceed the demand, it surely follows without saying that its culture must be profitable. Why, then, is it that we see so few examples of thrifty young

Apple orchards upon our hill-sides? Why so many old orchards apparently going to decay? How did it happen that in our last year of plenty, in 1880, we were told that raising Apples did not pay at one dollar per barrel, packing free? Surely, in the very nature of things, these questions can be answered. We can produce as cheaply as anybody, and as good as anybody, a fruit which everybody wants. Then it follows that it is our own fault if we do not produce it at a remunerating rate. I apprehend that the great trouble is that our people want a quicker way to make a livelihood. No doubt the Apple is the slowest of all our fruits to make fair returns. It requires considerable capital to start an orchard, and wait long years for gradual returns. Quick annual returns, from the fertile fields at the West, are more attractive to the sons of our New England farmers. The young blood is drawn away, and the old homestead runs down. It is certainly true that the Apple orchards of the State are far from being what they might be. There has not been that degree of attention paid to their culture that has been given so the Pear, though the latter cannot claim equal importance. And Nature's very pro-

digality has been a prominent cause of this result. How often do we hear it said that

Apples are so cheap it does not pay to raise them. Has it ever occurred to these objectors at how surprisingly low cost Nature has provided this fruit? There the tree stands, loaded almost to breaking, wide-spreading; you can stand under one tree and pick the fruit by the barrel. With such bountiful returns it ought to be your pride to produce the largest quantities at the minimum cost, with the spirit of our manufacturers, who are ready to compete with all the world. In this case you have all the conditions for a successful enterprise. You have the very best climate without cost; you have most suitable land at a low cost; you are near to markets and a seaport; the amount of work and of hired labour involved is not proportionately large; you have a solid basis of value upon which to rely, and have ample time in which to meet all the requirements of the business. It is your own fault if you do not make a steady and considerable gain in the course of years. But, we admit, the beginning of the enterprise is a wearisome process. You are inclined many times to ask if you shall live to see those small trees come into bearing. You think of the labour expended, and the interest rolling up, before you can receive a dollar in return; and when you see so many other ways opening which give promise of quick returns it is no wonder that you hesitate about choosing this. There is present need of a new stimulus in Apple raising. Hundreds of decaying farms need to be rescued. Our young men should be encouraged to retain the homestead and invest in trees which will anchor them for life. Apple orcharding is a far more permanent and reliable investment than the cultivation of any other fruit. Hence the importance of attracting capital in this direction. There can be no doubt that the taxable value of our State could be materially increased if some policy were adopted to cover our hill-sides with Apple orchards. With the increased facilities for shipment, there would be no danger of an over-supply of fruit. If the cost is reduced to a minimum, there will be no limit to a remunerating demand. Consider, also, that our own population doubles every twenty-five years. It is high time the trees were started for our coming population of one hundred millions. A few words as to

Varieties.—Here we come upon a sore evil, and a great source of discouragement to progress in planting. It is bad enough to experiment with new candidates for favour among the small fruits; yet the trial lasts only for one season in the case of the Strawberry, and you can plough your patch and stand waiting to be annually victimised with each succeeding wonder. But it is a long process in the case of the Apple and the Pear, and when once you have a variety it is awkward to make a change, and the chances are ten to one that it becomes a fixture. Thus the most ordinary kinds are perpetuated generation after generation, occupying the place of their betters and dragging down the standard to their low level. What immense injury has been done to Pear culture, for example, by the dissemination of second, and third, and fourth-rate kinds, which come to be only a vexation and a nuisance to the producer. What a revulsion of feeling must come to one who has watched the luxuriant growth of the Buffum Pear, for example, when he finds himself loaded with a fruit which he is distressed to see rotting on his hands, though he would have gladly given it away if he could have found any one innocent enough to receive it. It is a serious misfortune that the satisfaction in fine varieties is so largely counterbalanced by the incubus of kinds which we cannot sell, but which we think are too good to throw away. And we are forced to admit that the nurserymen are answerable to a large extent for this state of things. For one I am disposed to plead guilty. "I do remember my faults this day." Doubtless I have contributed my share in swelling the list of second-rate varieties when an intelligent firmness might have persuaded my customers to take

only the best. But my resolve is to sin no more in this direction. I am persuaded that the multiplication of varieties of fruits is a decided evil, unless some peculiarity is developed which is clearly an advance. It is true we are profited by exhibitions of large collections of varieties, and we are thankful to those cultivators who can afford us the instruction derived from noting the descending shades of inferiority in the long list. I believe in infinite variety in ornamental plants. But we test our fruits by a different standard; the proof with them, as with other things, is in the eating. Taking this very practical test in connection with the habits of the kinds, we may limit the amateur to a score of varieties of Pears and half that number of Apples. Most cultivators for market purposes would confine themselves to the Bartlett and Beurré d'Anjou for Pears, and Gravenstein and Baldwin for Apples. The objection to this narrow confinement is that the season of these fruits is not covered by these two varieties of each. We must add early, intermediate, and late kinds to cover the nine months when these fruits are in perfection. But it is a noteworthy fact that experienced orchardists limit themselves to three or four, or, as an extreme, to six kinds. In my judgment it is quite time that this society should assist the general unsuspecting public in the same direction. We have offered prizes for long lists of kinds. Now let us publish the simple truth that there are but few kinds worthy of general culture. We shall find an appreciative and thankful audience, and may rest assured that we can thereby save them from a great amount of disappointment. In this connection, is it not a singularly noticeable fact that in many products of the soil the species has one leading variety at different epochs, which for its time stands out *facile princeps*? For example, we may at the present date name the Early Rose among Potatoes, the Crawford's Early of Peaches, the Bartlett of Pears, the Baldwin of Apples, and the Concord of Grapes, though we may vince as we add this last, and will admit that we are not satisfied with some of the rest. Yet so the list stands to-day. All honour to every effort to obtain improved varieties. While we confidently look for advances and improvements in varieties, still we are not to forget that we have limited numbers of kinds of decided superiority, and that it is our duty to place these prominently in front, remembering the wise rule to "prove all things, and hold fast that which is good."

Discussion.—The Hon. Marshall P. Wilder expressed admiration of Mr. Strong's desire to reduce the list of fruits while embracing all the excellences. It is what we have all been trying to do for many years. Every new variety was seized upon and tested as soon as heard of. As one result of this enthusiasm we have gained, along with many other valuable acquisitions, two fine Pears, the Bartlett and Beurré d'Anjou, which will grow wherever any Pears will grow. There is no difficulty in improving the Apple, or in encouraging its culture. Within a few years there has grown up a great interest in the shipping of Apples, and the exportation of Pears will follow. New Hampshire, in 1880, sent 250,000 barrels of Apples to this market. They can be grown at a profit on our hill-sides, but not where land is worth twenty-five cents a square foot. It is a singular fact that New England has produced the three best Apples, taking all things into consideration, including shipping qualities—the Baldwin, Rhode Island Greening, and Roxbury Russet. Of all the Apples exported from Boston, 90 per cent. are Baldwins. Red Apples bring a higher price than green or yellow kinds. The Lady Apple sells at a higher price in London than any other kind, but the demand is limited. The speaker thought that the cultivation of Apples should be encouraged in every proper way, but he was not ready to say that he approved of the offer of premiums by the State. He had spoken rather disparagingly of the everlasting desire for new things, because much of it grows out of fashion, though this is less the case with fruits than with flowers. In our desire for new things we have passed by many very desirable fruits, among

which is the Duc de Brabant Pear, introduced forty years ago under the name of Merveille de Charneux. It makes a beautiful tree, and is a large and handsome fruit, excellent in all its characteristics, though perhaps a little too sweet. The Pear sent out by the late Francis Dana as one of his seedlings, under the name of General Warren, has proved identical with this. Another neglected Pear is the Emile d'Heyst, a variety of most extraordinary excellence in every way. It makes a capital tree, which holds its foliage until frost. It bears in great clusters of sometimes as many as eleven Pears, and must be thinned. It is one of the best Pears introduced in the last half century. The Dr. Lentier Pear is as large and beautiful as the Bartlett; it ripens in October and November, and has beautiful foliage, which remains dark green until frost. The Souvenir du Congrès was first exhibited at the World's Fair, at Paris, in 1867, where the speaker saw it. It is a seedling of the Bartlett, and ripens at the same time, but is free from the musky odour of its parent. It keeps sound at the core, and the tree is a vigorous grower. In regard to some

American Pears, his experience differs from that of some who have not had so much. Complaints are made that the Clapp's Favourite rots at the core, but he had found it keep as well as any other summer Pear. They must be gathered early—about the middle of August. In 1867 Mr. Clapp had gathered all his by the 20th of August, some of which the speaker carried to the meeting of the American Pomological Society at St. Louis, where they were tested by Dr. Thurber and others on the 13th of September, and found sound. It is the largest and handsomest early Pear, and, if picked early, is all that can be asked for. There is a class of Pears which it is very important to secure—varieties which make large, robust trees. Among these is the Buffum, the value of which is not generally understood, but the speaker had found his trees more profitable than any other variety except Beurré d'Anjou and Merriam. One of them has borne twenty bushels in one season; last year it bore fourteen bushels. They must be picked early, and then they will colour finely. Specimens thus treated were pronounced by the late A. J. Downing nearly equal to Seckels. The speaker has a Bartlett and a Buffum, of the same age, standing side by side, and the latter is two or three times the size of the former, and will bear 15 bushels when the Bartlett will not give 5. They bear as much as an Apple tree, and generally every year, and the fruit when sent to market is just what the million want. The Beurré Hardy, Paradis d'Automne, and Doyenné Boussoch are all strong growers and abundant bearers. He has trees of all, 25 feet high. He picks a portion of his Doyenné Boussochs in August, so as to relieve the tree, and give it force to form fruit buds for the next year. The Paradis d'Automne is nearly as large and handsome as the Beurré Bosc. The Brandywine makes as large and fine a tree as the Buffum. The Harris, one of the Messrs. Clapp's seedlings, is scarcely excelled in quality. The Admiral Farragut and President, two of Dr. Shurtleff's seedlings, though not of the highest quality, are good enough, and the fruit is of large size, and they make excellent trees. Russet Pears take the eye in the market when well ripened. The Buffum is a little russetty; the Brandywine, Harris, and Paradis d'Automne have more russet. The Merriam is a little russetty; to develop its quality to the highest extent it must be picked early, but for market it may be left on the tree longer.

The Apple is the fruit of New England. Mr. Wood said he believed that a change is going on in regard to the views taken of the profit of cultivating the Apple, and that we shall see this fruit more prominent every year. When the president of the American Pomological Society stated, a few years ago, that the market for American Apples was as firmly established in Europe as that for American Wheat, few people recognised the fact; but in 1880, 1,346,000 barrels were exported. Mr. Hovey said that Mr. Strong had stated the

Price of Pears at from three to six times as much as Apples. The highest price the speaker

ever received for Peas was in 1870, when he sold 3 bushels of Seckels for 12 dollars per bushel; last year he received only 2 dollars per bushel. Last fall Merriam Pears sold for from 3½ to 4 dollars per barrel, and Gravenstein and Baldwin Apples were worth as much. Mr. Strong was thinking of old times. No other Pear than the Dana's Hovey, unless some very fancy specimens, brought over 2 dollars per bushel last year. When Gravenstein Apples were worth from 2 to 3 dollars per bushel Beurré Superfin Pears brought only 1 dollar. This does not look as though Pears were worth from three to six times as much as Apples. Pears are a perishable fruit, and, moreover, the general demand for them ceases with the coming of cool weather. Twenty thousand baskets of Pears could not be sold in Boston now at any reasonable price. Bartletts come when they are wanted, and this makes them the Pear of Pears. He agreed with the late Mr. Stickney as to the value of the Bartlett. The speaker has 2000 bearing Pear trees, which bore 1000 bushels last year. If they had been all Bartletts they would have brought 2500 dollars; but they averaged only about a dollar and a half per bushel. He would not, however, cut off and graft any variety until he had ascertained its value. Mr. Wilder said that it takes time to learn the comparative value of Pears. In October last the market men offered him 2 dollars per bushel for his crop of Beurré d'Anjou, which is much less than they bring in years when there is not such a superabundance as there was then.

Forced Strawberries.—I force Strawberries in a hothouse; the pots are on shelves near the light. Underneath is a bed made of loam, &c. In this weather the damp and moisture in the house cause the fruit to become mouldy. Can any of your readers recommend any plant to be sown in the bed to absorb the damp, or any way of preventing such damp and moisture, so as to keep the interior of the hothouse dry and clean? Would young Eucalypti do?—BEDS.

Mealy bug on Vines.—I have a vineyard badly affected with mealy bug, and after trying several insecticides, which have not proved successful, I think of trying a solution of paraffin and water. I find that paraffin will kill the mealy bug, but what I am anxious to know is, whether it will kill or in any way injure the Vines. Before dressing all the rods I shall be glad of some practical advice from some of your correspondents.—COBHAM.

Strawberry Pelissier.—Allow me to state in reply to "G. G." that my information concerning this Strawberry is gathered from French horticultural papers, wherein it is stated to be large, well flavoured, and productive. It is by no means a new kind, but appears to have been overlooked, not having been much grown even by the French themselves, but will probably now quickly come into favour, especially should it prove to be reliable in the matter of perpetual bearing. I cannot indicate a source from whence it may be obtained, but M. Lepère, fruit grower at Montreuil, near Paris, grows it, and an application to any English nurseryman making a speciality of the Strawberry would perhaps be the means of securing it.—J. C. B.

Pear growing for profit.—I would strongly advise "S. S." (p. 507) to plant the wall he intends for Pear growing with trees worked on the Quince stock and in the form of diagonal cordons, each tree to be 30 inches apart. He will thus get his wall well furnished at once, the training will be no trouble, and with such a soil and the trees worked on this dwarfing stock, fruitfulness is certain without having recourse to root-pruning. Possibly this might be needed about the third year after planting, but it would not need repeating, as the necessarily close repression of the summer growth which this form of training demands renders fruitfulness a certainty. The best varieties for the season he mentions I name in the order of merit and ripening, from December onwards, viz., Winter Nelis, Passe Colmar, Chaumontel, Beurré Bachelier, Huyshe's Victoria, Beurré de

Jonghe, Josephine de Malines, Easter Beurré, and Ne Plus Meuris.—W. W. H.

Golden Queen Grape.—Comparatively few cultivators have formed a favourable opinion of this Grape, and although the reasons that may be given for not growing it more than is done will probably be various, and differ according to the locality and circumstances under which it is grown, I think I may safely say that the chief reason will be that it does not colour well, yet with some it colours as perfectly and as surely as the Black Alicante. It is grown in two houses under my charge in an early vineyard, where it is on its own roots, and planted in an outside border. In this position the results are most satisfactory, both bunches and berries being large and the colour a most perfect golden amber. The other Vine is in an intermediate house, and is in-arched on Buckland Sweetwater; the bunches are about the same size as those in the early house, but the berries are larger and longer, and as a rule the colour is very deficient, being a dingy yellow, freckled on the side next the sun. There is also a slight deterioration in the flavour, and the flesh is not quite so firm as it should be. These differences are doubtless for the most part attributable more to the influence of the stock on the scion, than to the fact of its being grown in an intermediate house. It is decidedly a late Grape, requiring quite as long to fully mature its fruit as the Muscat of Alexandria, although the same high temperature generally given to Muscats is not absolutely necessary in this case. If it were grown in such a heat it would of course ripen earlier than otherwise, but it will set and ripen its fruit perfectly under the same treatment as the Black Hamburgh if started not later than the middle of February.—W. L. H.

Fruit shrivelling.—In reply to "J. E. H." (p. 488) who writes about the shrivelling of fruit, permit me to say that I have no doubt that the cause arises from too early gathering, and I am the more confirmed in this opinion from the statement that the Apples and Pears complained of are late sorts, which require a long season to finish them; they should never be gathered till they begin to leave the tree of their own accord and fall naturally, as not till then are they ripe and ready for storing. It is just possible, however, that "J. E. H.'s" fruit room is too dry, warm, and airy, in which case Apples and Pears would shrivel, as they only keep well in a low, uniform temperature, and the atmosphere should neither be dry nor damp, but such as a good underground cellar affords. Of all places this is the best for the storage of Apples and Pears, and I have known sorts keep there long after they have been over in sheds or rooms, as there they feel the changes of weather, and there is often a variation of several degrees in the heat during twenty-four hours. In a cellar the temperature remains much the same, and the air being still, there is no loss of juice from the fruit, as it cannot evaporate, and under such circumstances Apples and Pears remain plump to the last. When it is desired to keep any beyond their season, it is a good plan to roll them in tissue or other soft paper,* and put them in jars or boxes, in which way I have known them to be retarded more than a month, but to delay them that time, they must be put away in a very cool place.—S. D.

SHORT NOTES.—FRUIT.

New Peach.—Messrs. Baltet recently exhibited a seedling Peach, named by them Peach Baltet. The fruit is very late and very large, the flesh being said to be melting and juicy.—J. C. B.

Mealy bug on Vines.—I would be very much obliged if some reader of THE GARDEN would kindly tell me whether it would be advisable to paint Vines smothered with mealy bug with lime.—T.

Air roots on Vines.—Can anyone inform me the cause of these making their appearance? The Vines here are very badly affected in that way. Are they the result of the roots being in a bad border? or has there been too much dampness in the air during the forcing season?—C. G.

BOOKS.

THE COLOURS OF FLOWERS.*

WHAT is the real nature of colour in flowers? How does it come? What purpose does it serve? These are questions that are asked by all who care to go the least below the surface in the study of flowers. Mr. Grant Allen undertakes to answer the second question, and answers it very pleasantly in this little book; but whether his answer is the right one, or will commend itself to botanical students as the real solution of the difficulty, may be open to doubt. Most of our great botanists have held the opinion that all flowers were originally green; and, however unpleasant the opinion is to those who see no beauty in a flower that has not bright colours, there are many things that seem to confirm it. The large number of wild flowers that have green petals, the still larger number that are green in their bud state and only acquire colour as they expand, and the fact that there are green varieties still in cultivation of the flowers which are most bright coloured, as the Rose, Tulip, Dahlia, Ixia, Primrose, &c., &c., thereby showing (according to this theory) a reversion to their original state, all point to this conclusion. It is the logical conclusion of the well-known theory of Wolf and Goëthe that all parts of a plant are only modified leaves, and that the colours of the petals are analogous to the autumnal colouring of the leaves, and are produced in the same way. (Anyone who grows the green Rose may see this view curiously confirmed; the bright green of the petals fades away into a pale and sometimes even a bright rose colour.)

But this is not Mr. Grant Allen's view. His view is that the earliest flowers were without sepals or petals; simply bunches of stamens with a central style; that some of these stamens in process of time flattened out, got rid of their anthers, and so became sepals and petals, and, assuming that all stamens are (or were originally) yellow, that is the colour of the earliest flowers, and that then in order of time come the white flowers, and then the red, purple, and blue. It is at present no more than a theory, but it is a theory with a good substratum of facts to support it, which Mr. Grant Allen has collected together and arranged in a very attractive way. There is, of course, the patent fact of double flowers, which all acknowledge to arise from the change of stamens into petals, and the curious instance of the Water Lily, in which the gradual change is apparently easy to trace, and many other little points all more or less seeming to point to the same conclusion. Nor does Mr. Grant Allen find much difficulty in accounting for the various changes from the primitive to the more advanced colours, for he sees in the different insects, flies, beetles, and bees, the several agents required for the work; and then, again, he sees in the different colours when once formed the special attractions needed for the different agents. Nor has he any difficulty with the green flowers, which to most would seem an insuperable difficulty, but he gets over it by the easy plan of considering all green flowers instances of degeneration or degradation, and generally instances of plants which have degenerated from insect to wind fertilisation (in technical language they have changed from entomophilous to anemophilous plants). The author will scarcely expect that this view will be fully accepted by botanists; it will yet require many additional proofs before it can displace the older view, but it is very plausible, and may be the true view; and whether those who read the book agree with it or not, they will at least be thankful to an author who has written a most readable book on a difficult subject, and has presented his theory in good, plain English instead of burying it under difficult scientific terms, and so has produced a book which is not only pleasant reading, but also a valuable addition to the many books already published on botanical morphology.

* "The Colours of Flowers." By Grant Allen. (Macmillan & Co.)

PLANTS IN FLOWER.

IMPATIENS ALBA appears to be an uncommon plant, though a pretty one and worthy of culture. To those who know the *I. Sultani* it may be best described as an exact counterpart of that species, except that the blossoms, instead of being magenta, are pure white. It flowers freely in a small state, and is useful for many decorative purposes. At the Horticultural Garden, Chiswick, there are numerous plants of it in flower which have a pretty effect at this season. It is treated as an annual stove plant.

TROPÆOLUM BEDFORD RIVAL is a capital dwarf Nasturtium for winter decoration—in fact, one of the best. Its neat dwarf habit of growth and free flowering character make it a most desirable greenhouse plant at this season. At Chiswick large quantities of it are in flower in the shape of plants that have been grown on through the summer in pots purposely for winter flowering. The colour, one of the brightest of orange-scarlets, is very telling among the quieter hues characteristic of most winter plants.

PARIS DAISIES, or white Marguerites, constitute just now one of the chief features in the gardens at Chiswick, and anyone desirous of making a selection from amongst the numerous sorts grown there should lose no time in doing so. *Chrysanthemum Halleri majus*, which is apparently the same as *C. frutescens maximum*, is a very fine variety—in fact, the best in point of size—and large, bushy plants of it, profusely furnished with bloom, are very effective; other kinds, too, are equally well flowered.

JASMINUM GRACILLIMUM, the new white Jasmine from Borneo, is one of those plants that are indispensable in all gardens in which beautiful and sweet-scented winter flowers are a desideratum. This plant has much to recommend it; it is a free and vigorous grower, an abundant and continuous flowerer, and is of easy culture in an ordinary stove provided it be accorded liberal treatment. It produces its beautiful clusters of snow-white flowers throughout the winter, and being on long, slender twigs, they are well adapted for cutting. It is now becoming widely known; recently we saw it in Mr. Atkinson's garden at Gunnersbury House, Acton, where Mr. Hudson trains it to one of the rafters in a lean-to stove, and a lovely drapery it makes managed in that way.

IPOMÆA HORSFALLIÆ.—Though so much has been written in extolling the beauty of this old-fashioned stove climber, it is difficult to over-estimate its value as a winter flowering plant. We have no other to equal it in colour, and few that will grow so luxuriantly and flower so profusely with so little trouble. We were reminded of its great value on seeing a fine plant of it in one of the houses at Gunnersbury House, where it flowers profusely in the dull season, and its large clusters of *Convolvulus*-like blossoms of the brightest magenta imaginable, combined with the handsome leafage, make it most conspicuous. Although its flowers are fugacious, they are produced plentifully, which amply compensates for their short duration. We invariably name this among a selection of climbers for a stove, whether small or large.

CANNA IRIDIFLORA HYBRIDA.—There seems to be some little confusion with regard to this beautiful variety and that called *C. Ehemanni*. Both are evidently one and the same kind, at least so far as we have been able to judge from specimens seen lately in flower. At the Horticultural Gardens, Chiswick, there is a fine flowering specimen of *C. iridiflora hybrida*, and at Messrs. Cannell's nursery, Swanley, we lately saw a beautiful specimen in flower of what is generally known as *C. Ehemanni*. Which name is correct we cannot say, but anyone possessing one kind need not buy the other. We suspect that *C. Ehemanni* is the more recent name. Another called *C. Noutoni* is said to be an excellent kind; we have not seen it in flower, but, judging by the large stock of it which Messrs. Cannell have acquired, it is evidently

something good. There are few plants which combine stateliness and elegance of growth with beauty of flowers to such a degree as does this *Canna Ehemanni*, a plant that we do not hesitate to recommend to every plant lover as one of the best sub-aquatics grown.

THE LAURUSTINUS, though one of the commonest of hardy shrubs, is not to be despised even for conservatory embellishment in winter, for when well grown in pots it is really highly ornamental. Considerable attention is paid to the culture of this shrub on the Continent, particularly in Belgium, and not a few plants of it from the Belgian nurseries find their way to this country. They have a way there of growing them in the form of neat standards with a symmetrical globular head, and as such they have a pretty effect when in bloom, a condition in which they keep almost throughout the winter. At the Royal Exotic Nursery, Chelsea, may now be seen some admirably grown specimens in pots profusely covered with flower clusters, and we cannot but think that some varieties of the *Viburnum* are much freer flowerers than others.

FLOWER GARDEN.

SHOW AURICULAS.

ALLOW me to say in reply to "Greenock" (p. 502) that a year's culture of the Auricula may be given in a very few words. Let us start on the 1st of January for convenience sake; at that date the plants are all at rest in cold frames, and unless frost is intense, it is as well not to cover the glass in any way. It is not likely that any water will be required at the roots. Early in February a portion of the surface soil should be removed, and some rich compost pressed in firmly with the fingers. This surface dressing ought to be composed of two parts good yellow loam and two parts rotten cow or stable manure. After the surface dressing has been applied, the plants must not suffer from want of water, and they ought not if possible to be exposed to frost. If the exhibition has to take place about the middle of April, all the later flowering varieties should be put into a house that can be heated in some way; the early flowering varieties may be kept for some time in cold frames until it is seen whether the season is to be late or early; if late, they can be placed in a heated pit or greenhouse to bring them on more rapidly. The northern growers, especially those in the neighbourhood of Newcastle-on-Tyne, have been enabled to exhibit their Auriculas for competition for a number of years in succession in the first and second weeks of April, when Hyacinths and Tulips were in full beauty. The Auriculas had been kept from January in a very gentle growing heat. I have grown numbers of different subjects for exhibition, but must say that obtaining Auriculas in good form by a certain date is no easy matter—not so easy, for instance, as to prepare an equal number of Orchids for that purpose. If the plants are too cold or damp when the flowers are opening, many of them will refuse to open satisfactorily, and if they are placed in heat, they are not unlikely to be drawn and out of character. In March the flower buds will be very forward, and many of them opening. It will be necessary to shade from bright sunshine, but it is injurious to keep the shading on longer than may be necessary, the great desire of the fancier being to obtain plants with good trusses supported on stout elastic stems. To obtain this they require plenty of air and light, but they must be protected from cutting winds on the one hand and bright sunshine on the other. In April the plants will be in full beauty, and may be arranged where they can be seen to the best advantage. They have the best effect on a stage in a span-roofed pit or greenhouse, where they can have plenty of light and air, merely shading from sunshine. In May the bloom will be over, and arrangements must be made to

Report the whole collection. There is considerable diversity of opinion as to the best

time to repot. Mr. Horner, Mr. Simonite, and other good growers, who are usually in the front rank on exhibition day, repot their plants as soon as the bloom is over. I have potted in all the summer months, but would much prefer if possible to do it in May; the plants take to the new potting material at once, and are soon firmly established. Good, turfy loam from an old upland pasture in which Primroses grow naturally is the best soil for them; add to it a fourth part of rotten manure and as much leaf-mould; also some coarse silver sand, to keep the compost open. The size of the pots we use most of is 4½-inch; that is our middle size. We use for smaller plants 3-inch, and for the strong-growing sorts 5-inch pots. From May to the end of September they succeed best if placed behind a north wall in frames, from which the lights can be removed day and night except during rainfall. We do not like heavy rains to fall on them, but a gentle shower does them good. Early in October the plants may be removed to a more open place, where they can get more light and air.

Insects.—Green-fly is very fond of the Auricula, and a troublesome pest it is. I find the best way in which to destroy it is fumigating with tobacco smoke if the plants are much infested with it, but if there is only a few it is easy to brush them off. The vexed question of the white woolly aphid (*Trama auriculæ*) I need not open afresh. Mr. Horner says Fir tree oil is the best antidote for it if you can reach it, but it penetrates to the very bottom of the pot and clusters on the roots, so that it is necessary to shake the soil from the roots and wash them before the pest can be destroyed. I think the best way is to wash the roots quite clean with strong, soft soapy water, and then in an hour wash with clean water. A list of the

Best exhibition sorts are—Green edged: Colonel Taylor (Leigh), Prince of Greens (Trail), Freedom (Booth), Prince of Wales (Ashton), Champion (Page), Apollo (Reeston), Imperator (Littin), is very fine when it can be caught right. Grey edged: George Lightbody (Headley), Lancashire Hero (Lancashire), George Levick (Walker), Charles E. Brown (Headley), Richard Headley (Lightbody), Alexander Meiklejohn (Kay), Complete (Sykes), John Waterston (Cunningham). White edged: Smiling Beauty (Heap), True Briton (Hepworth), John Simonite (Walker), Acme (Read), Glory (Taylor), Ne Plus Ultra (Smith), Earl Grosvenor (Lee). Selfs: Pizarro (Campbell), Blackbird (Spalding), Charles J. Perry (Turner), Mrs. Douglas (Simonite), Duke of Argyle (Campbell), Ellen Lancaster (Pohlman), Garibaldi (Pohlman), Mazzini (Pohlman).

J. DOUGLAS.

Tagetes signata pumila.—I notice that Mr. P. Grieve speaks highly of this as a substitute for the *Calceolaria*, and it certainly is a good one, but a far better exists in a double kind they have at Shrubland, which is very dwarf and compact and exceedingly floriferous. Not only is this variety valuable for bedding, but it is equally so for pots for the embellishment of greenhouses late in the autumn, a time when, by preparing the plants by pinching or stopping the tops, it may be had in a fine state of perfection. Outdoors it appears little affected by wet or weather, and with us this year it was almost the first and last thing in bloom in the garden. The colour of the flowers, which are not large, is of a clear, bright orange like Dean's Dwarf, on which it appears to be an improvement, as it does not grow so strong, and is most likely a selection from it. As most plants vary from seed, it is a good plan with *Tagetes* to do as Mr. Grieve advises—make choice of one or two of the best annually and save the pods from them, by carrying which out the character becomes more fixed and a good strain is obtained. *Tagetes signata pumila*, though fine in the foliage, is too small and weedy in the bloom to make much of a show, but such as Dean's and the one referred to form a mass of warm yellow, which produces a striking effect especially in the distance.—S. D.

ROCK GARDEN AT SOUTHWOOD.

We have so often alluded to Mr. Whitehead's rock garden at Southwood, Bickley, as one of the best examples of the kind we know of, that we have thought it well to place before our readers a

it even without the aid of a gardener. The rock garden forms the north-west boundary of the place, and is formed of earthen banks about 15 feet high, the outside slopes being planted with evergreens. The banks slope in front to the

a quantity of peat to the depth of 2 feet, and then several truckloads of limestone siftings (small pieces of broken stone) were incorporated with the soil to the same depth, thus affording nourishment and good drainage. The next step was to break up the surfaces of the slopes into mounds and curves, and then to place the rocks in position. By placing some masses of rocks in the way of the regular formation, and other irregular masses of larger rocks on the mounds—prominences—a pleasing variety of form and strata is the result. Great care was taken to bury the base of the rocks, and to see that in placing one rock over another they sloped to the back part, and that plenty of earth was placed between the crevices of the various pieces of rock. This is important, as it enables plants to root down amongst the rocks and allows the rain to get at the roots. These crevices amongst large rocks are of great value to tender and small plants, and also allow trailing plants to grow down in a natural way. To meet the wants of a large class of plants requiring a richer soil, the lower part of the slopes of the banks should contain a larger portion of peat in the soil without any limestone siftings. The raised mounds should be retained for the special growth of small plants that are readily lost sight of if planted elsewhere. A pretty effect is produced by the liberal use of dwarf creeping plants, amongst which may be planted a great variety of bulbs, the whole producing an effective carpet.

"Another smaller rockery is made of loam, peat, and granite gravel, all thoroughly mixed to a depth of 2 feet. The granite rocks are then placed here and there in varying masses, care being taken to have plenty of crevices for the proper cultivation of higher alpine. This rockery has not been long established, but the results on the growth of many plants that did not flourish on the limestone is encouraging.

"Another interesting addition is a bog bed, formed of about 3 feet of peat in a damp position. It is intended to grow many plants here that fail in dryer situations, and indeed many garden favourites prefer the damp soil. A small bog bed is very desirable for the more careful cultivation of rarer plants. Good drainage and plenty of water are desirable.

"In building up the rocks, they should be so arranged that the cultivator can readily move from rock to rock, and if the bank will admit of it, a sunken rough path, with rocks on each side, affords every opportunity of making endless crevices so dear to alpine plants."

ROCKWORK.

IN dictionaries rockwork is defined to be stones fixed with mortar to imitate the asperity of rocks. The late Mr. E. W. Cooke, when having some stones placed in his garden at Kensington, tried to avoid the word rockwork being used, saying the effect produced in laying the stones, &c., should be to make it worthy of being termed rocks, or that should be our aim, *i.e.*, that whatever is done shall appear, as rock, natural to the site; and this is what can be done, even in the most simple arrangement, whether for alpine, Ferns, dwarf shrubs, Conifers, or rock plants in general. Now, since the term rockery has become more common than proper, I propose that it should apply to all work of the kind which does not imitate natural rock, such as the following examples which come under the appellation of cockney rockwork. First, we have the well-known brick burrs piled tier upon tier to form pouches for shrubs, as the waterfall at the end of the Serpentine, also with its brick burr enclosures each side, parallel with the stream. This was ridiculed in the House of Commons, and is an example of what I would call rockery, a term which should also be applied to all piles of brick burrs, clinkers, flints, bits of worked stone from ruins of ancient buildings, old broken vases, &c., great caves and waterfalls, formed as may be seen in some of our parks, with stones piled one on end and joined to the next on its bed, also stones, burrs, or clinkers built in shape of arches and pinnacles. At Kew there has recently been an extensive rockery formed, the materials being brick burrs,



Ground plan of the rock garden at Southwood, Bickley.

ground plan of it, and for the following interesting particulars as to its construction we are indebted to Mr. Whitehead himself:—

"I have great pleasure in sending you a description of my rock garden, as it may assist others in the cultivation of alpine plants. Such a garden is a constant source of interest, and the daily care is so small that anyone can readily manage

south and west at a varying depth of from 40 feet to 80 feet, the total length of the banks being about 200 feet, and the surface is broken up as much as possible by varying masses of rocks and shrubs. The latter are planted on turf in places, which affords an agreeable variety of colour. Happily, there was a good sandy loam for the banks. This loam was thoroughly mixed with

old stone quoins and mouldings, roadside granite kerb, tree roots, and some natural stones. All this and the foregoing I propose should, as has just been stated, be termed rockery work. Then rock-work (or rock formation may be better) are stones put together, with or without mortar or cement, on their proper natural beds or strata, as in Nature, whether level or at any degree of dip, all in lines of strata in the case of a stratified rock, or, if not, the blocks of stone must be put in position in relation to each other so as to suit the peculiarity of the stones or rocks to be imitated, most rocks having some characteristics peculiar to their formation. If we succeed in the imitation, then, as Mr. E. W. Cooke has said, the combination becomes worthy of being termed rocks. Now this principle of forming rocks has been adopted by Mr. E. W. Cooke, Mr. Marnock, Mr. Gibson, Mr. Milner, Mr. Brodrick Thomas, Mr. Kemp, and others engaged in landscape gardening, but it has been as much for the picturesque effect of the rock sometimes as for plant growth—often to hide some unsightly object or to support banks. As some writers on the subject of rockery do not seem to know, I may be permitted to say that the artificial cement rock, as some call it, becomes mossy and clothed with vegetation. *Ampelopsis Veitchii* and other climbers root and grow on and up the face of the artificial stone, some as much as from 20 feet to 40 feet; so, of course, many other plants will grow on it. I name this, as for years its merits have been depreciated. I may state that where blocks of natural stone are to be had at an expense within the means at disposal, certainly they should be used, and not the artificial, but when we find well-informed people mistaking the artificial for real rock, as some members of the British Association did at the Brighton Aquarium, it shows that it is not to be so despised.

Broxbourne.

JAMES FULHAM.

FLOWERS BY POST.

IN reply to Mr. Learoyd (p. 497), as to the best kind of box for sending flowers by post, allow me to state that I have tried all kinds of boxes that I could procure, but have not found any to equal those made of tin; they are light and strong, and keep the flowers fresher than any other kind of box I have yet tried. When I resided in Suffolk, some years ago, I had constantly in use for sending choice flowers by post, such as Gardenias, Orchids, Violets, &c., little tin boxes of the following dimensions, and I never knew them fail to keep their contents in perfect condition. They were 6 inches long, 4 inches wide, and 2 inches deep, and weighed under 4 ounces when empty and under 12 ounces when filled, so that by the ordinary postal letter rate they cost 4d. one way and 2d. the other; or where a good quantity was in use they could be packed in a hamper and returned by rail at a very small cost. Nothing is more annoying than to receive boxes of flowers smashed in transit. As to packing, I do not think any kind equals a little fresh green Moss, but really very little is necessary, for the foliage of almost any flower is not only its best garniture, but also its best packing. If tin boxes, too, are used, I find that evaporation is almost entirely stopped; therefore if the flowers are packed with the foliage (not the flowers) damped a little, they will travel to the remotest part of the country and come out as fresh as if only just gathered. I need hardly add that a little box like that just described arriving fresh every morning or evening is, in many cases, far more valued than double or treble the quantity sent by rail at longer intervals. When we get the promised parcels post I feel sure that flower boxes will be in great request, and if they could be made and sent about double the size of that just described, they would be capable of bringing sweetness in the way of flowers to the very doors of those who are obliged to dwell in crowded cities where floral life is at the best but transient. The reception of a box by post, containing a button-hole or a small lady's bouquet made up of Rose buds and Ferns, or a Gardenia and spray of Euphorbia, or any kind

of flower suited for such purposes, such as a side shoot of *Phalænopsis*, with a bunch of Violets to set on the boudoir or dressing-room table, will prove to be the means of increasing the rapidly growing taste for flowers that has lately been most marked in all directions. Not only are they calculated to add pleasure to the hale and hearty, but they soothe the afflicted in a manner that few other earthly productions can do. What so cheering to a sick friend as a souvenir of solitude in the shape of a box of flowers by post.—JAMES GROOM, *Seafield, Gosport.*

—Camellia blooms are easily disfigured by bad methods of packing. They are best put into shallow deal boxes, large enough for one dozen blooms, viz., 15 inches long, 10 inches wide, and 2½ inches deep inside measure. Several of such boxes can, if needed, be tied together, and will then be found a convenient parcel to carry or to travel. A bed of fresh green Moss quite clean, but not wet, should be first laid on the bottom of the box; in the absence of that the finest cotton wadding should be used, and little nests made for each individual bloom (I am speaking of blooms only such as are intended to be wired) into which they should be carefully laid. Great care must be taken so that the blooms do not touch each other by placing some of the Moss or wadding sufficiently high. A little of this material should then be lightly laid over the blooms to make them immovable. Bookbinders' shavings are also good materials to place over the Moss or wool, as when these are finely cut, they form a nice elastic medium. No paper, however fine, should touch a Camellia bloom, for the constant friction caused by travelling will disfigure the edges of the petals and become at once noticeable in the case of white and light coloured varieties. The Camellia being a flower that endures for three or more days in a perfectly presentable condition, it is better to mount it than to cut a portion of the wood with it. The tree is also less mutilated and its capability to carry a crop of blooms the next year is in no way impaired.—SYLVESTRIS.

GENEVESE ASSOCIATION FOR THE PROTECTION OF ALPINE PLANTS.

IN consequence of the depredations, not only of botanists, whose interest it ought to be to preserve the flora of the Swiss mountains, but also those of plant collectors, acclimatists and amateurs, the flora of Switzerland has become impoverished to an alarming extent during the past few years. If we compare the flora of the French cantons of Switzerland of forty or fifty years ago with that of the present day, a great diminution in the number of species will be found. True, the aquatic flora on the shores of the lake of Neuchâtel has been almost exterminated by the lowering of the water, a piece of so-called philanthropic work undertaken by the Federal Government. Since then (eight or ten years ago) we have lost in that neighbourhood many treasures seldom met with in the country, such as *Hydrocharis morsus Ranae*, *Sagittaria sagittifolia*, *Trapa natans*, *Alisma ranunculoides*, *Leucojum aestivum*, &c. In the canton of Geneva, the flora of which has received much attention, we have lost many good species, even since the death of Reuter, and if we go on as we are doing now we shall no doubt lose entirely other rare plants which we now possess, such as *Isopyrum thalictroides*, *Erythronium dens-canis*, *Tulipa sylvestris*, *Atragene alpina*, *Serratula nudicaulis*, *Cypripedium Calceolus*, &c. Great harm is done to the local flora by collectors. Twice a week, and especially in spring, enormous quantities of plants gathered from the neighbouring mountains, and even from the Alps in the cantons of Valais and Vaud are brought to the Geneva market. Thus the various Gentians, *Soldanellas*, *Edelweiss*, *Rhododendrons*, *Orchids* of all kinds, and even young *Cembra* Pines are brought by thousands to be sold at a low price in our markets. Certain plants, such as *Cyclamen hederæ-folium*, *Adonis vernalis*, and others, have become, extremely rare already. If this plunder continues

our flora must necessarily become greatly impoverished, and in order to prevent such an occurrence, a temporary committee has been formed at Geneva with a view to found an association for the protection of rare plants, and if need be to prohibit the pulling of them up. One gentleman who takes great interest in this matter has already bought one of our richest mountains (the Dole), and has forbidden the collecting of plants on it. The proprietor of another mountain (the Reculet) has promised to have a similar order carried out; and thus we hope to gradually neutralise the effect of the harm done to our flora during the past few years. It is the intention to raise a large number of plants, and by selling them at low prices, to put an end to the illicit commerce now being carried on in our markets. To do this we hope to raise from seed all those plants most in request for rockwork, &c. We have already from experience found that alpine plants raised from seed are more vigorous and healthy than such as are transplanted from the mountains, and amateurs would do well to keep to plants thus raised, as besides the benefit of leaving to our Alps its flora, this system has the great advantage of supplying plants that will flower well, and that are in a better state altogether than those just brought from the mountains. With persons desirous of uniting their efforts with ours, and of entering into correspondence with us on this subject, I shall be glad to communicate.

HY. CORREVON (*Curator*).

Botanic Gardens, Geneva.

FERNS.

FILMY KINDS.

THE name of Filmy Ferns has been given to a tribe comprising all the *Hymenophyllums*, *Trichomanes*, and *Todeas*, from the wonderful transparency of the fronds of most of them. They combine such beauty and variation of form with extreme delicacy of texture, that no other class of Ferns can compare with those contained in this class. They are the gems of the whole genus, and of all Ferns the best adapted for ornamenting a room, where they will grow luxuriantly in the same glass case for years without ever presenting the wretched appearance that other Ferns generally do at times under similar treatment, as the plants belonging to this class of Ferns keep their fronds an unusually long time. I know of some *Hymenophyllums* now bearing fronds that have been on the plants for eight years. All they require for growing successfully in the dwelling-house is a close glass case in which a sufficient abundance of moisture can be afforded them, careful watching to keep the sun's rays from them, and paying a little attention in supplying them with the necessary water at the roots.

They are found in almost every part of the globe, but, with the exception of *Trichomanes radicans* and *Hymenophyllum tunbridgense* and *Wilsoni*, which are indigenous to our own islands, the greater part of them come from New Zealand, Tasmania, Chili, and the East and West Indian Islands, where they are found growing in large masses, and forming a dense green matting over wet rocks or thriving apace in immense sheets all around the huge stems of Tree Ferns, while some of them delight in nothing but decaying vegetable matter.

The drainage must not be in any way defective, for though requiring an abundance of water, it must never be allowed to remain stagnant about them, and provided that a suitable place where their requirements are met with is made for them, they are, when once established, by no means difficult to cultivate. They are not capricious, only exacting an even temperature and even atmospheric condition all the year round as near as possible, and with a little attention and careful observation success is almost certain.

The cause of their not having been grown for a long time to such an extent as they really deserve lies mostly in the fact that a great many of them were termed "stove Filmies," and consequently

kept in too high a temperature, rendering them a constant source of disappointment, inasmuch as in many cases it proved highly injurious to the health of the plants, especially if the atmosphere, besides being overheated, happened also to be dry at times, in which instances the results of years of patient labour were destroyed in a couple of hours. Even



Trichomanes radicans.

now it is not generally known that not a few of the most beautiful among them enjoy quite a cool temperature, as it has been proved of late by a series of experiments made by different growers, but chiefly by Mr. Cooper Forster, 29, Upper Grosvenor Street, that a few degrees above freezing point is all that is necessary for most of them, at least during the winter. Many of them will even bear freezing hard. Who has not heard, for instance, of the *Trichomanes radicans* standing a temperature below zero at Messrs. Backhouse's at York? And, again, of the *Hymenophyllum* and *Todea* as well standing 14° of frost at Messrs.



Trichomanes auriculatum.

Veitch & Sons, at Chelsea, where for a whole fortnight they were frozen into a solid block of ice. When the thaw came the fronds gradually took their former positions, and by the general appearance of the plants and the way in which they have developed since, they seem to have enjoyed quite a treat. Until the winter of 1879-80, when that occurred, the "cool Filmies" had always been covered over in cold weather, but there being no hot-water pipes in the places where these are grown, and being much exposed to cold currents, it was found impossible with all due exertions to

keep the frost out. Therefore, one may judge of the anxiety of all concerned in their welfare during that length of time, and also the pleasure experienced when, after the ordeal was over, it was seen that the plants had not suffered in the least; after a short period indeed they showed unmistakable signs of being benefited by the exposure, which proved much more healthful for them than the artificial heat to which some of the same kinds were subjected in another house. I need hardly add that since that time the "cool Filmies" do not receive any more covering during the winter.

There has also been an idea prevalent amongst growers that, being found growing mostly in shady ravines and damp places on mountains, where the air is always charged with moisture, it is indispensable for them to be constantly kept moistened overhead; that is quite an erroneous notion. It is true they all enjoy having their fronds laden with condensed moisture; but although a few of them, such as *Trichomanes radicans* and its varieties, *Hymenophyllum demissum*, *nitens*, and *pulcherrimum*, do not mind being wetted over, the majority of them are adverse to it; in fact, watering over the fronds is certain destruction to all the hairy ones, such as *Hymenophyllum ærginosum*, *chiloense*, *elegans*, *hirtellum*, *obtusatum*, *scabrum*, and *sericeum*; also *Trichomanes alatum*, *Bauerianum*, *crinitum*, and *meifolium*, and even those which will stand the watering overhead do much better without it; the more so that unless rain water be always at hand or easily procurable, a *Trichomanes* or a *Hymenophyllum* frequently moistened with hard water soon loses its vigour. As no kind of artificial watering on the fronds is at all comparable with the effects of a heavy dew of condensation, which of course is perfectly pure, it is advisable to have the plants either plunged in or stood on a material which, once soaked, retains the moisture without becoming sour; for that purpose nothing is better than Sphagnum, which before being used must be carefully cleared of dead leaves, sticks, or other impurities, as by their decay they breed a fungus very dangerous to the plants.

The quantity of light to be given to them has also been a subject of much controversy, as for a long time they were generally grown in very dark places; but, thanks to the skilful experiments successfully conducted by Mr. Forster, and regardless of expense, we are now in possession of a much sounder knowledge on the subject. At Upper Grosvenor Street, where those plants are grown in perfection, it has been proved beyond doubt that although the *Trichomanes radicans* is sometimes found growing wild in positions so dark and gloomy that its fronds are scarcely discernible, the place best adapted for its culture, as indeed for that of all other "Filmies," is a place where a good light with absolute protection from every ray of sunshine can be secured. It is exemplified by the strongest and most numerous growths all making their way towards the light. Mr. Forster, who possesses not only a unique collection of these charming plants, but also a thorough practical knowledge, acquired by a long experience of their management, and who is always ready to give sound advice to whoever is willing to profit by it, could show where, for instance, the *Hymenophyllum tunbridgense* is grown in a large patch, part of which is in the shade and a part in the light, the portion in the shade gradually dwindles away, whereas the one in the light increases in thickness and the fronds gain in length, many of them measuring from 3 inches to 4 inches.

There no plants whatever are watered overhead, and yet nowhere else do they grow so luxuriantly. Their appearance when laden with moisture, which is produced by precipitation from the atmosphere, is truly magnificent. They are kept very close, the only air that reaches them being that which is admitted into the house during the watering or while other necessary operations are attended to.

The materials required for growing them vary according to the nature of the roots and rhizomes of the different species; as a rule those with thin,

wiry rhizomes do not like to have them deeply buried; for instance, the charming *Hymenophyllum asplenoides*, *ærginosum*, *hirtellum*, *obtusatum*, *polyanthos*, and *pectinatum*; also the pretty little *Trichomanes venosum*, *auriculatum*, *olivaceum*, *pyxidiferum*, and the incomparable and unique specimen of *T. parvulum*, to be seen only there, are grown on Tree Fern stumps; while *H. chiloense*, *tamarisciforme*, *tunbridgense*, *valvatum*, *Wilsoni*, and the *Trichomanes Lusch-nathianum*, *Petersi*, *radicans* and its varieties, which all seem particularly fond of sandstone, are allowed to let their thick rhizomes run all over it, but their fleshy roots go deep into roughly broken peat, which they no doubt enjoy very much.

Todeas will grow in almost any compost so long as there is no loam added to it, and it has been found that a mixture made of two parts of fibrous peat chopped fine (but not sifted), one part of chopped Sphagnum, and one of silver sand, is what exactly suits the *Hymenophyllum caudiculatum*, of which there is a splendid plant in the collection; also *Trichomanes exsectum*, one of the rarest of creeping "Filmies," whose fronds are extremely delicate and highly divided, and of which there is also a unique specimen; and like-



Hymenophyllum demissum.

wise *Hymenophyllum pulcherrimum*, one of the finest of the class, and one of comparatively easy culture.

As regards the question of temperature, the happy possessor of the Upper Grosvenor Street collection has a very decided opinion about it, and is wholly in favour of the cool treatment, as having given him the most satisfaction. Until 1880 there was a heating apparatus connected with the Filmey house, and although not used very frequently, was still kept in reserve in case of danger from cold, but at that time it was taken away entirely, and now there are no means whatever of giving any artificial heat, and yet there is to be found there, living on the best of terms, *Hymenophyllum tunbridgense* from Europe; *asplenoides*, *ciliatum*, *elegans*, *hirtellum*, *valvatum* from the West Indies; *ærginosum*, *crispatum*, *demissum* (in masses), *dilatatum*, *flexuosum*, *scabrum*, *polyanthos*, and *pulcherrimum* from New Zealand; *caudiculatum*, *chiloense*, *fuciforme*, *pectinatum*, and *rurum* from Southern Chili. The transition is more marked still in the complete success obtained by the cultivation together of *Trichomanes radicans* and varieties from Europe; the rare and distinct *T. reniforme* from New Zealand; *anceps*, *crispum*, and *pyxidiferum* from the West Indies; the very scarce *T. meifolium*, one of the most beautiful of all, and of which there is a grand specimen; *T. auriculatum*, *maximum*, and *Lusch-nathianum*, all from Java, and reputed "stove Filmies." The last-named species is well worth a special notice, as the plant in Mr. Forster's collection was brought up in heat previous to his purchasing it; and although two years have elapsed since that time, and the plant has had no heat whatever, the fronds that it has made

in its new home are double the size of those produced previously. I think the experiments above-mentioned are altogether conclusive, and that the operator well deserves the sincere thanks of all those interested in the culture of Filmy Ferns. S.

BEST CULTIVATED FERNS.

Adiantum.—In this genus are some of the best species for floral decoration. They are popularly called Maiden-hair Ferns on account of the black, shining stems common to most of them. Some are of the greatest utility for making bouquets or wreaths for ladies' hair. Foremost among them is *A. cuneatum*, the commonest, and one which is not very likely to be eclipsed by any newcomer. Besides the natural gracefulness common to the fronds of that species it has the immense advantage of producing them in greater abundance than most of the others, and will no doubt for a very long time yet remain a general favourite. Then comes the variety of *A. cuneatum* gracillimum, with fronds much more finely divided and much smaller pinnules. When first brought out, some ten years ago, it promised not only to rival, but even to supersede the old species from which it originated, and as it is quite as free a grower, and as its fronds are also produced in great quantities, strong hopes on the subject were entertained; but these were never realised on account of its bluntly-terminated fronds, which, although much lighter on the whole, are not so graceful in their outline, being generally deprived of that terminal point so much appreciated when mixed with flowers.

For the same purpose also, *A. decorum*, fulvum, scutum, and mundulum, although not so much in demand, are very useful. For large vases where green foliage is often required for intermixing with flowers of more than ordinary sizes, such as Gladioli, Lilies, &c., what can be more appropriate and produce a better effect than the massive fronds of the well-known *A. farleyense*, the light-coloured fronds of *A. cardiochænum* and tenerum, or the darker ones of *A. formosum* and Sanctæ-Catherinæ? But it is not for cutting only that *Adiantums* are so much appreciated. As collection plants there is no tribe equal to them amongst Ferns; indeed, a judicious selection of the best sorts only will produce a greater variety of forms and tints than could be found in any other. There are the dwarf forms of *A. cuneatum*, such as mundulum, Legrandi, Pacotti, all of recent introduction, very pretty, and very useful for edgings in the fernery; also the older *A. Ludde-mannianum*, perfectly distinct from any other form. Then there are the gigantic forms above mentioned, and besides them the popular *A. trapeziforme*, pentadactylon, peruvianum, and Seemannii. Then, again, we have some whose shape and general habit are totally different from ordinary *Adiantums*, such as, for instance, *A. asaræfolium*, with its broad entire fronds perfectly round in shape, and measuring sometimes as much as $3\frac{1}{2}$ inches across; the curious and better known *A. reniforme*, with kidney-shaped fronds, borne on long, shining stalks, and the very strange *A. Feei*, whose scandent fronds expand to very great dimensions, and whose stalks are quite hairy and of a ferrugineous colour. But above all there are amongst them some such as *A. Hendersoni*, with a metallic hue; macrophyllum, whose broad fronds are, in their young state, of a beautiful rosy colour; rubellum, tinetum, and Veitchi, all splendidly tinted in their young state; then we have *A. sulphureum* and Williamsi and the silver one, which has become very scarce of late, *A. scabrum*; also the pendulous forms so well adapted for baskets, in which they make beautiful objects—the *A. Edgeworthi*, caudatum, and lunulatum; so that I may confidently say that a collection of *Adiantums* alone is most interesting. The curious property of repelling water belongs to most of them, which, if kept wholly submerged, will, when taken out, be as dry as before.

Adiantums are widely distributed all over the globe, and although a few of them only are found in temperate regions, the majority come

from tropical countries. They are, as a rule, easy to manage, requiring no very special treatment. Plenty of light should be allowed to all of them, but the full sun should, as for nearly all other Ferns, be avoided carefully. A mixture of peat, loam, and silver sand in equal parts, or, if procurable, good leaf mould instead of peat will suit most of them. None of them like to be potted very hard, and watering or syringing overhead, unless it be in a very airy, light, and warm house, is very injurious to all of them.

A. æmulum.—This very elegant and very useful species comes from Brazil, where it grows in large patches. The dark colour of its foliage, which is in the way of that of *A. cuneatum*, and the narrow wedge-shape form of its pinnules, make it quite distinct. The fronds, which are produced in great abundance, grow from 12 inches to 15 inches, and droop gracefully. It is one of the best *Adiantums* to stand when cut. Stove.

A. affine (Cunninghami).—A very distinct New Zealand species, with fronds of a leathery texture produced from a stout creeping rhizome running underground. They are dark green, bipinnate, and hairy, and often measure 15 inches long. It is of easy culture, and does well in a basket. Greenhouse.

A. amabile.—This truly elegant plant, native of Peru, produces fronds some 24 inches long and 14 inches broad of a light green colour. They are very elegantly cut, and have a charming drooping habit. This plant has also the peculiarity of reproducing itself on its own roots all over the pot. Stove.

A. aneitense.—A very elegant and free growing species from the island of Aneitum. The fronds are three or four times divided; their numerous segments are nearly sessile and firm in texture, their upper surface of a dark shiny green, the inferior being nearly glaucous; they are lobed along the upper and outer edges, where the kidney-shaped sori are borne in the centre of the lobes. It is very distinct. Stove.

A. asaræfolium.—This very rare species has only been found in Madagascar, from whence it has been brought home several times in good condition; yet it is still very scarce. The general appearance of the plant is somewhat near that of the well-known *A. reniforme*, but the fronds, instead of being kidney-shaped, are quite round and of much thicker texture. They often measure $2\frac{1}{2}$ inches in diameter, and are produced from a stout, single crown, the stalk and the base of the frond itself being very woolly. Stove.

A. assimile.—A charming plant of dwarf growth from Australia and New Zealand; its fronds are tripinnate, from 6 inches to 12 inches long, smooth, and bright green in colour; they are produced from a wiry rhizome creeping underground, and for that reason it is well adapted for growing in baskets, which they cover all round in a very short time. Greenhouse.

A. Bausei (of garden origin).—This variety, although partaking of some of the characters of the popular *A. scutum*, is quite distinct from any other form by its pinnules being contracted; the fronds are produced from a crown in great quantities; they are erect (with the stalks ebony black) and of a beautiful light green; the general appearance of the plant is that of a weeping scutum of strong growth. Stove.

A. brasiliense.—A gigantic growing form from Brazil. The fronds, which often attain 3 feet high, are produced from a stout rhizome creeping underground, but very slowly. The stalks are hairy and brown, whereas the pinnæ, of a dark green, are smooth, rhomboid in shape, and produced far apart. It is a very distinct kind in a collection. Stove.

(To be continued.)

Cheap fuel.—I have been experimenting to get a cheap fuel for heating greenhouses with very satisfactory results. I commenced with coal at 20s. per ton of 2000 lb. Now I use about 1 ton of screened slack or waste coal, costing about 8s.

per ton, to 3 tons of slack or waste coke, costing nothing but the hauling from the gas-works. The coal I use to start the fires and get the water well warmed up; then, with the grates well covered with live coals, I fill the furnaces as full as they will well hold with coke, which, if well managed as to draught, will keep the water hot or steam going for from four to six hours, depending on the amount of draught given. The coke is carefully passed over a quarter-inch wire screen, which takes out most of the fine dust. My grate bars are a quarter of an inch apart, and I secure a good draught by having chimneys 13 inches to 16 inches in diameter and 40 feet in height. I have one range of houses heated with hot water and another with steam, and I find no difficulty in keeping up a uniform heat in either with this fine coke. The screenings I use on my cutting benches instead of sand for propagating all soft-wooded plants, and mixed with sand in about equal parts for Roses, also for covering benches on which pots are to be placed, and for plunging pots in indoors or out.

Denver, Colorado.

DANIEL WITTER.

GARDEN FLORA.

PLATE CCCLXVII.

ORCHIS FOLIOSA AND ITS VARIETIES.*

THE accompanying plate gives a good idea of this Orchis and some of the most distinct of its varieties now in cultivation. It is curious that this lovely Orchis should be so little grown seeing that it is one of the most beautiful of the genus to which it belongs, and also one of the easiest to grow. Many of this family are very fastidious as to soil and situation, but *O. foliosa* seems to revel in almost any light rich soil, provided it is moist and shady. I have grown and increased it for years most successfully, and never had the slightest difficulty with it. The bed in which I have grown it is about a foot lower than the surrounding soil, on the north side of a high hedge; the soil to the depth of about 18 inches consists of black spongy peat, which occasionally receives a top-dressing of manure. This bed is always moist and naturally well drained (the most essential point in the cultivation of this plant), stagnant moisture being very injurious to it. When in good condition the large palmate roots are often 1 foot in length, and the flower-stems rise from 20 inches to 24 inches in height. The foliage, which is large, is of a rich bright green about 9 inches in length, and remains in good condition until the flowers have faded. The latter are arranged in a close spike about 9 inches in length, and are produced in May. When grown in pots in a cool house or frame its effect is most striking, and it makes a fine plant for purposes of exhibition. Until quite recently there was only one variety of this Orchis (the largest spike in the plate), and I have no doubt nearly all the plants in cultivation are the produce of one original plant, as it is almost impossible to find two alike among imported ones, varying as they do in colour from very dark purple to almost white, and also in the markings and size. As this plant can be so easily grown and increased, we shall doubtless soon have a number of fine varieties added to our list of showy hardy Orchids.

* Drawn from plants in the Hale Farm Nursery, Tottenham, in June last.

Growers or introducers of new plants will oblige us much by early intimation of the flowering of new or rare species, with a view to their representation in our "Garden Flora," the aim of which is the illustration in colour, and in all cases where possible life size, of distinct plants of high value for our gardens.

PELLÉA.



Many others, too, can be grown quite as easily as this one in a similar situation; in fact, the majority of the American Orchids, as well as other plants, such as *Lilium canadense*, *L. superbum*, *Trilliums* of all kinds, *Spigelia*, *Helonias*, and a host of others can be grown in the same position as *Orchis foliosa*. P.

ORCHIDS.

ORCHID CULTURE IN AMERICA.

THE following paper, read to the New York Horticultural Society by Mr. William Grey, Mr. Corning's gardener, Albany, N.Y., will, we feel sure, be read with interest by Orchid growers in this country, especially as it is now pretty well known that Mr. Corning's collection is one of the largest and best in America. When, says Mr. Grey, the varied habitats where Orchids are found growing is taken into consideration it is really surprising to find so many do well under cultivation. Out of 1000 species and varieties in Mr. Corning's collection, I do not find 3 per cent. difficult to grow. Many of them will succeed along with stove and greenhouse plants, and the nucleus of all the large collections in the United States were so grown twenty-five years ago, and many fine plants of that period are yet fresh in my mind, notably an *Aerides odoratum* with ninety-three spikes on it at one time; a *Phalænopsis amabilis* with eighty-two flowers; *Dendrobium nobile* in an 8-inch pot, over 500 flowers, and hosts of others. Only when the species increased in numbers was it found necessary to erect houses for their special culture. Mr. Corning has pursued the culture of Orchids with much zeal for many years; and with the number of species at present in cultivation, experience has taught that it is necessary to grow them in six divisions, which are named *Phalænopsis*, *Vanda*, *Dendrobium*, *Cattleya*, *Oncidium*, and north house, with a house to rest plants in after they have done growing. The conclusions which we have arrived at are, that low span-roofed houses about 20 feet wide, inside, shelves 3 feet, paths 3 feet, centre bench about 7 feet, suit them best, and as far north as Albany it is positively necessary to have about 4 inches of space between the front wall and shelf to allow the heated air to pass up at the eaves, and to prevent the hot current striking the plants. A slate or board rests on the shelf, and is secured to the underside of the rafters; by this means the hot air is conducted to the roof of the house and becomes ameliorated before coming in contact with the plants. No wood is used except in the roof. No upright glass. The side wall is carried up to the eaves. Height of side wall to top of plate, 4 feet. Centre of house, 10 feet. A lantern runs the length of the house for ventilation in winter when the sashes are frozen fast. Roof elevation east and west at an angle of about 40°. The angle of incidence will vary in different latitudes according to the inclination of the sun's altitude. In short, to receive the benefit of the sun's rays in winter, it is necessary to have the plane of the roof at right angles to the sun on the shortest days, when light and heat are needed to mature the growth of the plants, and that is better in summer than a flat roof which would receive the rays of the hot sun perpendicularly when they are least wanted, burning, as they do, the foliage. The rafters and sash-bars are grooved so as to carry off drip. Here the shelves are of slate, and, like the floors, are water-tight. The centre benches are of light iron grating, supported on stone piers. The shelves and floor are covered to the depth of 2 inches or 3 inches with water, leaving no breeding place or harbour for slugs, cockroaches, or woodlice, a matter of great importance in Orchid houses. The paths are of cast iron lattice work raised above the water. The hot-water pipes are placed under the shelves, which absorb heat enough to evaporate all the moisture necessary in much milder form than from evaporating pans placed on the pipes. This saves much time and labour.

Soil, potting, and watering.—There are about 350 strong growing and free flowering species, well worthy of cultivation. We have found it the most satisfactory, and on the whole probably the cheapest, to purchase strong established plants from a nursery, although many of the most vigorous plants in Mr. Corning's collection were purchased in public sale rooms. We also have received some fine plants direct from collectors that have done extremely well. When plants brought from the woods arrive in good condition, there is no trouble in establishing them. When plants are collected at great distances inland, the transportation to the sea-board, the sea voyage, and other delays often shrivel them, and many become, as it were, petrified, a state out of which it is very difficult to coax them, and a vast amount of labour and experience is spent in keeping them alive; probably the best plan would be to cremate all sickly plants of common species at once. In the case of

Epiphytes that usually grow on branches of trees, as the smaller *Angræcums*, *Barkerias*, *Brassavolas*, the smaller *Cattleyas*, *Compæretias*, *Dendrobis*, *Galeandras*, *Epidendrums*, *Phalænopsis*, *Sophranitis*, and plants of that kind, I find all that is necessary is to secure them firmly to slabs of red Cedar or Locust wood, stumps or posts (one end being placed in a flower-pot), rafts, cork, shallow baskets filled with charcoal, or an inverted flower-pot, which is much lighter to handle than the same filled with corks. A *Lælia elegans alba*, growing on an inverted flower-pot for years, gave this season from two growths eleven flowers; the roots run down the side of the pot, and even take hold of the stage, emitting rootlets during every growing period from the old roots. I always cover blocks, stumps, cork, crock-filled baskets, or an inverted flower-pot with *Hypnum palustre* or *H. serpens*, which I prefer to *Sphagnum*. The *Hypnums* are found growing on trunks of trees, decayed logs, rocks, and on the ground in damp, partly shaded places. Sub-epiphytes, as *Odontoglossum Alexandræ* and *Pescatorei*, *Cattleya Mossiæ* and *Warszewiczii*, *Cycnoches*, many *Cypripediums*, *Lælias*, *Vandas*, and *Oncidiums* I put in baskets, pans, or pots, inverting one or more pots in the bottom of all large pots to lighten them. I fill nearly to the brim with small corks about the size of Walnut, in which a stake to steady the plant can be driven, using for compost the rhizomes of *Osmundas* or other Ferns, which are plentiful in waste places. Remove all fine fibre, split the rhizome through the centre and chop it into coarse pieces; place this firmly on the corks, raising the material a little above the rim of the pot; cover this over with *Hypnum*, spread the roots over this, and firmly secure the plant. This material keeps open and lasts for years, and no amount of water is injurious to the roots—the great secret of Orchid culture. During long drought, with our tropical summer heat, when trees, shrubs, and even Grass are covered with red spider, and where help is limited, it would be impossible to dip blocks and baskets and water once or twice a day and sponge the leaves of thousands of plants. Our mode is to give the plants a thorough drenching with the hose two or three times a day, of course being ruled by external influences. In cloudy weather syringe in the morning, on rainy days not at all, and never after four in the afternoon, so as to allow all young growths to dry before nightfall. I rarely lose a young shoot, and insects are washed away by the constant syringing. We formerly used much *Sphagnum*, with peat, crammed into pots one-third filled with corks. In most cases the plants for a while did well potted and treated this way, but much attention and care were necessary in watering, as plants were subject to an excess of moisture at their roots, our *Sphagnum* holding water like a sponge; being confined in pots, there was no escape by evaporation of the superfluous moisture from the compost, and the roots suffered by being constantly surrounded by wet material. At night the plants were forced to absorb water more than they could digest, not having light; leaves and wood soon became soft and watery and often damped off. Orchids that are constantly

excited by night have a flabby appearance, produce weak flower-spikes and few flowers, when if allowed to absorb food by day and harden their texture by sun heat and light, with plenty of air how different the look. There is often much injury done in the violent change from heat to cold which frequently occurs here. For instance, in August last the thermometer stood 92° in the shade at noon, next morning 45°. When this occurs it is quite natural to close all ventilators. With wet potting material, plant and atmosphere become alike impregnated with moisture, destroying the energies of the plant; indeed the young growths are really dead long before appearances indicate it. Plants are constantly dissipating the moisture they extract from the soil into the atmosphere that surrounds them. They are, therefore, in constant action while any difference remains between the moisture of the soil and atmosphere, and only when thus employed is a plant a living thing, inaction being as incompatible with anything possessing vitality in the vegetable as in the animal kingdom. I may state here that Mr. Corning keeps a slight fire going all the summer. If there were no fire it would be better to leave the ventilators open, and young growths would not be so apt to damp off. *Calanthes*, *Phajus*, many *Odontoglossums*, *Lycastes*, *Cælogynis*, *Cymbidiums*, *Peristerias*, and many *Cypripeds* all grow well in pots in sandy peat and turfy loam chopped into coarse pieces with about one-fourth rotten manure well incorporated together. Use plenty of drainage, and when the soil is becoming dry give water enough to wet all at once in the pot. On bright days, or after a night's sharp firing, draw the syringe over the foliage; or in very cold weather, when the fires are going sharp, we often hose over at night, as when the house is choky and dry, without plenty of moisture, the older leaves on the plants prematurely become yellow.

Shading.—Over thirty years ago I used white lead and turpentine painted on the glass; since then I have used close netting, canvas, and slat blinds, and now I have returned to white lead and turpentine on all houses except the north house. This gives a pleasing subdued light. I paint the glass about the end of March. Our mixture is about the size of a butternut of white lead to one gallon of turpentine, laid on the glass with a common whitewash brush. About the end of May I give another coat, adding double the white lead. In the beginning of September, with a broom or brush, I rub part of the paint from the glass, and in the end of October I brush the whole off. This is the cheapest and best shading I know of, as, unlike canvas or blinds, it does not cut off the whole influence of the sun, which I think of great importance to the welfare and vigour of the plants generally. It is well not to use any oil in the paint, or the use of pearlsh is necessary to clean it off, which injures the paint on the woodwork of the house. In the case of the north house, the great object is to keep it as cool as possible during the summer for plants found in cool places on the mountains near the snow line. I find canvas shades elevated about 18 inches above the glass, causing a current of air to pass between, effectually stop the sun's rays striking the glass. By this method and not putting on side air the north house can be kept 15° cooler than the outside air, and when ice is packed under the tables 20° lower.

Phalænopsis and Vanda houses.—In the *Phalænopsis* house are the small *Angræcums* and a few other plants that need strong heat, and we put any plant in a growing state in it during the winter months. The heat of this house in winter in mild weather is 65° by night, 70° or 75° by day with sun heat; in summer 75° by night, 90° by day, often 110° with sun heat and plenty of air—doors, sash, and all ventilators open; spring and autumn, 70° night, 90° day, with sun heat. Our autumns are so bright, with much sun heat, that I find it necessary to open all ventilators to stop the growth of *Phalænopsis*, as many plants make leaves in November, and I find such plants seldom give a good flower-spike. Three or four leaves in a season are better than a late fifth one.

A healthy plant should never be allowed to become dry, or the old leaves soon perish. During extremely cold weather it is conducive to the health of the plants to allow the house to go proportionately down to the external temperature; I find a night temperature of 50° less injurious than to maintain 65° when 20° or more below zero is the temperature outside. During spring and summer the hose is played over the plants twice or thrice a day—just such a shower as Nature often favours us with on a genial afternoon with bright sunshine immediately afterwards. There are over 1000 plants in this house, consisting of nearly every known variety of Phalænopsis, and all grow robustly, except *P. Wighti* and *P. grandiflora*, which, I think, are kept too hot in summer. A gentleman long resident in Borneo and well acquainted with the home of *P. grandiflora*, told me that the thermometer rarely went above 75° on the mountain on which this Phalænopsis grows. The roof elevation of the Vanda house is north and south. This house is occupied by *Vandas*, *Aerides*, *Saccolabiums*, *Angræcums*, *Renantheras*, &c. It is kept at 55° at night in winter, advanced in spring about 10°, and as cool as it can be kept in summer by ventilation; autumn, 65° at night and 80° by day in bright weather. This class of plants is attacked by a pyriform scale, which has to be cleaned by sponging, as it breaks the leaves to hose, and the water lodges in the heart of the plant and spots the young leaves.

Dendrobium and Cattleya houses.—During the growing season I keep the same temperature in the Dendrobium house as in the Phalænopsis house. I hose it over twice a day. The plants that mature their growth early are moved into the resting house, which is cool and dry, exposing them to the sun, which prevents them making a second or late growth, to which some species are subject. In this house we grow *Cypripediums*, *Galeandra*, *Calanthe*, *Cynoches*, *Mormodes*, *Chysis*, and any plant needing much heat when growing. After the growing season this house is kept cool and dry, and after the Dendrobiums show bud I introduce the earliest into the Phalænopsis house to advance them into flower, and a succession can be had from November to May. We keep the Cattleya house 60° at the warm and 50° at the cooler end; in very cold weather it marks 10° lower; plenty of air is given at all times, avoiding cold draughts. Cattleyas in the way of *C. superba*, *C. Domini*, *C. Eldorada*, *C. Leopoldi* are placed at the warmer end. In the centre we place *C. Mossiæ*, *C. labiata*, *C. speciosissima*, *Lælia elegans*, and at the cool end *C. Warszewiczii*, *C. gigas*, *Lælia anceps*, and *L. superbiens*. During spring and summer these plants are watered with the hose every day, and in the fall and winter occasionally—on bright days, a sort of washing. We rarely have insects trouble us in this house. In winter, when hosing is partly dispensed with, an occasional white scale makes its appearance, which is destroyed as soon as seen. Plants received from collectors never have insects on them, and all assert that heavy rains in Brazil, Guatemala, and Colombia are daily occurrences. I am told that it rains in Bogota about every afternoon from two to three o'clock, and that the sun shines immediately afterwards. The species of Cattleya that do not flourish with me are *C. Dowiana*, *C. bulbosa*, *C. Aclandæ*, *C. marginata*, and *C. Schilleriana*. I have had large pieces of *Dowiana* from the woods that have bloomed the first, rarely the second year, and never afterwards. *Bulbosa*, *Aclandæ*, *marginata*, and *Schilleriana* have delicate constitutions; with care they may be made to bloom, after which they seem seized with panic, and are only brought into good order again by much coaxing.

Oncidium and resting houses.—For growing *Oncids*, *Celogyns*, *Lycastes*, *Cymbidiums*, *Stanhopeas*, *Cypripeds*, *Sophranitis*, *Odontoglossums*, and a few cool growing *Aerides*, *Vandas*, and a few Phalænopsis on trial, we keep the Oncidium house in winter at 50° to 55° by night and 65° by day with sun heat. In summer we give all the air possible—nearly equivalent to taking the roof off. From the floor being flooded

with water with more or less evaporation the thermometer often registers 10° less than outside. The plants in this house are hosed overhead, often twice a day on clear days, and with few exceptions are in robust health. I may mention that there are in this house about one thousand *Odontoglossum Alexandræ* and *Pescatorei* which stand comparison with the same species in the north house. The resting house we use for retarding as well as resting. It is kept at 50° by night and 60° by day in winter, and as cool as it can be kept the rest of the year. The atmosphere is dry. We only water when the plants, which are exposed to the full sun, begin to shrivel. *Calanthes*, *Dendrobies*, *Phajus*, and *Cypripeds* retard well in this house; and all deciduous plants, such as *Cynoches*, *Mormodes*, *Bletias*, *Calanthe*, &c., keep well when at rest and look better when collected into one house—a sort of hospital—than otherwise.

North house.—This is a very necessary house for growing all Orchids that are found on the mountains, chiefly South American, as *Nanodes*, *Masdevallia*, *Restrepia*, many *Oncids*, and most of the species of *Odontoglossums*. These plants when grown in an ordinary greenhouse, with our hot, dry summers, are infested with red spider and yellow thrips, and it costs more to keep them clear of insects than all other requirements belonging to their culture. Persons contemplating the cultivation of what are termed cool house Orchids should provide a house suitable for the growth of these most beautiful plants. In a house facing the north, with floor, shelves, and pit made to hold water, at night when the house is closed, the evaporation settles like a dew on the leaves, an imitation of the mists on their native mountains. We have grown many of these plants with fair success on a shelf in the Heath house. But to do so the love of plants must be very great, as no other compensation could pay for keeping them clear of insects. As far inland as Albany I feel sure that the atmosphere is drier than near the sea coast. There the salt atmosphere coming in contact with the plants will prevent in a great measure the generation of many insects. Sponging with water wherein alkaloids have been dissolved will keep down red spider for many weeks, but this must be delicately performed, the cure being as bad as the disease. In conclusion, I believe that Orchids are and can be grown as well and with less care than any other class of plants, and that more failures are made with *Roses*, *Carnations*, *Heaths*, *Pimeleas*, &c., than with them.

Orchids in bloom at Fernfield, Bridge of Allan:—

<i>Calanthe vestita rubra</i>	<i>Lælia superbiens</i>
" " <i>oculata</i>	<i>Lycaste Skinneri</i>
" " <i>alba</i>	<i>Masdevallia anabilis</i>
<i>Veitchi</i>	<i>igneæ</i>
<i>Cattleya marginata</i>	<i>melanophylla</i>
<i>maxima</i>	<i>toxarensis</i>
<i>Celogyne Gardneriana</i>	<i>ochthodes</i>
<i>oculata</i>	<i>Odontoglossum Alexandræ</i>
<i>speciosa</i>	<i>bictonense</i>
<i>speciosæ</i>	<i>constrictum</i>
<i>Cymbidium eburneum</i>	<i>grande</i>
<i>elegans</i>	<i>nebulosum</i>
<i>giganteum</i>	<i>Rossi majus</i>
<i>Lowi</i>	<i>Oncidium cheiropheum</i>
<i>Cypripedium Harrisianum</i>	<i>linguiforme</i>
<i>insigne</i>	<i>Londeshoruchianum</i>
<i>i. Maulei</i>	<i>Schlumi</i>
<i>Haynaldianum</i>	<i>tigrinum</i>
<i>pardinum</i>	<i>tigrinum</i>
<i>Roezli</i>	<i>Ornithidium Sophronitis</i>
<i>Sedeni</i>	<i>Phalænopsis rosea</i>
<i>Specierianum</i>	<i>Saccolabium giganteum</i>
<i>venustum</i>	<i>Neottia picta maculata</i>
<i>Dendrobium bigibbum</i>	<i>Sophranitis cerna</i>
<i>infundibulum</i>	<i>coccinea</i>
<i>Jamesianum</i>	<i>grandiflora</i>
<i>Houlletia Brocklehurstiana</i>	<i>violacea</i>
<i>Lælia anceps</i>	<i>Vanda Cathartii</i>
<i>acuminata</i>	<i>furva</i>
<i>autumnalis</i>	<i>lamellata</i>
<i>elegans</i>	<i>laxa</i>

Cape Orchids.—In the present number of the Linnean Society's Journal is a paper by Mr. H. Bolus on Cape Orchidaceæ, the total number of which is 28 genera and 265 species.

SOME POISONOUS WEEDS.

THE presence or absence of weeds in a garden is generally considered an indication of the character of the person to whom the garden belongs. A tidy, well-kept ground, with an absence of all extraneous vegetation, points to the owner as a man of method and system, and is perhaps as correct a reading of that man's character as may be had from the state of his domestic arrangements, in his library, studio, or household generally. No objection can be taken to any distinct plant in its individual character, for all plants in their proper place have some points of beauty. The pretty little Chickweed (*Stellaria media*) is one of the commonest weeds to be found in our gardens, and no one can question its simple beauty, but over-running a garden it is in its wrong place, and should be eradicated. There are other weeds, however, that not only grow rapidly, but, possessing poisonous properties, are objectionable in more ways than one. One of the commonest and perhaps most virulent is the Aconite (*Aconitum Napellus*), the dark blue hooded flower and the dark tapering root of which, covered with rootlets, ought to be sufficiently characteristic to distinguish it from Horse Radish, with which it has unfortunately been mistaken, always with disagreeable, and sometimes with fatal, results. Another very poisonous plant sometimes found in gardens is the Deadly Nightshade (*Atropa belladonna*, L.), found in waste places, particularly on chalk and limestone soils. It is a perennial, throwing up annual stems sometimes 3 feet high, with ovate-shaped leaves and single purple flowers, borne on short foot-stalks in the axils of the branches and leaves. The fruits are berry-like, at first green, then changing to red, and finally black. The whole plant is narcotic, the berries particularly so, being classed amongst the most deadly of vegetable poisons. Medicinally the plant is valuable as an anodyne, principally in allaying neuralgia and similar pains. It is also used largely in ophthalmic cases for dilating the pupil of the eye. Though a valuable plant medicinally, it is nevertheless a dangerous one in a garden, and should never be allowed to grow within the reach of children, as the red berries offer a temptation which, if indulged in, results in serious consequences. Very many cases of poisoning from the fruits of this plant are on record, and in 1846 a quantity of ripe berries were brought, through some great negligence, into one of the London markets, and sold as an edible fruit. Some fatal cases were the result of this carelessness. The plant seems to be much less powerful in its effect on the lower animals. It is stated that a horse has been known to eat 8 lbs. of the herb without any injurious effect.

A closely allied plant is *Solanum nigrum*, known as the Garden Nightshade; it is a common annual weed on cultivated ground and by waysides, growing from a few inches to a foot high, with ovate leaves and small white flowers, not unlike those of the Bitter Sweet (*Solanum Dulcamara*). The plant flowers during the summer and autumn months. The berries or fruits are about the size of Peas, green at first and black when ripe. The plant is a powerful narcotic, and on account of certain properties has been used in medicine in cutaneous diseases, but owing to its uncertain effects it has been to a great extent discarded as a dangerous remedy. The berries are extremely poisonous; they are, however, not so attractive in appearance as those of the Bitter Sweet, and consequently are less frequently eaten by children; nevertheless, the plant should be exterminated from gardens.

The Bitter Sweet itself, just alluded to, is to be found in almost every hedgerow in England, and consequently it strays into many of our gardens. The bright purple flowers of summer, succeeded as they are in autumn by brilliant red berries, make the plant very attractive. These berries or fruits have a bitter taste at first, changing to a sweetish flavour, and from this fact the common name of the plant is derived. They are distinctly poisonous, though not of such a powerful character as those of the Deadly Nightshade. The young

shoots of the plant gathered in autumn have been used in medicine.

The Fool's Parsley (*Æthusa Cynapium*) is a weed often found on cultivated grounds, a virulent poison with a nauseous odour when bruised. The plant is very variable in size, from 2 inches or 3 inches to 12 inches or 18 inches in height. The root is slender and tapering. The leaves are thrice pinnate, with wedge-shaped leaflets, and are of a dark glossy green colour. It bears small umbels with spreading irregular rays, flowering in July and August. The fresh leaves have somewhat the flavour of Parsley, but the aroma is

in terminal umbels usually of from ten to fifteen rays. The leaves are triply pinnate with deeply-cut segments, the upper ones on the flower-stem smaller and less divided. The plant is extremely poisonous, and should therefore be well known, so as to distinguish it from others similar in appearance, but harmless. Horses and cows generally refuse to touch this plant, but sheep often eat it. It is supposed that the famous Hemlock potion of the Greeks which was used to put criminals to death was composed of the juice of this plant.

Few plants are more graceful in habit than the common Bryony (*Bryonia dioica*), scrambling over,



Hemlock (*Cnium maculatum*).

quite distinct; when dried they have a peculiar nauseous bitter taste. The plant has not unfrequently been mistaken for Parsley, and the following case will illustrate the activity of the poison: "A boy, six years old, having eaten at four o'clock in the afternoon of this herb, which he mistook for Parsley, soon uttered cries of distress, and complained of cramps in the stomach. Before his father had conveyed him from the field, his whole body was much swollen, and assumed a livid tint; his breathing was very short and very difficult, and he died about midnight."

Another umbelliferous plant, the foliage of which has sometimes been mistaken for Parsley, is the Hemlock (*Cnium maculatum*). It is a biennial plant, not uncommon in waste places and on roadsides, producing its umbels of white flowers in June and July; these flowers are borne

as it does, and sometimes covering the hedges of our green lanes throughout the summer. The plant is well known by its rough, angular stem, its deeply five-lobed leaves, greenish flowers appearing in May and June, and its numerous small berries, which later on become bright red in colour. It has a thick perennial root, which contains an acrid, milky juice, used at one time as a cathartic medicine. In consequence of its powerful and sometimes dangerous action its use has been abandoned. The stem and leaves have somewhat similar properties as the root, and the berries are also poisonous.

The plants here referred to are amongst the most poisonous of our British wild plants, and, though we could ill afford to lose them from our hedges, they are not desirable in gardens.

JOHN R. JACKSON.

INDOOR GARDEN.

SELECT CHRYSANTHEMUMS.

THE additions within the last few years to our list of Chrysanthemums, especially to the Japanese varieties, have brought up the number of Chrysanthemums in our gardens to an almost unmanageable extent, so much so that when one reads of collections consisting of between 500 and 600 varieties, one feels satisfied that many cases of very near resemblance must occur, even if the same plant is not found under a couple or even more names. Such being the case, it is at once apparent that selections rather than collections should be the object of the cultivator, and with that aim in view I propose to give the names of some of the best that have come under my observation in each section, their merits being regarded from a general decorative point of view rather than from a cut-flower standpoint alone, as some of those often seen on exhibition stands are greatly inferior as plants to others but rarely met with. For instance, among the Japanese there are three varieties: Dr. Audiguier, La Charmeuse, and M. Crousse, the individual blooms of which are too small to hold their own among the enormous flowers now set up, yet their bright colouring, the profusion in which they are borne, and the free-branching character of the plant render them very valuable kinds. As

Pot plants among the Japanese I have selected the following, viz.:—

Belle Gabrielle	Duchesse de Gerolstein
Bertier Rendatler	Elaine
Bismarck	Espérance
Bouquet Fait	Étoile du Midi
Comte de Gerniny	Fée Rageuse
Dr. Audiguier	Flambeau
Dr. Masters	M. Castel
Fair Maid of Guernsey	M. Crousse
Fulgore	M. Delaux
Fulton	M. Eugène Pourquie
Hiver Fleur	M. Juan Cruz d'Enleor
James Salter	M. Lemoine
La Charmeuse	Parasol
Lady Selborne	Père Delaux
La Frisure	Peter the Great
La Nympe	Reine des Beautés
Laurence	Rosa Bonheur
L'Enfante d'Espagne	Triomphe de la rue du Châtelet
Mdme. Clémence Audiguier	The Dalmio
Mdme. Emile Dufaur	Tokio
Mdlle. Anna Delaux	
Marguerite Monarch	

White kinds are represented above by the well-known Elaine and Fair Maid of Guernsey, besides the newer Lady Selborne, a charming pure white counterpart of that old kind, James Salter. In the above named three very different types of flowers are represented, all alike beautiful, and if still another is needed add Ethel. A promising variety of this colour is La Pureté, received from the Continent. It is a full flower, the petals long, rather narrow, and somewhat twisted, the colour very pure. When better known it will doubtless be a favourite, especially as its habit appears to be good.

Pale colours of the various tints of blush, pale pink, lilac, &c., include Bouquet Fait, light silvery rose, good alike as plants or cut flowers, one of the most effective of its colour; Espérance, florets twisted, and of a lilac tint, like the preceding, bears its flowers in large masses, and equally beautiful; Fée Rageuse, a large recurved flower with broad petals, colour white tinted with lavender; Hiver Fleur, cream colour, full flower; James Salter, mauve; La Frisure, light rose, the petals curled and twisted in a curious manner, plant very dwarf and free, a character that also belongs to the succeeding, viz., La Nympe, the individual flowers of which are rather small, but as the plant is as dwarf and free as a Pomponne, it is a very useful kind; Laurence, a very large flower, light rose in colour with deeper markings; Madame Clémence Audiguier, when well grown this is one of the largest flowered kinds, although somewhat regular in outline for a Japanese sort; it is a very bold and telling variety, colour lilac mauve, and habit of plant good; Madame Emile Dufaur, pale, mauve centre, gradually deepening in colour to the edge, outer row of petals pendulous, thus forming a fringe all round; Mdle.

Anna Delaux—this is at times nearly white, at others shaded with violet. The habit of the plant is stout yet comparatively dwarf; The Daimio is a large well-known pale pink flower. Of different shades of

Yellow, some being almost a bronzy hue, we have Bertier Rendatler, a large, loose, very showy flower, clear canary yellow marked more or less with crimson. It is of rather tall growth, but very effective as a pot plant. Bismarck, too regular in outline for a Japanese, but very striking. The flowers, which open before those of the bulk of the varieties, are in colour deep orange, often shading off into amber. Dr. Masters, bright yellow, very distinct owing to the base of the petals being marked with bright crimson. Fulton, a large clear yellow flower. L'Enfante d'Espagne, moderately dwarf in growth; flowers composed of long quilled petals of a pale yellow colour. L'arazol, yellowish buff, most of the petals being curiously forked; centre of flower unusually full, and colour also uncommon, if not bright. Peter the Great. Probably no Japanese variety is oftener grown into specimen plants than this, the rather cup-shaped lemon-yellow coloured flowers being met with at nearly every Chrysanthemum exhibition. It is too regular a flower to figure very effectively among cut blooms, but as a specimen its habit is remarkably good.

Deep coloured flowers of the various shades of red and crimson, many being also marked with yellow, include some remarkably showy kinds, such as Dr. Audiguier, deep amaranth-crimson, often spotted with white, the reverse of the petals being also white. This is very distinct, owing to the contrast in colour between the upper and lower sides of the petals. Etoile du Midi, a bright crimson flower with the centre orange; outer petals rather broader than those of most of that type, and they hang gracefully all round like those of that old variety, Garnet. Flambeau. —This is in my opinion one of the most effective of the new Chrysanthemums. In colour it somewhat resembles the well-known Julie Lagravère, but is rather lighter, although it possesses the rich velvety appearance of that variety; petals broad, and on the reverse side of a yellow colour. Marguerite Monarch.—This is of a peculiar bright bronzy crimson, and when looked at from some points of view the petals seem to possess quite a metallic lustre. It is a free-growing variety of medium height, but sparse in the production of suckers. M. Castel.—A large, weird-looking crimson-coloured flower with a yellow centre. It is quite a low-growing kind. M. Crousse.—This was mentioned above on account of its free blooming qualities and the display which it makes when in bloom. The colour is crimson, with the reverse of the petals yellow, and as they curl over the centre they give the flower a golden appearance. M. Delaux.—Somewhat tall growing, but with large imposing blooms, consisting of strap-shaped petals deep crimson in colour. M. Eugène Pourquie.—The petals of this are long, very narrow, and generally forked at the points, forming a loose, confused-looking flower, but a very bright and attractive one. The colour is bright crimson shaded with yellow. M. Juan Cruz d'Eguileor.—This belongs to the class represented among older kinds by Red Dragon, but it is of a brighter crimson, and the petals are longer. M. Lemoine.—The centre of this is golden-yellow, surrounded with a drooping fringe of bright crimson, very attractive owing to the contrast of the two colours. Père Delaux.—Although before the public for three or four seasons, it was only last year that this variety came prominently forward, when it was largely shown in the different exhibitions of cut blooms. I have grown it from the time when it was sent out, and I consider it worthy of being placed in the front rank as a decorative variety. Habit free, but dwarf, so much so that it can be grown without sticks or any support. It is a large, full, reflexed flower, brownish velvety crimson in colour. Reine des Beautés, altogether a small kind, both as regards stature of plant and size of flowers, and well adapted for growing along with the other

miniature varieties mentioned above. Tokio.—A well grown plant of this is certain to attract attention, however large the collection may be, its intense colour being unsurpassed by that of any other kind. It has not the depth of colour that we find in Flambeau, Julie Lagravère, &c., but a glowing orange-crimson, very bright and effective. The flowers are of medium size, shape a good deal like that of M. Crousse. Of flowers of a

Violet shade, with different hues of deep pink, there are the following: Belle Gabrielle,

flowers of a bright amaranth, a very free blooming kind. Triomphe de la rue du Châtelet.—Bright salmon, a very large and peculiarly coloured flower. Chrysanthemums are, it is well known, notoriously variable in colour, especially the rose-coloured kinds, which at times come almost white; not only do the Japanese behave in this way, but the incurved also, and sometimes even the Pompones. Source Japonnaise, sent out this season by M. Delaux, is a distinct and remarkable flower, unique in form and colour. I have bloomed and find it to be decidedly distinct. The petals are very broad,



Folia Paeley (Euthusa Cynapium).

rosy violet, the reverse of the petals white, and as they turn up around the edges give each petal the appearance of being bordered with white; this year good. Duchesse de Gerolstein.—This is a paler form of the now well known and deservedly popular Rosa Bonheur, and like it very free and effective. Fulgore.—Sometimes almost white and at others light purple, a colour which extends nearly over the whole flower. Rosa Bonheur.—Flowers large, of a deep rich violet; this variety stands out prominently from all others, and it will doubtless be a popular sort for years to come.

Variously coloured flowers.—Those that can scarcely be classed under any of the above heads are Comte de Germiny, bright nankeen yellow, marked with crimson; petals very broad and partially incurved in a curious manner. La Charmeuse, a small growing kind, producing

in colour violet shaded with carmine, and somewhat incurved, so as to form a cupped rather than a globular flower. The plant was too weak to speak about as definitely as one would wish.

The incurved flowers are too well known to require any description, nearly the whole of them being well established kinds, so that a mere list of a few good distinct sorts for pot culture need only be given. There are among white or pale coloured kinds Aimée Ferrière, Beverley, Eve, Empress of India, Mr. George Glenny, Mrs. Rundle, Mrs. Heale, Mrs. Haliburton, Princess Teck, Queen of England, Venus, White Globe. Yellows and bronze tints—Aureum multiflorum, Barbara, Angelina, Golden Queen of England, Jardin des Plantes, Mr. Brunlees, Mr. J. Laing, Mr. Bunn, Mrs. Dixon. Pinks and different shades of rose—Beauty, Dr. Rozas, Fingal, Hero of Stoke Newing-

ton, Lady Hardinge, Lady Slade, Lady Talfourd, Pink Perfection. Dark kinds—These include Lord Derby, Mr. Cobay, Mulberry, Nil Desperandum, Prince of Wales, Refulgens, Rev. C. Boys, while Le Grand and Mrs. W. Shipman are of a distinct fawn shade. Some of the large-sized

Reflexed flowers are very valuable on account of their bright colours and the profusion in which the flowers are borne. Of this class the following is a good selection: Annie Salter, orange; Christine, peach and golden; Chevalier Domage, yellow; Dr. Sharp, magenta-crimson, extra fine; Garibaldi, bright red; Julie Lagravère, deep crimson, indispensable where plants are grown for furnishing; Progne, bright amaranth; the flowers of this have just the odour of Violets; and King of the Crimson, a variety certificated as a Japanese flower, but it undoubtedly belongs to this class, and may be best described as a large form of Julie Lagravère. The large-flowered

Anemone Chrysanthemums form a very distinct class, and when grouped with the others form a pleasing variety. A few noteworthy sorts are—Acquisition, lilac; Empress, blush; Fleur de Marie, white; Glück, yellow; Georges Sands, red and yellow; King of Anemones, purplish crimson; Madame Goderaux, creamy white; M. Chaté, rosy peach; Madame Clos, violet-rose; Mrs. Pethers, lilac; Prince of Anemones, lilac-blush, full centre. Of the above, Fleur de Marie is in some places largely grown for the sake of its large, pure white flowers. M. Chaté is very effective as a pot plant, and the same remark applies to Madame Clos, the blooms of which are very large and nearly single. The miniature counterparts of the preceding, known as

Anemone Pompones, are still grown only to a limited extent, although they are now seen at exhibitions more than formerly. A good variety is afforded by Antonius, yellow; Calliope, ruby red; Dick Turpin, bright magenta; Firefly, scarlet; Grace Darling, blush; Marie Stuart, blush; Mr. Wyness, rose-lilac shaded yellow; Virginalis, white. Of these Dick Turpin and Marie Stuart form two remarkably pretty little bushes when studded with their small flowers. Of the

Pompones we have lately had great numbers of varieties sent from the Continent, but few of them have proved better than kinds already in cultivation. Of this class I would recommend Adonis, rose and purple; Annette, pale lilac, tipped purple; Bob, brownish crimson; Champs Elysées, amaranth; Crimson Perfection; Fanny, crimson, very effective as a specimen; Jersey Gem, yellow, tipped with brown; Mademoiselle Marthe, a beautiful pure white, largely grown for Covent Garden Market; Model of Perfection, lilac, regularly edged with white, a distinct and formal-looking flower; Marguerite Vincent, bright chestnut-red; Marie Crozat, crimson-purple, sturdy in habit, and bearing beautifully tinted flowers; Prince Victor, maroon; Salomon, dark carmine; Sanguineum, crimson, shaded with yellow in the centre; St. Michael, bright yellow; Snowdrop, a pretty little pure white flower. There are also some of the Pompones that flower earlier, and form as it were an advance guard to the bulk of the collection, and not Pompones alone, but a few of the others may also be included in this group. Some of these would perhaps be more strictly defined as

Late summer flowering kinds, and others as early sorts of the ordinary type. It is of these I now propose to speak, and after that of the summer flowering varieties, thus reversing the course of Nature in the order in which they are given. Early Japanese sorts include Elaine, white; Lady Selborne, white, a kind which appears rather earlier rather than its parent, James Salter; and Gloire Rayonnante, a very peculiar flower, quite unlike any other with which I am acquainted, the petals being stiff and quilled throughout their entire length, so that a name I heard suggested for it, that of the Hedgehog Chrysanthemum, seems very appropriate. The colour is pale lilac, and the habit of the plant tall and somewhat loose. Mrs. Rundle and its sports, Mr. George

Glenny and Mrs. Dixon, may be had in bloom earlier than the bulk of Chrysanthemums; and among Pompones may be named Adrastus, rosy purple; Aureole, pink; Aigle d'Or, yellow; Bolide, bright yellow; Capitaine Nemo, purple; General Canrobert, pale yellow; Scour Melanie, a very free and useful kind, pure white; Trevenna, golden, rose, and white, are pretty globular flowers, very chaste in appearance, and well adapted for cutting. Some of this group of Chrysanthemums are very suitable for planting in borders, as they come in at a time when indoor flowers are much wanted, and the late kinds are often cut off by frost before the flowers have time to expand. Plants of stout sturdy growth, and flowers that do not get top-heavy when wet with the rain, are the best suited for this purpose; the incurved sorts hold the water too much, and then droop down and hide their beauty. At Kew in the early autumn some plants of Adrastus planted in the borders were bright and exceedingly showy.

The summer flowering kinds may be said to have sprung into popularity within the last few years, as there is now a greater demand for them than for any other class. They are all small-flowered kinds, except one, Madame C. Desgrange, a large white flowered variety, and one that has had, during the last season, high encomiums passed upon it in all quarters. By varying the time of striking and stopping, this variety may be had in bloom from the time when the early summer ones commence to open till the bulk of autumn flowering kinds are ready. Other good summer flowering varieties are Cassy, pink; Frederick Pelé, crimson; Hendersoni, yellow, a small button-like flower; La Petite Marie, white; Lucinda, blush; Le Luxembourg, amber; Nanum, blush white; Perpetual Toulousain, red; Précoceité, the best yellow; Scarlet Gem, bright crimson, also known as Little Bob; Souvenir de M. Rampont, reddish purple; Souvenir d'un Ami, white.

Fringed flowers, that is those in which the ends of the petals are deeply and finely frimbriated, form a pretty class, and very useful in a cut state. Laciniatum, introduced, I believe, direct from Japan by Fortune, has flowers that remind one of those of a white Pink. Another beautiful white flower belonging to this section, and by no means a novelty, is Marabout, a medium sized Pompones. Of this there was a bunch shown at the recent Aquarium show of a delicate blush colour. Other fringed flowers include Lucrèce, reddish brown and yellow; Adèle Priset, lilac; Fremy, salmon shaded crimson; Madame Rieux, soft pink on the upper side and white beneath. The blooms of this are of a medium size and partially incurved, so that the white underneath is then visible, giving it in conjunction with its fringed petals a very distinct appearance. M. Bonamy aîné is deeper in colour than the preceding and not incurved. Striatum, a striped petaled kind, is both distinct and striking, when the blooms come well marked, but in this respect they are very variable. The markings are white and rosy purple in about equal proportions at times, while at others one colour or the other predominates. Striatum perfectum, white striped with rose, seldom develops its striped character, being often white or nearly so, but when well marked it is a fine flower. Both of the above belong to the Japanese type. There are also two—M. G. Wolkenstein and Hofgartner Lebl—in the way of small Japanese blooms, the petals of which are marked with pink, a kind of rosy crimson, and white in varying quantities. They are very pretty and different from any of the others.

H. P.

Hydrangea paniculata.—Will some of your correspondents kindly tell me what is the best method of propagating this Hydrangea?—J. E. I. R.

A new Pleione.—In April last plants of what was called a new Pleione were offered for sale at Stevens'. They were described as being distinct from any known kind, and were said to bear flowers measuring 5 inches across, a doubtful size, but, being inclined to give the plant a trial, I paid 20s. for a small one. It has just flowered, and has proved itself to be a variety, and a poor one too, of P. Wallchiana.—S.

BOUVARDIAS.

ANYONE who can command a warm greenhouse and who may require a large quantity of cut flowers at this cheerless season should grow Bouvardias. I do not know a plant that affords so great a supply of really beautiful flowers, which are charmingly effective for bouquets, admirable for table decoration, and appropriate for button-hole posies. For the last month I have had a small house in which Strawberries are forced, and in which, at this early period, only a gently stimulative temperature is maintained, half filled with Bouvardias, old and young, from 1 foot to 3 feet in height, and these plants are literally covered with the gay white, pink, and deep red flowers of the sorts called Vreelandi, Maiden's Blush, and Hogarth, and for several years past we have been successful in securing an equal abundance of bloom. When first brought into notice Bouvardias found a place in an intermediate stove, or, at any rate, were constantly kept under glass, and the development of bloom was by no means satisfactory. Changing this system of treatment, the plants were pruned back to the ripened wood, and late in May turned out like half-hardy bedding plants, but with the advantage of having a prepared bed of deep and rich soil, and the partial protection of a box frame as a safeguard against exceptionally severe weather. The satisfactory result of this treatment was soon demonstrated in a vigorous and perfectly healthy growth. In the autumn, sufficiently early to save the plants from injury from frost, to which they are susceptible, they are lifted and potted in a compost of loam, peat, leaf soil, and well-rotted manure, forming a compact mass of roots; then removal is attended with less danger, and kept for a short time close, shaded, and watered overhead, they suffer but little injury; indeed, it seems to throw them more abundantly into bloom, which is produced in constantly succeeding clusters during November, December, and January. When the flowering time is over the plants are removed to a cool greenhouse, and towards the end of March pruned back ready for planting out later in the season. Some half-dozen old plants are generally retained in the house in which they have bloomed, and after being moderately pruned the pots are plunged in a slight hot-bed, which has the effect of developing many latent buds, which produce flowers and carry on the supply until April. This is an exhausting plan, and one we only practise with our old plants, but by practising it we are never without a supply of Bouvardia blooms during the winter and spring seasons. W. INGRAM.

Belvoir.

FORCING DECIDUOUS PLANTS IN THE DARK.

IT may not be generally known how readily most deciduous plants force in the dark, and how well they come on under that treatment; that being so, sheds or cellars in gardens may now be turned to good account and made powerful auxiliaries to aid in filling the houses. To be of much use, however, the sheds must be made nearly air-tight, as then what warmth is generated within may be kept there instead of escaping and going to waste in the open. The best material to use for affording the heat is tan or leaves, or the two combined, as their fermentation is more regular and steady than that of manure; besides which the steam the leaves and tan evolve is without those gases thrown off by manure, which in their rank state are so hurtful to vegetation. With a good bed of leaves and tan shut up in a shed, it is surprising what may be done, as on it may be stood hardy Azaleas, Roses, Lilacs, Sweet Brier, Deutzias, Weigelas, Guelder Roses, and in the spaces between may be plunged Lily of the Valley, Spiræas, and bulbs of various kinds, which may be kept there till they are well on the move and need light to prevent them from drawing. The heat and moisture being more uniform in ceiled or close sheds, when they have fermenting material in them, than can be maintained under glass, all the plants just enumerated do best there during the early stages, especially at this season of the year when it takes a steady

heat to excite them. Roots too are formed more readily in the absence of light, and it is no uncommon thing to see plants, when treated in the way referred to above, sending young feeders out at the joints, or to find them poking through the surface of the soil, and creeping along on the top. This I have witnessed again and again, and it shows how the atmospheric conditions suit them, a circumstance further evidenced by the strong way the flower buds push. The time to take the plants out is when these are bursting, but Lilacs may be left in to open if white blossoms are liked. Not only may deciduous subjects be forced in sheds, but hard-leaved plants like Rhododendrons take no harm without light for a fortnight or so, and that period in a warm shed or Mushroom those greatly helps them along. The French force enormous quantities of Lilac under such conditions, and its blossoms, white as driven snow, may be seen at all times during winter in the Paris market. S. D.

THE PERSIAN CYCLAMEN.

It is possible that the various highly-coloured varieties of this plant now cultivated may have been obtained by blending some of the self-coloured European species with *C. persicum*; but, be that as it may, the many beautiful and sweetly-perfumed varieties of this Cyclamen are found to be exceedingly desirable for the decoration of the greenhouse or conservatory in winter, its time of flowering being generally from the early part of October until the beginning of March. This Cyclamen has also the merit of being of easy culture and the various varieties are possibly never seen to greater advantage than when occupying a suitable structure, such as a low span-roofed pit, entirely devoted to them. As, however, it may seldom be convenient to do this, the front shelf of a moderately warm greenhouse or conservatory will be found to be by no means an unsuitable situation for them and, where in company with the Chinese Primrose, the Hyacinth, and other low-growing winter-flowering plants, they can hardly fail to produce a lively and pleasing appearance during the dull months of winter.

Cyclamens may be increased by offsets or by division, but the easiest and the best method is by means of seed, and in order to keep up a stock, as well as having a chance of securing improved varieties, it is advisable to raise a quantity of seedlings annually; and, as a probable means of obtaining the latter desideratum, *i.e.*, improved varieties, the seed should be saved from selected plants from the best strain, which during their time of flowering should be isolated from the more ordinary stock. Where a variety of extraordinary merit is secured, and of which it will, of course, be desirable to obtain stock, it is advisable to place it in a favourable situation in some structure containing no other plants of the family, and care must be taken to fertilise the blooms with their own pollen. From such a plant the stock raised will generally be found to come tolerably true to the original. The seed of these plants may be sown as soon as it is ripe, or, say, during the month of August in a well-drained pot or pots some 6 inches in diameter, filled with light and tolerably rich soil. On the surface of this the seed should be sown, not too thickly, and it should be pressed gently into the soil. Cover slightly with silver sand or light soil, water with a fine rose to settle it, and a pane of glass should be placed over the surface of the pot, while the surface of the soil should be some half an inch under the glass. The pot should now be placed in a pit or frame. Little water will be required until the seedlings appear, when the piece of glass should be tilted up, and finally altogether removed. When the plants have made two or more leaves they should be gently raised and pricked into seed-pans in soil similar to that in which the seed was sown. This is possibly better, and certainly gives less trouble than potting singly into small pots, as is sometimes done, as the young plants can be wintered in considerably less space. The pans may be placed upon the top

shelf of a warm greenhouse or in any similar structure.

Potting.—In March the plants should be potted singly into 3-inch pots, and should be retained in a close, warm atmosphere until they have become somewhat established. They should then be placed upon ashes in a cold pit, and kept at the same time pretty close to the glass, giving air whenever the state of the weather will permit. In August or about the time when old plants are beginning to start into growth and require repotting the young plants may also be shifted into their flowering pots, which in their case need seldom exceed 5 inches in diameter, although old and large plants may require pots of greater dimensions, and the soil used may be similar to that used for Pelargoniums and other soft-wooded greenhouse plants. After potting, the plants should be kept in a minimum temperature of 50°, and the young as well as the old plants will generally commence to bloom early in October or in about fourteen months from the time of sowing. If kept in a temperature similar to that just named, they will generally continue to bloom until the following month of March. When flowering is over they should be returned to a cold pit or frame, which will afford the necessary protection until the weather becomes sufficiently mild to allow them to be either planted out or placed in their pots in a sheltered and somewhat shaded situation in the open air, but they should not be allowed to become altogether dried off. The same plants may be grown for an indefinite number of years, although some, preferring young plants, discard them after the second or third season. Whether the plants after flowering are retained in their pots or planted out in the open borders, if the decaying flowers are allowed to remain upon them, it will be found that they will make an instinctive effort to sow, as it were, their own seed as it becomes ripe by a peculiar twisting of the flower-stalks towards the surface of the soil, and when this is observed it may be regarded as an indication of the seed being ripe, and when, if required, it should be gathered and sown.

Insects.—Cyclamens do not generally suffer from insect pests, but sometimes they are attacked by aphides, and whenever this is found to be the case fumigation should be resorted to. Their most formidable enemy, however, is a small white grub or maggot, the larva of some small fly, which not unfrequently attacks the undersides of the tubers, and if undisturbed will continue to feed upon them until little except the skin or upper surface is left. Strong lime water has been found to be a remedy; it either kills the maggots or compels them to leave the pots. Sootwater is doubtless also distasteful to the maggots as well as to the fly which produces them; but as soon as the time of flowering has passed all infected tubers, as well as the soil containing them, should be burned, in order to prevent the maggots from attacking other plants, which they are by no means unlikely to do. If the plants attacked are valuable, and it is desired to preserve them, then the best remedy is that recommended by "J. C. B." (p. 469), *viz.*, "taking the tubers from the soil and washing them carefully, so as to remove everything like insect eggs or larvæ." Pot again in fresh light soil, using pots no larger than are required to admit the tubers; place them in a cold pit, which should for a time be kept somewhat close until new roots are formed, which, under such circumstances, will not be long in taking place. P. GRIEVE.

Sanchezia nobilis in pans.—This is an attractive plant when well grown, the foliage being strikingly marked with yellow. Being of dwarf habit and liking perfect drainage, it appears to thrive best when grown in pans. I always found young specimens of it to produce finer leaves than older ones, and made a point of inserting some cuttings early in the year, so as to be able to give them a long season of growth. Then finely-grown specimens bearing many large, golden, variegated leaves are formed by the following winter, such being found to lend an additional charm to the warm house at that time of year. Whole shoots, bearing from four to six

leaves, will strike readily in a brisk bottom-heat. When rooted place half a dozen of them in a well drained pan, filled nearly to the rim with fibrous peat, and they will make a good specimen without further trouble as regards repotting. If smaller plants are required, grow them on in the ordinary yaw. This plant requires strong heat and much atmospheric moisture when making its growth, but may be wintered in a temperature of 55°.—J. C.

Medinillas.—Where there are large roomy stoves these are very effective plants for flowering in the spring. To bloom them well they should be grown with little shade and a somewhat drier atmosphere than the majority of stove plants. From this time forward until they are started into growth, about the beginning of March, the soil ought to be kept as dry as the plants will bear without the leaves flagging.—ALPHA.

DAPHNE INDICA.

I QUITE agree with "G. J.," who recommends the planting out of this fragrant greenhouse shrub. The best pot culture can never accomplish for it what a free root-run in good compost will, and there is the double advantage of securing more and better flowers whilst economising labour. But everyone does not find it convenient to plant out, and as there is no real difficulty in growing it in pots, one cannot but feel surprised that it should so seldom be found in good condition as it is. Training this plant to a balloon-shaped trellis is simply a mistake. It naturally assumes a spreading, bush-like habit, and never needs training or tying out of any kind. Give it the same treatment as an Azalea or a Camellia, not over-potting, but watering liberally with weak liquid manure when growing if in a root-bound state. Give plenty of air in spring and summer, with a few weeks' exposure in the open air when growth is completed, and no difficulty will be experienced in maintaining this lovely greenhouse shrub in a healthy floriferous condition. When this Daphne is allowed to grow on freely from year to year without being touched by the knife, it is easily kept in good order, but the exceptional fragrance which the flowers possess often causes it to be so mutilated that only skilful treatment will induce a free growth the following season. Planted out, this reduction of foliage does not materially affect the health of vigorous specimens, but when a pot plant is cut to the extent of denuding it of the greater portion of its leaves, it is evident that only much care in watering can avert a permanently enfeebled root action. I have seen plants by the close of the year as bare as Hop poles, not a scrap of foliage being left to draw up the sap or preserve the roots healthy and active. My advice is do not cut your pot plants, do not over-pot, but give them plenty of soot water when in growth. J. C. B.

ROLLISSON'S UNIQUE PELARGONIUM.

I AM glad to see that this good old Pelargonium is again beginning to receive attention, as unquestionably it is still one of the best, if not the very best, of its class, flowering, as it does, nearly the whole year round, and making a grand display when grown and suspended in baskets, a purpose for which it is specially adapted, its habit being naturally pendent and trailing. Although this is so, it makes a capital pot plant, and I have many now that only want just a little heat to get them well into bloom. These were grown outdoors in full sun during the summer, and were kept pinched in occasionally, which stopping has caused them to become studded with dwarf, stocky shoots that are hard and well ripened right up to the tips. When required for baskets the best plan is to let them have pretty much their own way, as they look more natural, and if the white Ivy leaf is grown with them and allowed to commingle a fine effect is produced, the bright flowers of the one showing up in pleasing contrast with those of the other, the two thus appearing to the greatest advantage. This is how we have them, and they are much admired; for, the house they are in being

light and lofty, they bloom profusely from branches 3 feet to 5 feet in length. Not only is Rollisson's Unique useful for this work, but it is also valuable for bedding and vases outdoors, but when so used it should have poor soil, as, being of a strong, robust habit, it is apt to run too much to leaf, when it does not flower near so freely. To check this tendency it is a good plan to plunge the plants in pots, which restricts their root run; but in vases, where they have less soil and can be kept drier, they may be planted out, as they are more under control. I notice that our plants often send out a sport which produces lilac-coloured flowers, but as these are not clear and good I have never thought it worth perpetuating or keeping. The true Unique seems a very shy seeder, and hybridists appear to have made but little use of it for crossing and raising of others, which is to be regretted, as an infusion of some of its habit and qualities into the zonals or Ivy-leaved kinds might yield quite a new race. S. D.

SEASONABLE WORK.

FLORAL DECORATIONS.

JAMES HUDSON, GUNNERSBURY HOUSE.

AMONGST our Chinese Primulas of improved high coloured strains we have had some few with small flowers and plain edges, which, if looked at from a florist's point of view, would not be considered worth the room the pots occupied. When seen beside the superior fringed forms, they looked insignificant and ineffective; we therefore, instead of throwing them away, resolved to cut the flower-spikes as they opened. These we found to make a pretty and simple arrangement for a trumpet-shaped vase in conjunction with some few blossoms of the white Paris Daisy. I do, in fact, like these simple forms better than the highly fringed strains for use in a cut state. As pot plants, undoubtedly the latter are by far the most effective. In the same vase we have lately had *Bouvardia Hogarth* (scarlet) and *umbellata carnea* (pale flesh, almost white at this season of the year), which, with the addition of a few Fern fronds only, gave us a pleasing little grouping about the size of an ordinary bouquet. Another change was made with some nicely developed spikes of the winter-flowering *Epacris* in three or four colours and various sizes, with the addition of a few shoots of *Erica hyemalis* and *regemianans* and fronds of *Davallia bullata*. This arrangement would last well for a week in any living room, choosing the coolest position therein for it to stand. The water should be changed once during that time, and the ends of all the stems cut off. For another change we cut growths of *Begonia insignis*, and some also of *Gesnera oblongata*; in both cases there were a goodly number of trusses, both with expanded blossoms and buds in various stages of development. These associated well together. Again we secured some nice spikes of *Schizostylis coccinea*, white Roman Hyacinths, and Paper-white Narcissus; some growths of the latter were also freely used. These were in harmony with the types of flower chosen for this arrangement. We likewise added a few spikes of a *Panicum* (tender), somewhat of a drooping habit. This arrangement we thought the most effective of any of our recent attempts. We have in our mind's eye another change for the same vase, in which we will use blossoms of *Epiphyllum truncatum violaceum*, growths of *Coronilla glauca*, and sprays of either *Jasminum gracillimum* or *grandiflorum*. Failing either of these, *Abutilon Boule de Neige* would do as a substitute. With *Chrysanthemums* of the *Pompone* section, a few sprays each of *Marabout* and *St. Michael*, with just the tips of some bronzy leaves of *Berberis Aquifolium* intermixed, would give another change. These kinds of arrangement are, I think, preferable to what may be termed medley mixtures—a bit of this and a bit of that, which when arranged together produce no definite effect; moreover, the eye does not become so tired, and greater pleasure is derived from the same amount of material than if a biggledy-piggledy mode of arrangement were followed.

ORCHIDS.

J. DOUGLAS, LOXFORD HALL.

East India house.—Referring once more to *Vanda teres* and *V. Hookeri*, it is stated in a contemporary that they grow together planted out in red loamy soil at Singapore and trained to stakes, "up which the plants climb by their aerial roots," like Sweet Peas at home. It does not seem rash to recommend the same treatment at home. Plenty of light and heat in the growing season, with rest when there is little light and much difficulty to obtain a healthy, warm atmosphere, that is in winter. There are, of course, certain species of Orchids that make their growths in winter, and in that case it is best to make things as pleasant as possible for them, but when it is seen that winter is the time when they would rest, be very careful indeed not to start them into unseasonable growth. Many Orchids do not require repotting more than once in three or four years, and even not so often as that; and it is very desirable in potting such to place a label to them with the date on which they were potted. I find this plan very useful in every case. We pot our *Odontoglossum Roezli* once in two years. Half the collection would be potted this year, and the other half the next year. All we do is to write the date on the label, and we know at once which requires repotting and which surface dressing. This is one of the *Odontoglossums* that succeed best in this division. I used to repot them in the autumn, and they did very well under that treatment, but for the last two years I found it more convenient to repot them early in January, and I fancy they have done still better with that treatment. This is one of the freest-growing species we have; the plants make good sized specimens in a very few years, and can be divided up into four or five plants. One good variety I grew on from a single growth to a plant in five years large enough to break up into six, and these are now strong, healthy specimens. No other species that I know of can be increased at this rate. It is very liable to be attacked by white thrips, which make a sad mess of the leaves if it is not speedily destroyed. The temperature of the house is now 65° at night, with a very moderate degree of moisture in the atmosphere. We have had very cold winds, with a low barometer, threatening storms, and on such nights the glass might fall to 60°. It is not wise to draw a hard and fast line. If young men in charge of such houses have to keep the temperature to a degree, they are likely to do more harm than good.

Cattleya house.—The largest proportion of the occupants of this house are now, as they ought to be, at rest, but there are a few of them growing or throwing up their flower-spikes. Amongst the latter, and a very handsome plant it is, is the *Odontoglossum hastilabium*. The growths are getting to their full size, or have reached that stage, and the flower-spikes are pushing up rapidly; in their early stages they are of a very succulent nature and very attractive to small snails, which want great watchfulness to prevent their destroying many of them. *O. Phalenopsis* is best grown in this house during the winter months at least; it is also making growth now, and on that account requires rather more water at the roots. The plants should be placed very near to the glass; they should also be dipped in tobacco water two or three times during the winter to destroy the small thrips, which, clustering at this season at the base of the young leaves, are invisible even to practised eyes. *O. citrosium* is now rather plentiful in collections; it should be kept rather dry at the roots now; even if the bulbs shrivel a little it will not matter a great deal. They will require rather more water as the days lengthen, and when the growths start from the base of the old bulbs, water must be supplied freely enough to take the wrinkles out of them. It answers very well, therefore, to re-pot any that require it after the resting period is over. That interesting class of Orchids, the *Anguloas*, are now at rest; we grow only *A. Clowesi* and *A. uniflora superba*. Either of these are very desirable plants to cultivate, although they take up rather

too much room. I find they do well on the back stage of a house or pit. They do not require so much light as *Cattleyas*, at least they thrive with less; they require scarcely any water from now until they start to grow again in the spring. *Vandas* flourish well under the same circumstances; they are under the back lights of a half span-roofed house facing south. These must be kept rather dry during the winter, but never so dry that the roots are not in a moderately moist state. *Cypripedium caudatum* we tried under various conditions, but did not succeed with it until it was placed in the same position. This *Lady's Slipper* must be kept rather cool; indeed it will do well in a cool house if the temperature does not fall below 50°. Our *Cattleya* house will fall as low as that sometimes, but it generally ranges now about 55°, taking care not to have too much moisture at the roots of the plants.

Cool house.—It is necessary now that rather severe frosty weather has set in that sufficient attention be given to the heating apparatus; it is so easy to injure the plants by over-heating the pipes to keep up a high temperature. On the other hand, it may be possible to allow the temperature to fall too low; it may fall occasionally to 35° at night without any apparent injury, but it is much better not to risk injuring some of the species which may be more tender than the others. Some of the best cultivators of cool Orchids have come to the conclusion that it is better not to allow the minimum temperature to fall below 50°; in that case *Cattleyas* and *Odontoglossum crispum* may be grown in the same house. Where the house is on the north side of a wall or building, it is not wise to sprinkle too much water about on the paths and stages at this time of the year, else the fair flowers of the more delicately tinted *Odontoglossums* become sadly marred in a week or two by spot. Mr. Bockett's gardener at Stamford Hill manages a house of this kind remarkably well. I saw it the other day, and found spikes of *Odontoglossum crispum* that had been in full beauty for a month, and the flowers were still perfect. One remarkably fine form had been in flower a month, all the flowers being very clean and fresh. Such results can only be obtained by much care in the way in which water is sprinkled about. *Mesospindium vulcanicum* is now in flower in the cool house, and the finer forms of it are very beautiful, and are so distinct from many of the other occupants of the house. It is an easily grown plant under the same treatment as *O. Pescatorei*, *crispum*, &c.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Gardenias.—With many people *Gardenias* are more prized for cutting than any other flowers; their beautiful scent and purity of colour, when well managed, alike make them general favourites. There is more difficulty in keeping up a supply through the next two months than at any other time of the year. The sun appears to influence the opening of the flowers more than in the case of most things, and unless the bloom-buds are large and prominent before the close of the year, it is a difficult matter to get them to move even in strong heat. The possibility of having them at all through the winter depends upon how the plants have been treated for some time previous. Moderate growth and well ripened wood, with a continuance all through the autumn of enough warmth to prevent the advancing buds ever becoming stagnant, is essential to the flowers opening. They must be attentively looked to in the matter of water, never allowing the soil to get too dry, nor the opposite of over-wet, either of which will cause the buds to drop. There should be no more moisture in the atmosphere than will suffice to keep it from becoming too arid. If the plants are at all pot-bound and the growth of a stunted character, the usual supposition is that they must be kept going by the use of manure water or other stimulants, which is quite correct; but at this dull season, when little wood-growth is being made, it is necessary to be much more careful in the application of

anything of this description than during the summer months, otherwise this also will cause the buds to fall in quantity, a mishap to which Gardenias, more than most other plants, are subject. The small-growing *G. citriodora*, wholly different in the character of its flowers from the ordinary kinds, forces well, and will bear as much warmth as most things, but where subjected to strong heat, this, like the large-flowered varieties, should be kept well up to the glass.

Aphelandras.—The brilliant-flowered *A. aurantiaca* Roezli can be had in bloom over a lengthened period where the treatment has been such as to get a portion of the stock on and the growth fully matured; plants so managed and now kept in a moderate heat will come on apace, and bloom at a time when they will be found very useful. The beautiful *A. elegans*, the flowers of which are so effective, should be grown wherever there is moderate stove heat at command; it occupies little room, 6-inch or 7-inch pots being large enough for one-year-old plants; it can also be had in succession over a considerable period. Plants of the old *A. cristata* that flowered early in the autumn and were then cut back should, as soon as they have made shoots an inch long, be turned out of the pots, have their balls reduced, re-potting in new soil, and giving them pots a size or two larger. Young plants of *A. cristata* with single stems, raised from cuttings, are very useful, as they occupy little room and in many cases are preferable to larger examples; they should be kept through the winter in an intermediate temperature where they will just keep slowly moving until nearer spring, when more pot-room may be given them.

Abutilons.—Where white flowers are wanted for bouquets, and there is sufficient stock of the pretty *A. Boule de Neige*, it will be found invaluable, as it goes on blooming so long as there is enough warmth to keep up growth. Young dwarf stocky plants that can be stood on a shelf near the roof are in some cases better than older examples. The red varieties and also the yellow, at the present time so much in favour, must not be lost sight of. There are now a good many with a dwarf distinct habit and remarkable for their freedom of flowering. A cool stove or intermediate temperature suits them best, as under such conditions the plants get less drawn and the flowers are stouter. Whenever any of the family are getting too tall they may be headed down at this or any other season if there is enough warmth to enable their breaking freely, otherwise they, in common with all other plants, are better left until further on when there is more heat.

Callas.—Where flowers of these are wanted early in the year, the possibility of getting them depends on how the plants have been treated. Planting out in single crowns in the summer time, as has been advised, and lifting and potting in the autumn, has many advantages, not the least of which is that both leaves and leaf-stalks will be much dwarfer and have a nicer appearance when in bloom, but stock so treated should be kept for successional flowering, as it does not usually force so readily as larger plants that have been grown through the summer in pots; these latter, if well exposed to the sun in the open air through the latter part of summer, will generally throw up blooms immediately they are placed in warmth, supplying them sufficiently with water and keeping them well up to the light. Before putting them in heat see that they are perfectly free from aphides, which are more partial to them than many things, and where present get down into the young flowers directly they begin to unfold, where no ordinary quantity of Tobacco smoke appears to reach them.

Mignonette.—Strong plants of this raised from seed sown early in the year will, if they have been liberally treated, now be in a forward state; a temperature of from 45° to 50° in the night will help to bring the flowers on, but they should not be subjected to so much warmth as this unless in the case of the earliest, the bloom of which is in an advanced stage, coupled with the plants being

kept in a good light house or pit and close to the roof. Plants raised from later sowings, especially those intended to bloom the last in spring, should be kept quite cool, giving sufficient air every day to dispel damp. For such stock as this a low pit with a stage that will keep the plants near the roof, and enough pipe heat to exclude frost is the best, as under these conditions the plants keep on moving slowly, and do not lose their bottom leaves in the way that usually occurs in a stagnant atmosphere with insufficient light. In the case of plants that are forward and have filled their pots with roots, a little manure water should be given once a fortnight.

Christmas Roses.—The white flowers of these plants when nicely managed are little inferior to those of the *Eucharis*; they force in a very moderate heat; if too much is used the blooms are liable to flag when placed in a cooler temperature, but a little heat is beneficial in drawing the stems out sufficiently to make the flowers more useful in any arrangements in which they may be required. If some strong flowering roots are put in a cold frame, kept moderately close, and just protected from frost, they will come in later and give a succession. Strong clumps in the open ground should be covered with hand-glasses, by which means the flowers will be kept clean. If this precaution is not taken they get spoiled with the dirt splashed on them in wet weather.

Cinerarias.—With the exception of Violets, there are few blue flowers available in the winter besides these; at no time are they more useful than about the new year. Any warmth beyond that of a few degrees above the ordinary greenhouse temperature spoils the plants, as directly they are submitted to much warmth the flowers become so drawn as to make them worthless; consequently, unless they are all but ready to open their blooms, it is better to keep them quite cool. Where successional sowings were made everything should be done to retard the latest portion by keeping them as cool as can be without their getting frozen. See that the whole stock is kept scrupulously clear from aphides; few plants are sooner spoiled than *Cinerarias* if permitted to become at all infested with these parasites. As has been frequently urged, dipping in Tobacco water is preferable to fumigation unless the latter is done with very great care.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Hardy fruit.—The planting of all kinds of fruit trees having been seriously delayed by incessant rain, the completion of this work must now remain in arrear until after the turn of the year, and as many newly purchased trees will be laid in on a dry border, see that plenty of fine soil or leaf-mould is placed about them to prevent the frost from descending to the roots, and in the event of the weather becoming unusually severe, a little dry Bracken placed amongst the shoots will do good service in protecting Peaches and Apricots, which are not so well ripened as we could wish. Meantime press forward the pruning and nailing of established trees, and top-dress all that are likely to derive future benefit from that operation. The nature and strength of the material used for this purpose will, of course, be governed by the condition as well as the varieties of fruit trees under consideration. Old trees as a rule, particularly Apples and Pears, are greatly benefited by a good dressing of frame ground manure, while young ones will become more fruitful if treated to a dressing of fresh loam, burnt earth, or charred garden refuse. Peaches and Apricots, indeed all kinds of stone fruit trees, require calcareous matter, than which there is nothing better than old lime rubble or plaster broken pretty fine and spread over the surface of the border. Strawberries, Raspberries, and bush fruits enjoy liberal supplies of good rotten manure, and the earlier it is applied the better, as, independently of the protection which it affords to the surface roots, its manurial or stimulating qualities get washed down ready for

the demand when spring growth sets in. Peaches, Nectarines, and Morello Cherries which have been unnailed and secured from injury by wind, may be well washed and dressed with Gishurst compound when the weather is dry and mild, and the nailing of the latter may immediately follow the cleansing of the walls with soap-suds, brine, or lime-water; but Peaches must be left till last in order to retard the blossoms, and so preserve them from early spring frosts.

Figs.—Where the early pot trees are being brought forward under the influence of fermenting material, see that it is renovated by turning and the addition of fresh leaves or short manure when there is danger of the bottom heat falling below 70°. Syringe the trees well every morning when the day temperature begins to rise, and again in the afternoon when the weather is bright and fine, and there is a fair chance of the wood becoming dry before nightfall. When the buds are well on the move, and the embryo Figs begin to swell, help them forward by turning on a little extra fire heat through the day, give air at 68° and run up to 75°, under gleams of sunshine, shut up early and let the temperature range from 50° to 55° at night.

Succession houses in which the trees are planted out in well-drained borders should receive repeated supplies of tepid water during the fortnight preceding the time fixed upon for starting. If the trees are old and carry heavy crops annually, a good mulch of rotten manure will be of great service, while young ones which have a tendency to become gross will succeed best under a top-dressing of old turf and lime rubble. If yearling plants intended for growing on for next year's forcing have not been potted, place them in the succession house early in January, and shift into larger pots when the terminal points begin to push, then plunge in gentle bottom heat in order to get an early growth well ripened before the autumn. Put in eyes or cuttings ready for starting next month.

Strawberries in pots.—Where a proper Strawberry house does not exist, and the forcing of this fruit is obliged to be carried on in early Peach houses and vineries, January 1 is a good time to get in the first batch of plants. These, of course, will be selected from the most forward plants in the smallest pots, as the crowns are sure to be ripe, and the pots being quite full of roots, their throwing up flower-scapes will be reduced to a certainty. When the plants have been dipped and top-dressed, place them on shelves close to the glass, syringe regularly, and give them sufficient water to keep the roots constantly moist, as anything approaching drought, independently of its fostering spider, will produce a check which may prove fatal to the crop. It is a common practice to fill the shelves in these houses when they are closed for forcing, and although the temperature of the vinery may be somewhat high, that of the Peach house suits them admirably. To keep up the succession it is a good plan to fit up an ordinary Cucumber or Melon pit with shelves some 12 inches or 15 inches from the glass for the reception of the remainder of the early batch, and to place some fermenting material beneath, but not touching them. In mild weather the humid heat will be found quite sufficient, but when very cold, gentle fire-heat may be needed to prevent the temperature from falling below 40° at night, and air must be given when it is likely to rise above 50° by day. Where the general stock is wintered in cold pits, throw the lights off by night, and by day when the weather is fine and settled. Close and tilt them to protect from heavy rain or snow. If well plunged over the rims, sharp, dry frost will do them no harm.

Cucumbers.—Where several compartments are devoted to winter-fruiting plants, now is a good time to give the earliest batch a thorough rest by cutting off all the fruit and a few of the old leaves to make room for young growths, which will in their turn produce a good succession about the middle of January. If manure has been used as a mulching, it is more than probable worms will

be present, and as these pests soon derange the best laid foundation, take vigorous action for their destruction by the removal of the manure and watering with tepid lime water. This application, if needful, may be repeated before the fresh top-dressing, consisting of light rich turf, charcoal, and old lime rubble, is applied to the surface of the hills or pots in which the roots are located. From this time forward discontinue stopping, remove all male blossoms, and use the syringe sparingly, but keep up a good supply of atmospheric moisture by damping all available surfaces with diluted liquid, and by frequently turning and renovating the fermenting material, which should not be allowed to fall below 80°. Let the night heat range from 65° to 70°, and that by day from 75° to 80°, and economise fire-heat by covering the glass during the hours of darkness. If this treatment does not keep spider in check, sponge the leaves with soapy water or clear sulphur water, and dust with dry sulphur on the first appearance of mildew. Where plants in full bearing are planted or plunged over heated chambers, liberal supplies of warm liquid and weak guano water may be given alternately, and their general treatment as to heat and atmospheric moisture may be the same as that advised for resting plants. Late plants intended for fruiting in February may be kept a few degrees cooler at night, but the bottom-heat should not be allowed to fall below 76°. Keep the young growths free from male and female blossoms, and let the top-heat equal that of the roots for a short time on fine days.

GARDEN IN THE HOUSE.

DINNER TABLE AND OTHER DECORATIONS.

I SAW the other day some of the most tastefully arranged floral decorations that have come under my notice for a long time at The Grove, Alverstoke, near Gosport, the residence of Capt. Field. The drawing-room, which I first visited, was a model of artistic floral arrangement. There was no crowding, but the light touch of a master hand was visible, as every flower employed stood out clear of its neighbour, with light graceful Fern or other foliage so arranged as to take off all signs of formality. Under the reflected light of a shaded lamp was a large silver salver, on which were arranged specimen glasses of various heights filled with white flowers, that in the centre being a magnificent spike of *Pancratium*; around this were grouped white *Camellias*, feathery white *Chrysanthemums*, *Bouvardias*, white *Carnations*, &c., with just enough of foliage to look as if growing without obstructing a view of the flowers. At the other end of the room was a branched *epergne*, the top of which was filled with gigantic *Arum Lilies*, and around these large sprays of Fern and *Zygopetalum Mackayi*, the latter standing out prominently with excellent effect; the lower tier was filled with large blossoms of *Brugmansia* or *Datura*, a few massive blooms of *Chrysanthemums*, and brilliant trusses of zonal *Pelargoniums*, with sprays of *Tradescantia* and similar trailing foliage garnishing the base. Smaller vases were equally tastefully furnished with *Violets*, *Orchids*, or any flower of special merit that required to be seen alone in order to fully realise its value.

Plants in pots were also skilfully contrasted as regards colouring. In a recess of one of the windows the background consisted of well-bloomed plants of Williams' *Crimson Primula*, the colour of which is truly striking under artificial light; white and pink *Bouvardias*, and gold, silver, and other Ferns or *Lycopods* formed the margin. The secret of success was evidently not only in having really good flowers to arrange, but in forming striking effects with a few distinct colours; white predominated, then scarlet or crimson and pink, and neutral tints were not forgotten. Foliage, too, the arranging of which gives the finishing touch to all such combinations, must be selected with care; for instance, nothing looks better with *Arum Lilies* than their own leaves, and a spike of *Zygopetalum* must have either its own or some

Rush-like leaf to do it justice. Some of the large entire-leaved Ferns, look extremely well in arrangements where massive flowers are employed, while those of feathery lightness come in well for mingling with flowers of a lighter character.

The dinner table exhibited a very charming floral display; the centre consisted of a charming stand of *Chrysanthemums*, on either side of which was a silver cup, containing plants of *Adiantum gracillimum*, a very beautiful table plant. In the base of the next pair of vases were massive trusses of zonal *Pelargoniums*, with *Arum Lilies* and *Daturas* at the top, the whole being beautifully garnished with Fern fronds, the pale pink and other *Pelargoniums* being arranged as has been stated, so that every one stood out quite clear of its neighbour, looking more like a mid-summer than a mid-winter display. Around the outer edge of the table, or just in front of every guest, was a large specimen glass containing a white *Camellia*, one *Cypripedium* insigne, and a spray of Fern, and between these were very dwarf glasses with one either red or striped *Camellia*, not very full, but more desirable for such purposes than the very double varieties. The desert dishes were garnished with sprays of variegated *Tradescantia* and sprays of berried *Asparagus*. A moderate amount of glass structures could not yield flowers all in the most perfect condition without some means of retarding or preserving them from over-expansion, and this latter was guarded against by having air-tight boxes in which *Camellias* and similar flowers were kept cool in a cellar for a week or more. When I saw these stands in preparation on the morning of the day in question, all large flowers whose stalks would reach the water receptacles were in their positions, and those that were wired were inserted in damp Moss, so that only the addition of the Fern fronds remained to complete the arrangement. Had anyone needed a lesson as to the folly of overcrowding flowers they could have got it here; the stands with the flowers alone fixed in their places looked only half filled, but after the Fern and other drapery were added they looked full without any crowding. There can be no question that as a rule too many flowers and too many colours are employed in such decorations, a better effect being produced by concentrating into groups distinct and striking colours that catch the eye at once. Thus it will be seen that white flowers in this arrangement predominated, a circumstance which subdued anything like a gaudy effect, while the scarlets, pinks, and intermediate shades were grouped so that one lent a charm to the other, and plenty of light Fern fronds gave a natural, graceful finish to the whole.

J. GROOM.

Seafield, Gosport.

WINTER FLOWERING BEGONIAS.

THE winter-flowering section of *Begonias* should not be overlooked through the eager anxiety there is just at present to possess and cultivate the summer-flowering, tuberous-rooted kinds. The latter may, and undoubtedly do, far outshine their more modest rivals in brilliancy. But, all points considered, the winter (including late autumn and early spring) varieties, grown for the sake of their flowers, are equally valuable, coming into bloom as they do at a time of year when such flowers are a desideratum in a decorative point of view. Most of these thrive best and bloom most freely under a temperate course of treatment, and thus grown will be found to be more durable when used in a cut state for floral decorations than if grown in warmer quarters. Moreover, when any of the plants are used for vases or for grouping indoors, ill effects will not be so soon apparent as would be the case if grown in a stove where a temperature is maintained to suit plants from tropical climes. The moisture accorded to a collection of stove plants composed chiefly of the fine foliaged section is far in excess of that needed by *Begonias*. This may have given rise to the complaint so often made against them, that they do not last when cut. True, they are not the best in this respect, but when grown in a moderately cool stove, kept as

near the glass as possible, and fresh air admitted on all favourable occasions with only a medium amount of atmospheric moisture, this failing can to a great extent be obviated. For use in a cut state two or three distinct kinds arranged along with their own handsome foliage (varying, as it does, from pale green to darker shades of the same colour on to that possessing a metallic lustre and even bronzy crimson) make most pleasing and effective decorations. We have used them thus on many occasions in pale blue vases, standing on a marble sideboard arranged, as a rule, to one face, and in this way their beauty is displayed to good advantage. When using cut

Begonias for filling vases, Fern fronds are quite superfluous. This is one point in their favour as a set-off against their lack of durability. Take, for instance, a few leaves only of *B. metallica* and *B. socotrana*, or even a growth or two of the former in addition, and with these associate the flower-spikes of their respective kinds, and you will have an arrangement fit for any table. We have used some varieties at times in specimen glasses for the dinner table. Spikes of that beautiful variety, *B. nitida odorata*, used with *B. Saundersi* or the old *B. fuchsoides*, in this way produce a pleasing effect under artificial light; or take, again, a growth or two of *B. semperflorens*, with foliage and flower-spikes attached, and some two or three leaves of *B. incarnata purpurascens*, with one or two of its beautiful spikes of a pale flesh colour, and again you will have an effect by no means common. Pieces of a spike of *B. nitida odorata*, when carefully wired, are excellent in a bridal bouquet; they are better suited for this purpose, I think, than spikes of *B. semperflorens*. Amongst kinds best adapted for

Furnishing vases with pot plants, what we term the "Chiswick variety" of *B. insignis* is one of the best, being very compact and sturdy in growth. *B. socotrana* is another good kind, with handsome foliage and flowers combined. For early winter use *B. Knowesleyana* is one of the best, and during the spring we have *B. manicata* and *B. hydrocotylifolia*. The former of these will resist a cool temperature for a long time when in flower. We have used it for weeks together in the conservatory without the least injury in any way resulting therefrom. From now onwards *B. n. odorata* is excellent for grouping purposes; so also is *B. Moonlight*, a very floriferous kind, compact and valuable for vases also. *B. insignis* (of gardens), though somewhat straggling in habit, is an excellent all-round *Begonia* at this season of the year. Strong plants of this produce an abundance of bloom, small lateral growths of which are excellent for use in a cut state. Single spikes are scarcely long enough to use; we therefore cut shoots of this variety bearing both foliage and flowers, and very pretty they look with open blossoms and buds in various stages of development. The latest addition to the class of winter-flowering *Begonias* is *B. Autumn Beauty*, a hybrid between *B. insignis* and *B. socotrana*, raised in the Royal Exotic Nursery, Chelsea. It bids fair to be a most useful variety, possessing as it does compact growth and stout flower-spikes after the manner of *B. socotrana*. Plants of *B. ascotensis*, having done good service in the flower garden, can be turned to a useful account for supplying cut bloom; if carefully lifted they will yield a number of spikes during the winter. Besides the kinds just briefly described, the following are likewise useful, and should be grown wherever there is sufficient room at disposal, viz., *B. digswellensis*, a kind with light pink flowers; *B. hybrida floribunda*, of Continental origin, with blossoms of a bright rose; *B. nitida rosea*, a variety of *B. nitida*, with flowers of a deeper shade, and also having growths more robust; and *B. Lapeyrousi*, a very floriferous sort with pale flesh-coloured blossoms. This kind, which we have not seen for some years, will thrive in a cool house. *B. prestonensis* is another variety I have not met with for some time past. Its spikes are produced most freely during the autumn months, and its flowers are orange-scarlet.

Propagation and general cultivation.

The shrubby kinds, such as *B. insignis*, *nitida*, and *manicata*, can be easily propagated by means of cuttings. Spring-struck cuttings of these make a capital material for the coming winter and spring. When well established, these should be grown during the summer months in a light, airy house, in order to keep them as sturdy and compact as possible, taking care that the pots are well filled with roots by September. The propagation of *B. nitida odorata*, which flowers on till late in the spring, can be deferred until later. *B. semperflorens* raised from seed will be found to form the most robust and compact plants. *B. socotrana* and *Moonlight*, being of the tuberous-rooted section, can be propagated by means of cuttings taken off with a heel at an early stage of growth. Unless large plants of the shrubby kinds are absolutely necessary, it is not advisable to keep old plants on at most beyond the second year. Young, vigorous plants will yield the best return, and when a sufficient stock is propagated the majority of the old stools can be cast aside in order to give the others more room, which during the spring and early summer months is seldom too plentiful. *B. ascotensis* we propagate in quantity for bedding purposes, and thus treated it is one of the most attractive plants imaginable. J. HUDSON.

Gunnersbury House.

NOTES OF THE WEEK.

LINNEAN SOCIETY.—Papers will be read on next Thursday, 21st December, at 8 p.m., on "The Floral Development and mode of Fertilisation of *Asclepias cornuta*," by T. H. Corry, and "The Flora of Madagascar (second paper)," by J. G. Baker.

HEAVY CROP OF PEARS.—A photograph has been sent to us by Mr. C. Godfrey, Beau Sejour, Jersey, showing a remarkable crop of fruit which a Beurré d'Aremberg Pear tree bore last season in his garden. The tree in question is trained horizontally against a stable wall some 16 feet high, with a south-west aspect. It bore 420 fruits, which weighed in the aggregate 148 lbs.

DUNDEE HORTICULTURAL SOCIETY.—A meeting of this society was held on the 11th inst. to consider a proposal in reference to holding an international show in 1884. Provost Moncur presided, and there was a good attendance. It was stated that a number of gentlemen had guaranteed a fund to the amount of £125, which it was thought could be easily doubled, and it was agreed that not less than £1000 should be given in prize money. The proposition was duly seconded and carried unanimously.

TUBEROUS BEGONIAS.—Messrs. Laing & Co. have sent us a coloured plate (28 inches by 22 inches) representing fifteen varieties of their seedling single-flowered Begonias, for which their nursery at Stanstead Park, Forest Hill, has of late years become so famous. The sorts illustrated, which comprise some of the finest yet raised, are Black Douglas, Ball of Fire, Lady Brooke, Scarlet Gem, Sulphur Queen, Jessie, Golden Gem, J. L. Macfarlane, Snowflake, Nymph, Marchioness of Bute, Marquis of Bute, Lothair, Mrs. Pontifex, and Madame Stella.

THE STORM IN EAST ANGLIA.—Though we have suffered less than most parts of the country, we have by no means escaped. A fall of snow averaging from 4 inches to 6 inches in depth has stopped all operations on the land, while a penetrating frost has visited us, ranging from 16° to 22°, according to locality. The sharpest frost occurred on the morning of the 11th, and it is feared a good deal of damage will occur to fruit trees, shrubs, and vegetables. A good many of the latter had foliage on them up to the time of their being frozen—a poor preparation for such a cruel pinch. Roses were not protected a day too soon, and those who left their Teas and more excitable Perpetuals to contend unaided by protection against such severities of weather, will, it is feared, find many blanks by-and-by. Many Broccolis were also more succulent as well as more

forward than usual, and will hardly recover from their severe freezing, unless where assisted to bear it the better by their semi-prostrate position or by some slight protection. But it is early as yet to speculate on the effects of this severe frost, more especially as its power to work mischief has been greatly intensified through coming on the heels of so much rain. Suffice it to say that this day (Tuesday, December 12) it shows signs of giving way. Those at all weather-wise, in fact, hardly expected it to last, for three reasons at least. One was its suddenness, another its exceptional severity, and the third the extreme whiteness and heaviness of the rhyme that accompanied it. The latter is almost a sure sign that the frost will not last long, while it mitigates its killing severity to vegetation while it does last. Those who have had more snow will have their ground crops and vegetables well sheltered, and so far safe beneath. Not a day must be lost in securing Holly and other Christmas berries for decoration, or none will be left. Those of the *Pyracantha* are mostly the first to go, but all disappear with amazing rapidity when the ground and much of the foliage are covered with snow.—D. T. FISH.

THE IMPERIAL SOCIETY OF HORTICULTURE OF RUSSIA.—There will be an international convention of botanists and horticulturists at St. Petersburg, to celebrate the first quarter century of its existence, to extend from the 5th to the 16th May, 1883. The Grand Duke Nicholas has taken the affair under his patronage. French will be the official language of the congress, but papers or correspondence may be in the writers' native language, where French is unknown to them. Twenty to thirty minutes will be the limit accorded to each paper.

METEOROLOGICAL SOCIETY.—At the next meeting of this society, to be held at 25, Great George Street, Westminster, on Wednesday, the 20th instant, at 7 p.m., the following papers will be read: "Popular Weather Prognostics," by the Hon. R. Abercromby, F.M.S., and M. Marriott, F.M.S.; "Report on the Phenological Observations for 1882," by the Rev. T. A. Preston, M.A., F.M.S. Mr. J. S. Dyason, F.M.S., will exhibit (1) a series of typical clouds in monochrome, and (2) a series of sketches of clouds in colour made in June, July, and August, 1882.

ROYAL HORTICULTURAL SOCIETY.—The arrangements for the ensuing year are as follows:—Fruit and floral committee meetings: January 9, February 13, March 13, March 27, April 10, April 24, May 8, May 22, June 12, June 26, July 10, July 24, August 14, August 28, September 11, October 9, November 13, December 11. Promenade show, March 27 and April 10; National Auricula Society's show, April 24; promenade show, May 8; great summer show, May 22–23; promenade show, June 12; Pelargonium Society's show, June 26; National Rose Society's exhibition, July 3; promenade show, July 10; National Carnation and Picotee Society's show, July 24.

PENN MEMORIAL TREES.—On the 9th of November, according to the *Gardeners' Monthly*, a stone was placed on the spot at Chester where William Penn first set his foot on American soil, and three trees were planted around it by the Historical Society of Pennsylvania and the Penn Club of Philadelphia. Mr. Lloyd Smith, a lineal descendant of William Penn, planted an American Linden; Mr. Justice Cox, a descendant of the interpreter between Penn and the Indians, planted an Elm; and Mr. Samuel Chew, a descendant of the famous chief justice of Pennsylvania, planted an American Ash. The trees were all raised from Pennsylvania seed, the Elm being of old Philadelphia parentage.

NATIONAL ROSE SOCIETY.—The annual meeting was held at the Horticultural Club on Thursday, the 7th inst., when there was a full attendance of members notwithstanding the inclemency of the weather. The treasurer's report, showing a balance of £53 in favour of the society, was presented. The shows were arranged for the year 1883: Metropolitan, at South Kensington, on

July 3; grand provincial exhibition, at Sheffield, August 12; and a second provincial show at Southampton, on June 28. Some discussion took place as to the advisability of reprinting the catalogue of Roses issued by the society, the first edition of which is nearly exhausted, but it was finally concluded that it would be inadvisable to adopt this course until sufficient time had elapsed to warrant the issue of an entirely new edition. It was, however, unanimously resolved that the paragraph in the catalogue in question, to the effect that two or more Roses bracketed together in that list as too much alike should not be exhibited in one stand, should apply not only to all the National Rose Society's shows, but also to the exhibitions of societies affiliated to the parent society during the ensuing year.

PLANT LABELS.—Samples of an excellent type of plant label for the outdoor garden have been sent to us by the maker, Mr. E. Johnson, Brogrove Road, Tottenham. One form is of deal, in shape like an ordinary wooden tally, the lower half being thickly coated with pitch to enhance its durability. They are made in various sizes. The other form consists of deal tablets of wood 5 inches by 2 inches in size and about one-quarter inch in thickness, painted white and black lettered. These tablets are secured to a neat, but stout iron shank a foot in length by means of two copper screws and nuts. These labels have a neat appearance, and we imagine are very durable. Samples of labels also come from Mr. Robb, Chitley Farm, Liphook. These consist of strips of deal of various sizes, secured to stout galvanised iron wire. In some cases the tablets are protected by glass. These, though good, are not so neat as those to which allusion has just been made.

KITCHEN GARDEN.

PARSLEY.

THERE is no more useful herb than Parsley, though curiously enough it is not so much in request because it is a herb as it is for its decorative properties, which make it so acceptable to cooks of every grade for the garniture of the repasts they have to furnish. Indeed, were Parsley used only for flavouring or similar pot purposes, we would perhaps hear little about curled, treble curled, Fern-leaved, and other kinds, with the designations of which we now are so familiar. As we have, however, grown good curled Parsley for so many years, it is almost marvellous that there should yet be found in gardens a good deal of rubbish of the rudest and coarsest description, very little better in appearance than the Cow Parsley of the woods, and yet all who have grown fine double strains know that these, the seed being saved with the utmost care, will still now and then produce plants of the coarsest kind, so that it is evident Parsley has a natural tendency to revert from treble curled to no curled whatever, and to become little better than weeds. Where ordinary care is exercised in the harvesting of seed, of course these coarse plants would be eliminated, and in our metropolitan market gardens, where good stocks of Parsley are cherished with the utmost care, not only are all such rogues destroyed, but only plants of the finest curled quality are permitted to produce seed. But Parsley is grown for the trade per acre, and seed per ton, and it is not difficult to imagine that over huge breadths all the care is not exercised in weeding out rogues that is shown in the case of a small stock, and when such exceeding care and rigid selection is lacking the strain soon suffers. Gardeners, as a rule, have the most indifferent strains of Parsley, although they have the remedy in their own hands. Few, however, care to save seed of any common garden product, and with respect to many they are right, as there are many things that cannot be kept true, unless grown in bulk and in remote localities. Parsley, however, is perhaps much less affected than other garden plants by localisation, and if anyone will take the trouble to select some

half dozen plants of the very best quality for seed, and save them for that purpose, and will continue to select for a few years, they will have in the end as good a strain of Parsley as it is possible to possess. One common reason, however, why gardeners do not select Parsley is found in their method of cultivating it. In the majority of cases it is sown in rows or broadcast in a bed in the spring; it is, when the plants are strong enough, moderately thinned out, and thus, through crowding, shows little or no individuality or divergence of form one from the other. The best way to secure a perfect development of quality in Parsley plants is to dibble them out thinly into good soil when strong enough, and the result is seen in almost instant improvement in the foliage, which becomes at once more refined and more curled. That is not the only excellent feature, for the plants become far stronger and more spreading without in any way losing their best properties. I have had plants, and, indeed, have some now, raised from seed sown in pans under glass last March, and dibbled out in good soil thinly in May, that are 15 inches to 18 inches across, and presenting most handsome tufts of curled leafage. By thus dibbling out the plants, not only are the finest qualities of the Parsley the more effectively preserved, but all coarse forms are the more readily found and destroyed. Another very important advantage which results from thus dibbling out the plants is that late in the autumn they may be lifted with balls of soil, be put into 8½-inch pots, and, stood either in cool vineries, frames, or other vacant places under glass, will furnish a fine supply of this most valuable decorative material all through the winter.

A. D.

INDIAN CORN AS A VEGETABLE.

THIS favourite addition to table delicacies in America does not seem to meet with much appreciation here, but, knowing how much use is made of it in Southern Europe as a vegetable, I resolved this year to give it trial. The site was amongst the Hampshire hills, so that, although in a southern county, the locality was not so favourable as the neighbourhood of London would be for trial purposes. I got six kinds, which were sown in 3-inch pots singly, for I saw that the seed was new and that it would germinate freely. These were placed in a vinery at work, and in ten days the young plants were removed to slightly cooler quarters in a frame, and kept gently growing in full sunshine, so placing them that no drawing was possible. They had been sown about a month when they were transferred to their future stations in the kitchen garden. The ground had received no special preparation for the Maize, but was in fair order for any vigorous growing crop. The plants, although gradually hardened along with the tenderer bedding plants, made but poor progress, owing doubtless to the exceptionally cold weather which we had in June and part of July; but in the following months they grew apace, some of the more robust kinds reaching a height of 6 feet. The whole of the six sorts produced ears of corn from 4 inches in the dwarfier kinds to 1 foot in length in the larger ones. The dwarfier ones were also earlier in forming usable ears than those which grow taller, but in no case were the ears well set with grains, a proof that fertilisation had been a partial failure, cold with much rain being the probable cause. Still, the results were so good that I shall not hesitate to plant a considerable quantity of the dwarfier sorts that have also the recommendation of earliness. In hot, dry soils where Peas usually perish from mildew in August and September, should the weather prove very dry and warm, Maize would fill a gap that often occurs in the Pea supply. The mode of dressing Maize is quite simple. In the first place, the ears should not be gathered till the grains have lost much of their milkiness and have become of a yellow colour. They are stripped of the many envelopes surrounding them, leaving a short part of the stalk as a handle, and are then immersed in boiling water in which a little salt has been put. They must be kept gently boiling for twenty

minutes. They may then be served up with butter or any sauce, according to taste. The ears are very good boiled in new milk or baked till tender. I may mention that the plants were put out in groups of threes, the plants standing 1½ feet apart in the groups, and the groups 4 feet asunder.

SYLVESTRIS.

BORECOLE.

OF this there are several varieties, all of which possess a constitution sufficiently hardy to enable them to stand the severest weather, and to supply us with greens during the winter and spring months. They all have open heads and leaves of different shapes and shades of colour. Some have curled or wrinkled foliage, others smooth. The dark green curled kind keeps its colour during the whole winter, and when properly cooked is always acceptable. It will be found advisable not to enrich the soil too much for this crop, *i.e.*, if it be in fairly good condition; if too rich, the plants grow too strong and vigorous during the early part of their growth, rendering the stems soft and unripened, and causing them during very severe frosts sometimes to get injured; whereas when hard and ripe seldom anything injures them. The soil most suitable for Kale is a rich, friable loam resting upon a dry subsoil; but fine crops may be grown upon rich, heavy soil, provided the ground is well drained to carry off the water during winter.

Cultivation.—The ground should be trenched or deeply dug before planting. If manured for the previous crop, it will generally be rich enough for Kale; but if poor, a slight dressing of stable manure will be found to answer best for this crop, working it deeply into the ground as the digging proceeds. The seeds may be sown at two different times; the first sowing should be made the second week in March, and that for the main crop from the 11th to the 15th of April, choosing a dry, warm border for the seed beds under a south or west wall. The beds may either be 4 feet wide, or the seeds may be sown in drills 1 inch deep and from 3 inches to 4 inches apart. As soon as the young plants are large enough to handle, transplant them into a piece of open ground freely exposed to the sun; plant 4 inches apart, which gives the plants a chance of growing short and stocky before being planted into their permanent quarters. On ground on which the plants are inclined to club, use a good dressing of soot and lime, mixing it well with the soil before sowing the seeds, and also before transplanting the young plants from the seed beds. The earliest sown ones will be large enough to plant out about the middle of June, planting them in rows 2 feet apart and 18 inches plant from plant. The main crop should be planted out early in July, so that the plants may attain full growth early in autumn, when the stems will get well matured to withstand the winter's frosts. Hoe frequently between the rows to keep down weeds. In poor soil as soon as the plants get well established, give a dressing of some artificial manure between the rows, hoeing it deeply into the ground with a draw hoe. Liquid manure may be given once a week until the plants get nearly full grown. When large enough draw some soil round their stems to keep them in their proper positions, and little more attention, except pulling off dead leaves in autumn, will be needed until they are required for use.

Varieties.—Cottager's Kale, a hardy variety, produces plenty of leaves for use early in the autumn, and later on it forms numbers of sprouts upon the stems. Dwarf Scotch Kale is one of the best for the main crop hardy kinds. Tall Scotch Kale, a vigorous growing sort, produces quantities of leaves and sprouts. The Acme, a dwarf growing variety, furnishes finely curled leaves, that are delicious in flavour. Melville's is also a useful hardy sort. Variegated Kales, of which there are many, are ornamental in borders or shrubberies, and also very good when cooked. They were used by the late Miss Hope for filling beds in her flower garden, but have since been found to be unfitted for that purpose.

C.

SOCIETIES.

ROYAL HORTICULTURAL.

DECEMBER 12.

THE hard frost that prevailed on Tuesday last no doubt accounted for the scanty muster of exhibits at this, the last meeting of the year. A small, but bright display, however, enlivened the council room, made up of plants from Messrs. Williams' and Messrs. Cannell's nurseries. There were very few plants submitted to the committee.

First-class certificates were awarded to

PESCATOREA VERVAETII.—A species or variety much in the way of *P. Klabochorum*, but the flowers are smaller. The sepals and petals are of waxy whiteness tipped with claret, making a distinct colouration. Messrs. Vervae, Ghent.

ACROCLINIUM ROSEUM FL.-PL. and **A. ALBUM FL.-PL.**—Two varieties of a well-known half-hardy annual Everlasting having double flowers. The first is a delicate pink colour, the other a pure white except a yellowish centre. Messrs. Haage & Schmidt, Erfurt, Prussia.

CHRYSANthemum CERES.—A beautiful Japanese variety in the way of *Meg Merrilies*, but with pure white long florets. Messrs. Jackson, Kingston.

CHRYSANthemum DUCHESS OF ALBANY.—A new variety of the Japanese section. The flowers are very large and full with long narrow florets varying from bronzy red to almost a clear yellow in the centre. Messrs. Jackson.

COSMOS BIPINNATUS VAR. PARVIFLORUS.—The Mexican annual composite described in our columns last week. From the Society's garden, Chiswick. Second-class certificate.

The display from the Swanley Nursery was composed of some two dozen trusses of single zonal Pelargoniums and about the same number of double sorts. The varieties were much the same as those shown at the meeting last month, which we fully enumerated at the time. Such a fine show of Pelargoniums as this season showed well what valuable flowers they are for affording a long and continuous succession of bloom throughout the year; in fact, they are indispensable to every garden. Besides these, Messrs. Cannell showed some dozen trusses of *Salvia Bethelli*, *S. Pitcheri*, *S. Bruntii*, *S. Mons. Issanchou*, and *S. leucantha*, and these were interspersed with some splendid trusses of *Heliotrope White Lady*, the finest variety of all the Cherry Pies, making a charming mixture which the delicious perfume of the *Heliotrope* much enhanced. Flowers of the tree *Dahlia* (*D. arborea*) and *Canna Ehemanni* were also shown from Swanley, as well as a rich selection of Chinese *Primula* flowers and the new double pink *Bouvardia* (*President Garfield*), which was exhibited for the first time. It is identical in growth of flower with the white (*Alfred Neuner*), except the colour, which is a pleasing soft pink.

Mr. B. S. Williams, Victoria Nurseries, Upper Holloway, contributed some three dozen plants of his beautiful white *Primula* called *fimbriata alba*, which is undoubtedly among the finest of whites yet raised, also a similar number of a good dark-coloured sort named *fimbriata rubra*. These were supplemented by a large display of Persian *Cyclamens*, an improved strain with very fine blossoms, varying in colour from pure white to the richest crimson. A silver medal was awarded.

A vote of thanks was accorded to Mr. Todman, gardener at Bushey Down, Tooting Common, for a new *Chrysanthemum* called *Mrs. J. Todman*, a singularly fine sport with globular flower-heads, having the flowers curiously lacinated. The same exhibitor also showed six seedling zonal *Pelargoniums* called *Fire King*, *Rosy Queen*, *Miss Annie*, *Miss Nellie*, *Christmas Chimes*, and *Miss Lizzie*, besides two new *Azaleas* called *Mrs. J. Corbett*, with white blossoms, and *President Goodheart*, with crimson-carmine blossoms.

An uncommonly fine variety of *Odontoglossum gloriosum* was shown by Mr. Heims, gardener to Mr. Philbrick, Oldfield Park, Bickley. The flowers are much larger than ordinary, with a

yellowish ground, copiously spotted with reddish chocolate. It was shown under the name of *O. hebraicum* var. A vote of thanks was accorded to Mr. J. Waddell, Shenley House, Stony Stratford, for a well-grown plant of the same species, representing a good variety.

Messrs. Jackson, Kingston, showed, besides the new *Chrysanthemums* certificated, others called Prince Leopold, a Japanese variety with bronzy yellow florets, and Mad. Boucharlet, also a Japanese sort with chocolate-brown florets. A pretty, neat, white Pompon variety called La Purété was also shown. It is a very free flowerer, pure white, and excellent in every way.

Fruit and vegetables.—From Mr. Atkinson's garden at Gunnersbury House, Acton, Mr. Hudson brought three uncommonly fine bunches of Black Alicante, perfect examples of the Grape in every respect, being large in bunch and berry and well "finished." Mr. Hudson also showed two fine Pine-apples, one of the Smooth Cayenne variety, the other of Lord Carington, a rather new variety, with a highly-perfumed conical fruit. A cultural commendation was awarded. Three excellent bunches of Gros Colmar Grape were sent by Mr. Barron from the Society's garden as an example of the fine crop in the large viney at Chiswick. These had very fine berries and highly finished. A very fine collection of Apples, numbering sixty dishes, was shown by the Earl of Harrington's gardener (Mr. Goodacre), Elvaston Castle, Derby. It contained some very fine examples of the principal varieties, and was deservedly awarded a bronze medal. A collection of seedling Apples came from Mr. H. A. Mann, St. Vincent's, Grantham. Among them that named Baron Wolseley was considered "not superior to others, and was past its prime," and another called Grantonian was "recommended to be kept at Chiswick and brought again in April." Two seedling Apples were sent by Messrs. J. Dickson & Sons, Newton Nurseries, Chiswick; that named Favourite was passed, and Masterpiece was over-ripe. Mr. Gilbert sent a seedling Apple which was considered identical with the Early Nonpareil. Mr. T. Laxton sent some seedling Apples which were passed without comment, except a seedling between Nonpareil and Stamford Pippin, which was considered promising. Mr. Eckford, Boreatton Park, Shrewsbury, sent half-a-dozen dishes of seedling Potatoes, all of which were passed without comment.

The Committee were constituted as follows: *Floral*.—Mr. B. S. Williams, chairman; Messrs. Moore, Laing, Bennett, Cutbush, Wilson, Duffield, Hudson, James, Turner, Cannell, Baines, and Wills were present. *Fruit*.—M. H. J. Veitch, chairman; Messrs. Lee, Woodbridge, Blackmore, Crowley, and Laxton.

Special prizes.—On this occasion the prizes offered by Messrs. Carter, High Holborn, amounting to £11, were competed for. Owing to the severe weather and lateness of the season, there were but two collections shown. The best of these came from Mr. H. Marriott, Prospect House, Skirbeck, Boston; the other from Mr. G. Summers, Sandbeck Park, Rotherham. The former consisted of Jersey Lily Turnip, Clarke's Red Celery, Autumn Giant Cauliflower, Carleton Leeks, Golden Globe, Silver Ball, and Golden Queen Onions, Perfection of Beet, Long Surrey Carrot, Maltese Parsnip, Perfection Brussels Sprouts, and Improved Magnum Bonum Potatoes. In the second collection were Student Parsnip, Dell's Crimson Beet, Red Globe Turnip, Leicester Red Celery, Autumn Giant Cauliflower, Ayton Castle Leek, Aigburth Sprouts, Pride of America Potato, Intermediate Carrot, and the three varieties of Messrs. Carter's new Onions mentioned above.

Scientific Committee.—Sir J. D. Hooker in the chair.—Some discussion took place with reference to the reports on losses incurred in plants during severe winters, compiled by the secretary. Much regret was felt at the reply from the council, that the society is unable to publish it, as great disappointment has been expressed by many of those who, at considerable trouble and pains, had contributed to the reports. *Fascia-*

tion.—Dr. Masters exhibited a specimen of fasciated flower-heads of *Helichrysum* or *Everlasting*. He also exhibited from Mr. Veitch a flowering stem of *Eucharis* provided with a leafy bract, a very unusual condition. This being the last meeting of the year, a vote of thanks was offered by Mr. McLachlan, and seconded by Mr. Grote, to the chairman, which was responded to by Sir J. D. Hooker.

Lecture.—The Rev. G. Henslow illustrated by several examples exhibited the power of plants to render themselves attractive with bright colours, independently of or in addition to the corolla. This was principally attained by means of the bracts. A beautiful series of *Salvias*, exhibited by Mr. Cannell, showed how the bracts and calyx, both being usually green in flowers, could become brilliantly coloured and so intensify the beauty of the spray. An *Acroclonium*, a kind of *Everlasting*, from West Australia, showed how the bracts of the involucre surrounding the florets could mimic a true flower. In this plant the chaffy scales interspersed amongst the florets contributed to the same effect. Bracts might thus either enhance the general colouring of an inflorescence, or actually assume the appearance of a flower. Mr. Henslow further illustrated this by dried specimens and drawings of *Poinsettia*, *Lycasteria*, *Epiphyllum*, on the one hand; while *Bupleurum*, *Cornus*, *Darwinia*, and *Euphorbia jacquiniæfolia* were exact imitations of true flowers on the other.

OBITUARY.

JOHN SADLER.

WE have to announce with much regret the death of Mr. John Sadler, curator of the Royal Botanic Gardens, Edinburgh, which took place somewhat suddenly on Saturday morning last. Mr. Sadler had not been in good health for some time, but it was not until Thursday (the 7th) that he took to his bed. Even then nothing serious was apprehended. Dr. Craig was, however, called in, and subsequently Professor Douglas MacLagan, but despite their skill the patient gradually sank. Disease of the kidneys has, we understand, been certified as the cause of death. Mr. Sadler, according to the *Scotsman*, was born on the 3rd of February, 1837, at Gibleston, Fifeshire, and has thus only reached his 46th year. In 1854 he became assistant to Dr. Balfour, professor of botany in the university, and in that capacity had ample opportunities for indulging his taste for botanical study. The duties of this office included the selection of specimens for the botany class, as also the preparation of drawings; and latterly Mr. Sadler gave the professor valuable assistance in conducting the microscopical department of the work of the chair. Mr. Sadler thus acquired a familiarity with the details of botanical science, which he afterwards turned to much account in his own lectures on the subject. In 1867 he was appointed lecturer on botany in the Edinburgh High School, and he was ever ready to give an address on some interesting branch of vegetable physiology to any horticultural or literary society that asked his services. Both in his class and in his public lectures he showed a happy knack of conveying information in a popularly effective style, which never failed to secure for him the attention of his audience. Mr. Sadler acted from 1858 as secretary to the Botanical Society; and he also filled for seventeen years a similar position in connection with the Scottish Arboreal Society. The duties of both offices he discharged with great credit. As a botanist, Mr. Sadler gave considerable attention to the study of fungi, a department of botany in which he was considered no mean authority; and he took a leading part in an exhibition of this class of plants which was held at the Botanic Garden a few years ago. Quite recently he was elected president of a fungus club, formed to popularise fungi as an article of diet. In respect of his services to botany and similar pursuits, Mr. Sadler was, in 1869, awarded the Neill prize of £50 by the Royal

Caledonian Horticultural Society. On the death of Mr. McNab, Mr. Sadler, in 1879, was appointed to the office of curator of the Botanic Garden by the Treasury; and it was then that he relinquished his position as lecturer in the High School and the secretaryship of the Botanical Society, while also ceasing to act as assistant to the professor of botany. During his term of office as curator Mr. Sadler has maintained the gardens in the high state of efficiency in which they were left by Mr. McNab. He also continued the interesting botanical notes which his predecessor had prepared with so much care for the use of the Botanical Society. Last autumn he devoted a good deal of time to getting up facts from correspondents in different parts of the country as to the effects on plant life of the severe winter of 1880-81—an instalment of which he laid before the society at their last meeting. Since the grounds at Inverleith were bought by the Town Council for the purposes of an arboretum, Mr. Sadler has had charge of the laying of them out with a view to the illustration of scientific forestry; and what little planting has taken place there was done under his directions. Last year the Government formally appointed him curator of the arboretum. In private life Mr. Sadler's kindly and agreeable disposition gained for him many friends. He was for some time connected with the Holyrood High Constables, which body quite recently did him the honour of appointing him their moderator. Mr. Sadler was twice married, and he leaves a widow and seven children.

COVENT GARDEN MARKET.

A very Ideal Idyl of the (we hope not very remote) Future.

Come into "the Garden," Maud!
For the Mudford blight is down;
Come into "the Garden," Maud!
I am here by the "Hummmms" alone;
No garbage stench is wafted abroad,
And the slime from the pavement's gone.
For a breeze of morning blows,
Yet my hand is not compelled
To hold up my handkerchief close to my nose,
As it had to be always held,
When the shops in the market of old would
unclose,
And the cry of the porters swelled.

I say, this is better now, goodness knows,
Than it was but a short time syne.
Oho! my Lord Duke, I am glad to suppose
That much of the credit is thine,
That I need not go softly and hold my nose,
Or feel sick like a man on the brine.

No scent of rank refuse goes into my blood
As I stand in the central hall;
And long in "the Garden" I've strolled and
stood
Without feeling qualmish at all.
And I say, "This is really exceeding good,
An improvement that's far from small."

The paths, roads, and gutters are almost sweet,
And the stodge, like foetid size,
That used to impede one and foul one's feet,
No longer offends one's eyes.
'Tis a pleasantish place for two lovers to meet—
Quite an urban paradise.

So, sweetest, most sensitive-nostril'd of girls,
Come hither!—the stench is gone.
Foul dust blows no more in malodorous whirls,
No cabbage leaves rot in the sun,
Damp-reek from choked gutter won't straighten
your curls,
So come—'twill be really good fun!

Punch.

Names of plants.—*G. F.*—*Cypripedium venustum*.—*P. Macdonald*.—Cannot name, too much damaged; send next season.—*Anon.*—*Narcissus monophyllus*.—*C. Dimmick & Sons.*—*Iris fimbriata*.—*C. L.*—1, *Luculia gratissima*; 2, *Bouvardia leiantha*; 3, *Neja gracilis*; 4, *Othonna crassifolia*.—*P. Stark.*—*Euphorbia fulgens*.—*G. F. S.*—We do not name *Chrysanthemums*.

"This is an Art

Which does mend Nature : change it rather : but
THE ART ITSELF IS NATURE."—*Shakespeare.*

CHRISTMAS DECORATIONS.

NOT a few of these fail in effectiveness from lack of freshness. So many are generally required that some of the wreaths, &c., are not seldom made days or even weeks before they are used. Hence, notwithstanding the staying properties of Holly, Mistletoe, and other berries and foliage, a good many of the decorations look stale at times before use. Better far have fewer decorations of higher quality and greater freshness. Mere mass is of small importance in decorations, though it counts for might in some cases; and yet how often one sees any taste there may be in design completely hidden up and buried under the mere mass of a lavish execution. Decorations would often be far more pleasing were a half, three-fourths, nine-tenths of them bodily removed. Another fault of not a few decorations is that the material is common-place, and distributed with but little regard to architectural congruity of canons of propriety or taste. No doubt skilled fingers and cultured eyes will often evolve the most pleasing results from common-place material. But it needs an amount of artistic talent almost amounting to genius to do this. Far oftener good material is spoilt than comparatively worthless turned to the highest advantage in indoor decorations. And as decorative taste is by no means common by limiting the amount of material, glaring failures will be confined within narrower limits. Whatever is used should be the best of its kind, and displayed to the highest advantage. And this canon should be especially applied to flowers. Not a few pretty decorations are spoilt every year by the prodigal use of Chrysanthemums that have mostly reached the sere and yellow leaf and flower by Christmas. Far better than bushels of these would be a few dozen Camellias, bunches of Azaleas, Primulas, Cyclamens, Hyacinths, or other bulbs, redolent of the coming springtide rather than relics of a past autumn or the present winter. Sprays of Heaths, Epacris, Lilacs, Deutzias, Valley Lilies, and bunches of Violets are also amongst the choicest material for Christmas decorations. Christmas Roses, though so greatly in vogue, are almost too wintery to my taste; real Roses, such as Niphetos or Maréchal Niel, are far more suitable and chaste for the season, suffusing Christmas-tide with the breath and fragrance of summer.

A few rosettes or single blooms of such choice flowers on a base of coral berries are more effective on pillar, arch, or altar-piece than bushels of stale Chrysanthemums or other more common flowers. But where rare flowers are inaccessible, good effects may be produced by the use of common things used with a sparing hand, and, with judgment and taste, very choice rosettes on coral or bright coloured leaves may be formed of Christmas Roses or Laurustinus, while some of the most effective decorations have been formed of the foliage and berries of Holly and Mistletoe blended with a few of the silvery seed vessels of Honesty, and plumes of Pampas Grass thrown in for bolder effects. In other cases the self-same material has been employed with such hideous effect, as to produce the impression that mops and brooms of the Pampas Grass and Honesty were engaged in the hopeless labour of sweeping out all the other decorations, leaf and branch. The great points in all effective Christmas or other decorations are lightness of touch, chasteness of disposition, simplicity of arrangement, and the choiceness and freshness of the material employed. There was deep and significant reason in the command that all the sacrifices under the Jewish dispensation were to be the best of their kind, without flaw, spot, or fault of any sort, and piety as well as common sense suggests that if our

churches are to be dressed at Christmas, the material employed should be the best of its kind as well as disposed in the most tasteful manner as regards effect.

D. T. FISH.

RAISED FLOWER BEDS ON HEAVY SOILS.

As one approaches the limit of age allowed by law to the citizens of the ancient Greek state of Keos, which was threescore years, it becomes far more obvious than it used to be when we were schoolboys why Homer is always making his heroes envy especially the knees of the young men of all parts of their body. For now, when any garden operation has required me to double up so as to use my hands on or below the ground level, I feel that I could not execute the military manoeuvre of "as you were" so as to satisfy an exacting drill sergeant as well as I could thirty years ago. But in proportion as the difficulty of getting down to the soil increases, the advantage of making the soil rise to us increases also. For this reason the attraction of rockeries and alpine gardening grow greater, and convenient ledges from 2 feet to 5 feet above the ground, with rough, projecting stones to give firm foothold, are more approved than ever. I never allow any stone to be visible on a rockery which will not bear the weight of a heavy man on any part where he can set his foot without being displaced or shaken, for if you feel that a stone on which you can tread is liable to let you down, this kind of gardening loses its charm. But besides rockeries proper, I have made at different times, and am still making, many raised flower beds, which I find to be very successful both as regards the comfort of working on them and the welfare of the plants grown in them. In the heading of these notes I have mentioned heavy soils, and it is especially on heavy soils that the advantage of giving elevation above the ground level is evident, but I have seen many a garden in which the soil is light, but in parts of which, especially in winter, plants suffer from the subsoil water standing too near the surface, and would do much better if raised out of its reach.

These raised beds may be of any size, but the larger the size the greater the elevation should be. The material for making the sides to raise them is an important item in the work, and blocks of stone are by far the best where stone can be obtained. The clay of Cheshire overlies red sandstone rock, which crops out in many places, and I am lucky enough to be able to obtain abundance of sandstone within a quarter of a mile of my garden. If stone is scarce, big lumps of over-burnt bricks, which can be obtained from brick-kilns, are as good for plants, but less convenient to lay. Brick ends will do if nothing better can be obtained. Stumps of trees or short piles are sometimes used to raise beds, but are not nearly so good as stone or brick. If brick ends are used they should be laid in a long barrow-shaped pile along the outline of the intended bed, and the interstices between them well filled in with soil, so as just to cover the bricks. I have seen beds raised simply by making a heap of soil and turfing the sides, but in this case the use of the sides, of which I shall speak presently, is lost, and the turf is troublesome to keep in order. But irregular blocks of stone are the most easy to use; these should be laid with the longest side turned towards the centre of the bed, and the inner end lowered so as to resist the outward pressure of the soil. One, two, or three layers, according to the size of the stones may be used, each layer being a little within that below it, so as to give slope to the side of the bed. It is worth while to fill these beds with the best made soil, which is more easily obtained on stiff than on light land, provided that leaf mould and sand can be had. As the drainage will be rapid, the soil must not be too light. The bed should be filled in as each layer of stones is placed. I find the construction of these beds more easy and the result more satisfactory than digging out beds to a depth of 4 feet below the surface and making drains from them, the amount of new soil required being the same

in both cases. The edges and sides of these beds are in fact so many rockeries. Whether constructed of stone or brick, the difficulty will not be to cover the sides, but to find room for all the candidates for places upon them, as there will be great competition for room, and all will promise to do well. Not only rock plants like Saxifrages, Aubrietias, Helianthemums, will rapidly grow from top to bottom, but there is scarcely a herbaceous plant which will not do better amongst the stones or at the base of them than on the level ground. If you want pretty white flowers all winter, plant plenty of *Vinca acutiloba* on the south side of one of these slopes. Then as for the beds themselves, the raised position seems to give a new nature to the soil. I never could grow the Carnation tribe at all till I adopted this plan, and now I can grow them well. In fact, plants which do not succeed better here than elsewhere are rare exceptions. For autumn propagation, by division of choice herbaceous specimens, and to help young and delicate plants through the winter, or for the first year of seedling alpine, this arrangement is well suited, but for this purpose I make a number of small beds against a wall, if possible, and of less elevation in proportion to their smaller size. Of course when planted in such positions in summer, attention must be paid to watering, but if the soil is open, and the drainage consequently perfect, the things established in their raised beds seem incapable of going wrong in winter.

Llandudno.

C. WOLLEY DOD.

COLOUR IN THE FLOWER GARDEN.

IN my former article on this subject I endeavoured to show where the complementary theory of colour harmony was not founded on fact. My remarks were not directed against what "R. A. H. G." said, but against the arguments by which that theory was supported. The one grain of fact in M. Chevreul's theory was, that when we look at a bright colour, say red, for a little, and then shut our eyes, or look at white paper, we see another colour; in the case of red we see green. But to argue from that that green and red seen together must of necessity be perfect harmony is an argument exactly similar to one that if two dishes follow each other agreeably to the palate, therefore they must taste nice mixed together. If M. Chevreul's theory had been merely a fanciful way of accounting for acknowledged facts, no great practical harm would have been done, but unfortunately the resulting "harmonies" are all discords of the worst kind such as no colourist could tolerate. It was this which led Sir Gardiner Wilkinson to refute M. Chevreul's theory almost as soon as it was published. Sir Gardiner showed conclusively that the results were wholly out of keeping with the practice of all good coloured work. We must remember that the practice of the eastern nations taken along with Nature is conclusive on all matters of colour treatment. The only good colouring that ever existed in Europe came from the East. A thoroughly eastern character is evident in the earliest Irish manuscripts. This eastern influence, which no doubt came from Persia with the Irish and Scotch round towers, spread from Ireland into France with the Culdees, and from Scotland into Germany with them. There it produced the mediæval style of ornament, every change of style in the manuscripts being followed later by the same style in the stained glass, and then in the architectural carvings. The colouring of Southern Europe came from the East, through Byzantium and Venice. The influence of these styles died with the fourteenth century, since which there has been no good colouring until recently. All the later styles of art have been form styles in which colour is subordinate to form. Nothing, therefore, can be learned from the practice of modern artists except when they work under eastern influence. The following

Simple rules deduced from the practice of styles of decoration, in which good colour forms a feature, will prevent the production of tasteless combinations, and may lead to the intro-

duction of harmony. Taking the rainbow as a colour scale as being the most familiar form of the prismatic spectrum, we find the colours arranged in regular progression from crimson to violet. Everything seen in the rainbow is pure colour. Colours not seen in the rainbow, such as pink, lilac, cream, buff and brown, olive and sage green may be called mixed colours. The only true harmonies of any true pure colours much separated in the rainbow are with those near each side of it. Crimson and blue are possible; scarlet and violet are the best that can be had. Three pure colours much separated in the rainbow are almost the worst combination that can be made. Red, blue, and yellow are enough to produce lunacy; orange, green, and purple are nearly as bad. Quite as bad are combinations of two bright colours, as red and green, orange and blue, yellow and violet—the last the least bad. The most perfect colouring is that which depends upon the quantity and placing of the colours and the forms used as much as on the actual colours, examples of which may be seen in the best Indian and Saracenic work and the earliest Irish manuscripts. This seems beyond Europeans, and in any case it would not be introduced in gardening.

Colours harmonise when their place in the rainbow is very close, as crimson, pink, and scarlet, scarlet and orange, orange and yellow, yellow and lemon, turquoise blue and pure blue, &c. These are some of Nature's favourite combinations, as all lovers of flowers must know. The most beautiful combination of colours is that of the rainbow itself, where the colours pass gently into each other. Where this is combined with an increasing brilliancy of colour in one of two tints when only two are used, the most beautiful colouring we find in flowers is produced, as in some Roses, Chrysanthemums, and Anemones. All bright colours harmonise with tints of themselves, especially if these are darker than the pure colour. They also harmonise with deeper tints of the colours near them in the rainbow. All colours are harmonised by grey, white, or black, and in a lesser degree by very neutral hues, whether dark or light; even discordant colours may be placed near each other if separated by neutrals. In all colour combinations in which many bright colours are introduced one colour should rule and the others be subordinate. If red rules, for instance, blue, yellow, green, and purple should be introduced in much smaller proportions as foils to the red. In all arrangements of bright colour no mass of any colour should stand alone, but should be carried out or repeated by smaller masses. It will readily be seen that the above rules admit of great latitude in treatment, and leave room for great variety of taste. They are more of the nature of boundaries or hedges, beyond which lies chaos, than guides to the production of good groupings. These are so numerous, that all there is room for here are a few hints.

With herbaceous plants there is less danger of going wrong than with the bedders, so many of the best herbaceous plants depending far more upon form than colour for their effect, and many more upon form as well as colour. The shadows and foliage, too, amongst tall plants form a beautiful background of mixed neutral hues, against which bright colours tell as gems. Against this background the bright colours are never seen as blotches of flat colour, but fade and change through a great variety of related tints of the same colour. We get so used to interpreting all these tints as being one colour, that we forget they are there, but they have their effect all the same. Take, for instance, a yellow Rose in sunshine; there are in it many shades of yellow from almost white, through pure yellow, to almost orange, besides many quiet tints between yellow and brown, and also pure pearly grey. There is the same variety in all tall plants, produced by the flowers being seen in sunshine and shadow. Beyond avoiding the combinations already mentioned, nearly all that can be done with herbaceous plants is to avoid a spotty effect by massing the colours; let related tints be placed together with foils of other

colours at a distance. This is easily done, because families of plants produce related tints among their different varieties. All Roses harmonise, for instance; also all Gladioli, all Carnations, nearly all Pansies, Poppies, Auriculas, Phloxes, Lilies, Pyrethrums, and many more; all that need be studied in these is not to put two flowers of the same colour together where one is merely brighter than the other, as two blues or two scarlets of the same shade. *Vesuvius Pelargonium*, for instance, will make a scarlet Carnation look like brickdust if placed beside it. Where colours must touch we can get over the difficulty by interposing quiet shades. Suppose, for instance, a row of Hollyhocks, do not place yellow beside scarlet, but interpose white or a dark claret or maroon. The same with Roses, both on the bushes and in bouquets; do not place *Maréchal Niel* or *Caroline Kuster* beside *John Bright* or *Gloire de Bourg-la-Reine*, but beside *Louis Van Houtte*, or *Xavier Olibo*, or *S. Reynolds Hole*, or between *Baroness Rothschild* and *Mrs. Bellen den Ker*, and place the scarlets and crimsons amongst white or delicately tinted Roses, like *Madame Plantier* and *Homère*.

Yellow colours.—A great mass of primrose, yellow, and orange has a beautiful effect if mixed with white, and a few spots of pale rose, lilac, and rosy lilac amongst the white, and some heavy crimson, and maroons near shading into purple and blue. This combination can be easily carried out with Primroses and Pansies alone, or with the addition of *Polyanthuses*, alpine *Auriculas*, and *Forget-me-nots*. Faint pinks and lilacs shading into white contrast well with all yellow shades if plenty of white is used. These are the best ways of using yellow, a colour too much neglected in gardens through the pernicious habit of using it always beside red or blue, and only one shade of it, instead of using two or three shades and in the above described combinations. It should never be placed near red except in the most minute quantities relieved by grey or near blue, unless separated by some nearly black tint or white.

Good combinations of colour for bedding may form the subject of a future article. My remarks about the use of pure colours as the greens of succulents are now used referred to the possible use of many related shades of one colour with neutrals, and a little of one pure colour as a foil, which is the best way of using colour for bedding. I may only say here that the best bedding combinations are those in which two colours only are used with neutrals, one of the two being subordinate. The presence of three pure colours in some form is not at all necessary to produce harmony. "R. A. H. G." has, I am afraid, read my article hastily and replied to it without sufficient thought, as his remarks upon it are wholly irrelevant. I assumed that he was conversant with the reasoning by which the complementary theory is supported. The principal reasoning by which it was originally commended was, that blue, red, and yellow made all the other colours by their various combinations, and also white—that as all combined to form white, therefore white was perfect light, and perfect harmony of colour could only be produced by using colour in combination which would be equal to white, as is very clearly explained by "R. A. H. G." in his first article. It only requires the merest smattering of logic to perceive that in this reasoning the conclusion does not follow upon the premises, but is a mere arbitrary assumption; and, now that the premises have been proved to be fallacious by the progress of science, it follows that the whole theory must take its place in the limbo of exploded ideas. No colour is produced by any combination of colours. White is not a mixture of colours, but a thing apart. Red and yellow do not form orange, even orange-scarlet is not scarlet with a little orange in it, but a distinct colour produced by a distinct rate of colour waves, so that even were M. Chevreul's reasoning correct, all and every tint in the rainbow would have to be present in order to produce harmony. Knowledge of the

Physical nature of colour is wholly unnecessary. In order to deal with colours satisfactorily it is only necessary to combat principles of

colour treatment professedly founded on physical laws, but wholly at variance with those rules and methods of combining bright colours which have been practised by all good colourists, so far as their works are known to us since the world began. The best way with weeds is to stub them up by the root. The examples adduced by "R. A. H. G." prove nothing. M. Chevreul's book is still professedly used in schools of art, but I can say no good design is ever produced by rigid adherence to its rules, as I have seen the best work of these schools nearly every year for the last twenty years, and am personally acquainted with every detail of the instruction given. The colouring in pictures is always wholly broken and harmonised by neutrals. Nearly all the stained glass in our cathedrals is modern, and much of it is as bad in colour as it can be, even where it follows the ancient work slavishly; the glass is too even and good, producing flat tints instead of the flushing and fading colour of the old windows. So much is this the case that the manufacturers have been obliged to imitate the old make of glass. The colours in mediæval work are almost always separated by gold, one of the strictest rules being never to let two colours touch, but always to place colour against gold, silver, white, or black. The soft yellow of the old windows is an imitation of the quiet, neutral effect of gold, which has to be imitated in painting with a palette of very quiet browns, with just a speck of cream and of soft orange. All colours in the best glass must of necessity be separated by the black lead lines, and a great amount of white is also introduced. Street posters as colour are beneath contempt, and the phrase may be well applied to them which was recently used by an evening paper in reference to some colour printing of a much better character—"simply execrable." J. D.

FRUIT GARDEN.

OLD VARIETIES OF GRAPES.

WITH reference to the value of old varieties of Grapes, it may be said that there are new ones sufficient for all purposes, and the old ones are not wanted; but to such a reply I should demur on the ground that tastes differ, and that while some are always on the look-out for novelties, there are others who set as much value on the older kinds. I therefore purpose to furnish a few notes on some of the old kinds, and shall begin with the

Black Muscat of Alexandria.—Before I go further I may here say that the question may be very properly asked, "Did such a variety ever exist?" to which I should unhesitatingly answer, "Yes," and I base my argument on the word of a good old gardener whose memory I honour, and who, I have good reason to remember, grew it to great perfection, but, like many other cultivators, I lost sight of it for some years, and then met with it again under the name of *Snow's Muscat*, and still more recently by the name of *Venn's Seedling*; of course these are only synonyms of the original variety, but let it be clearly understood that I do not question the action of anyone in sending out under another name this Grape. For all I know they may be veritable seedlings obtained in the ordinary way, because I believe it to be quite within the bounds of possibility to reproduce by judicious crossing a variety so like some existing kind that has existed, that I would not for a moment impute to anyone dishonest motives in this matter. As there is no necessity to discuss that point any further, reference may be made to its useful character, for I have seen it growing under a variety of circumstances and generally with satisfactory results, but it must be admitted that there are isolated cases where it is a bad setter. Perhaps the Vine is hardly so vigorous a grower as the white variety, but it is very fruitful, producing bunches of fair average size. Those who know and admire the white Muscat of Alexandria, and would like a

black Grape of the same quality, may be safely advised to grow this one. It does not matter whether it is obtained under the name here given or either of the synonyms I have mentioned; so long as it is obtained true under the names here given it cannot fail to please if it is grown in a satisfactory manner.

White Frontignan.—Twenty years ago this was a favourite mid-season variety. It was reputed to ripen either in a cool or warm vinery, but I never saw well-finished examples except they had been subjected to a regular Muscat temperature. Mr. Rust, of Eridge Castle, used to grow this Grape in capital style; he used to obtain very handsome bunches and the berries above medium size. This variety is certainly not destitute of merit, for the Vine grows vigorously and fruits freely, and for those who prefer Grapes with a Muscat flavour, from August to the end of October they may grow it with every prospect of success, for I never heard that when it was grown in a warm vinery it was a difficult variety to manage.

Prolific Sweetwater.—I never met with this Grape in its true character but once, and that was many years ago at Kearsney Abbey. I found it there in an old vinery, and I have never seen any other Sweetwater Grape (except Buckland Sweetwater) so large in the berry, and certainly never its equal in point of flavour. Whether the true variety is lost to cultivation now I do not know. I have a very distinct remembrance of its pleasing round berries and its rich piquant flavour. The Vine is a good grower and free bearer, and for early forcing not surpassed by any of the new kinds. I found when forced side by side with Black Hamburgs that it was ripe quite a fortnight before them.

Trentham Black.—How long this variety has been in cultivation I do not know. My first acquaintance with it was in a garden on the south coast where a large plant of it was trained on a south wall; and as it did not ripen successfully every year, the proprietor had a three-light frame placed on the border in front of the plant, and then fixed a wooden trellis inside the frame about 12 inches from the glass. He then took down from the wall some of the Vine rods and introduced them into the frame. Of course, the frame had glass lights, and by carefully ventilating and otherwise exercising careful attention, very creditable examples were secured that would hang well until late in the autumn. I once grew it in a second vinery, but although it is a hardy, free-bearing sort, I do not consider it equal to the Black Hamburg. At Sawbridgeworth it was at one time grown in ground vineries, and made a very creditable appearance. I remember seeing it there bearing good crops of medium sized, well ripened bunches.

Royal Muscadine.—This variety is occasionally to be met with now, but it is not a popular variety, a good many cultivators objecting to its colour, which is something between a greenish yellow and pale amber, and when grown in its best form there is a tinge of transparency that is not altogether very pleasing. Notwithstanding this it has some merits, for in flavour it is rich and sweet; the Vine is a fairly good grower and a prolific bearer. It is one of those varieties that are influenced a good deal by conditions of soil and treatment. In one garden it may be found in a very satisfactory condition, and in another quite the reverse. It is usually found in cool vineries, a position that suits it much better than an open wall, where at one time it was represented to ripen its fruit well, but I have never seen it in the open in a condition that would warrant me in recommending it for such a purpose. J. C. C.

Young fruit trees.—Where these are over luxuriant I prefer lifting to root pruning. Then the tap root, if any, can be cut off and all other useless roots, and plenty of fibre will be the result. In re-planting, keep the roots well up to the surface and laid out horizontally. I have even known young Pears to keep barren till I placed

them literally on the surface. I then staked them, shook a little soil over their roots, and mulched them with 3 inches or 4 inches thick of rotten manure to guard them from frost. The following year the result was most satisfactory, and they have been fruitful in favourable seasons ever since, a fact which shows that fruit trees cannot well be planted too near the surface. Trees deep down in the sub-soil never do well.—J. C.

THE MULBERRY.

THE common Mulberry is a native of Italy, but has been grown in this country for more than 300 years; even now, however, it is perhaps less extensively grown than it deserves to be, for, setting aside its merits as a fruit-bearing tree, and the value of its leaves as food for the silkworm, it is when grown either in the standard or tree form, or when trained to a wall, an exceedingly ornamental tree, and one which attains to a very great age. Some remarkable Mulberry trees may be seen in various parts of the country. As a fruit-bearing tree, however, it is not found to succeed so well in the northern counties of England and Scotland as it does in the south; it requires in Scotland the assistance of a wall and a southern aspect to enable it to fairly ripen its fruit. When trained to a wall, and grown for the sake of its fruit, it is apt to get into a rather over-luxuriant and barren condition, producing male blooms in abundance, but showing a paucity of female or fertile flowers. In such a case root pruning, or rather root restriction, such as is practised in the case of the Fig, will generally be found necessary to ensure fertility. The Mulberry is unfortunately apt to shed or drop its half-swollen and unripe fruit. This may sometimes be the result of the imperfectly fertilised female blooms, and not unfrequently this is caused by a check sustained by the plant during long continued dry weather; for although root restriction, or the confining of the roots to a comparatively small space, is necessary in the case of this plant to induce fertility, still abundance of water should be given, more particularly at the time when the fruit is swelling.

The fruit is so well known that it may be unnecessary to say anything respecting it further than to say that when fully ripened it is a very delicious and exceedingly rich looking fruit, very highly esteemed by some, and it can also be made into a rich and delicious conserve. The fruit produced by trees trained to walls, particularly if the aspect be a favourable one, is generally found to be larger and of better quality than that of standards, on account of being more fully exposed to the influence of the sun, together with the advantage resulting from the warmth of a brick or other wall, and the horizontal method of training and the spurring system of pruning are no doubt best suited for the Mulberry tree, or in all respects similar to that followed in the case of the Pear, only in the case of the Mulberry the branches might with advantage be trained at a greater distance from each other, say four courses of bricks apart, while three courses apart is that usually followed in the case of the Pear. A system of annually laying in young fruit-bearing shoots may also in the case of this tree be followed, but this involves considerably more trouble, and the tree does not look so neat and ornamental, and, as far as the production and quality of the fruit goes, this system has no advantage over spur-pruned trees, the leading shoots of which may either be nailed or tied in at full length, or if the extreme portion is weak, the shoots may be cut back to a well-developed wood bud. The Mulberry, it may here be said, is by no means particular as to soil, but one of a somewhat light character is possibly that most conducive to its fertility. In Culford Gardens many years ago a Mulberry tree occupied a very considerable length of a wall, some 12 feet or more high. Judging from the dimensions of the tree, it must have been of great age. It faced the west, was trained horizontally, and spur pruned. It was an exceedingly ornamental object, and seldom failed to attract the attention of anyone entering

the garden, and it never failed to produce an abundant annual crop of fine fruit until the terrible winter of 1860-61, when the temperature in this part of the country fell frequently several degrees under zero, and as one of the results of this extraordinary depression, the old Mulberry tree was so severely injured that it had to be removed.

Propagation.—The Mulberry may be increased or propagated in various ways; possibly the method most frequently followed is that of layering, which is best performed soon after the leaves have fallen by merely bending down convenient branches towards the surface of the soil; after ringing the branch, as it is called, that is removing a circular portion of the bark some inch or more in width, and inserting the ringed portion of the same in light rich soil, keeping it in position by means of a strong hooked peg, roots will generally be emitted freely from the portion of the layered branch close to where the ring of bark has been removed. And in twelve months after this operation has been performed, such branches will generally be found to have sufficiently rooted to enable them to support an independent existence; they may then be severed from the stool, and if carefully planted in suitable soil will soon form trees. The plant may be equally well increased by means of cuttings, which should be formed of the young wood, with a heel attached consisting of the wood of the previous season. These should be planted in lines on a shaded border, and will generally form roots freely enough during the ensuing summer. But if only a few plants are required, a more expeditious method of obtaining such is to insert some half dozen or more cuttings in well-drained 6-inch pots, filled with light, sandy soil, placing the cuttings close to the sides of the pots, and plunging the latter in a gentle bottom-heat in a close frame or pit. Such cuttings will generally be sufficiently rooted to be potted off singly, or to be planted out during the following May. Even comparatively large branches of the Mulberry may, like those of the old Burr-knot or the Walking-stick Apple, be inserted in light soil, and will not unfrequently root and form trees. The Mulberry may also, if desired, be raised from seed, which may be readily separated from the pulp by washing, and after being carefully dried, may at once be sown in seed-pans and placed in gentle warmth, or it may be sown in suitable soil in the open air early in the month of April. P. GRIEVE.

PEAR-GROWING FOR PROFIT.

IN reply to "S. S." (p. 507), allow me to say that my experience is greatly in favour of cordon-trained trees. A description of my cordon Pear wall may be of interest to him. The wall is 42 yards in length and 11 feet in height, with a full south aspect. The trees are planted about 18 inches apart, and trained at an angle of 45°. We have eighty-three trees on the wall, and forty-three varieties, all on the Quince stock. This system of Pear growing has been a success here; indeed, for these last twenty years, or ever since the trees have come into bearing, they have never failed to produce good crops. In fact I am convinced that the cordon system of training is the only way to produce good fruit and bring to perfection the true character of the variety. For exhibition purposes this system is the one to follow; a blind man could pick out cordon grown fruits by their size and smoothness of skin, and even this year, noted for its scarcity of Pears, those on the cordon wall doubled themselves in size compared with those trained on the old style. The following is a list of the varieties which we grow on our cordon wall, and which would supply "S. S." with fruit for all seasons. I give them in rotation as planted: Doyenné Blanc, St. Germain, Bergamot d'Espérance, Beurré Giffard, Doyenné Bouscho, Délices d'Hardenpont, Van Mons, Pitmaston Duchesse, Josephine de Malines, Alexandre Bivort, Winter Nelis, Figue d'Alençon, Susette de Bayay, Beurré Superfin, Vicar of Winkfield, Easter Beurré, Bezi Mai, Doyenné d'Alençon, Duchesse d'Angoulême, Passe Colmar, Glou Mor-

ceau, Brown Beurré, Beurré Diel, Conseilleur de la Cour, Beurré d'Amanlis, Chaumontel, Triomphe de Jodoigne, Beurré Hardy, Duchesse d'Hiver, Beurré Rance, Beurré d'Arenberg, Doyenné Gris, Leon le Clerc de Laval, Marie Louise, Zephirin Grégoire, Bergamot Hetrich, Beurré Sterckmans, General Todleben, Huyshe's Victoria, Doyenné du Comice, Beurré Bosc, and Hacon's Incomparable.

Holme Lacy.

R. A.

LATE STRAWBERRIES.

WE find these to be so much appreciated, and such a welcome addition to the dessert, that the preparation of plants for autumn and winter fruiting has inevitably, with us, come to receive as much attention as that of plants for spring forcing. Comparatively, however, but little preparation is needed, the same plants yielding both spring and late crops. Ripe Strawberries after September are thought to be insipid, and so they are if forced in the ordinary acceptance of that term; but if after housing the plants can be given a slightly progressive dry temperature, with plenty of air, and so placed as to catch every available sunray, they may be had in a condition both presentable and eatable, and though certainly lacking the flavour of April fruits, yet very acceptable in a season like this, when the dearth of other fruits is inconveniently felt. I have tried many varieties for the purpose just indicated, but find none so certain or abundant an autumn bearer as Garibaldi; the bulk of our plants for spring forcing consists of that kind, and our late fruits from August till Christmas Day are gathered from the first three batches of spring-forced plants planted out and plunged in succession. The first are generally cleared of their crop by the middle or end of March; they are then hardened off gradually, and planted out the first week in May. An open, sunny piece of ground in good heart is selected for them, and the plants, which are previously thoroughly soaked with water, are turned out of their pots, removing the one large crock at the bottom of each and planted 2 feet apart, sinking the old balls well down and firming the soil solidly around them. If the ground is at all dry they are well watered in, and at once thickly mulched with stable litter. All runners as they appear are pinched off, and manure water given liberally if the weather is dry. We have hitherto planted these 2 feet apart, but it is insufficient; they grow so luxuriantly, that in order to let sun and air well around them in autumn 3 feet is none too much. In August, when the fruit begins to colour, we cut from old Pea stakes a number of stout pegs about 18 inches long, with a fork at the top; these are pushed firmly into the ground round the plants, slanting outwards, and the trusses of fruit are laid in the forks, thus elevating them above the foliage, and thus removing them from the damp ground, away from slugs, and giving them the benefit of sun and air. They require to be gathered carefully, so as not to throw the trusses out of the forks. Plants thus managed bear prodigiously until cut down by frost. For

A later supply indoors we depend upon the second and third lots of spring plants, and not being over-burdened with hands at that busy time, we adopt a plan by means of which few are needed, and that, too, with fairly good results. After hardening the plants off they are plunged in the same pots (6-inch or 7-inch ones) in which they have been growing close to a walk for convenience as regards watering. We well mulch them over with litter, and at no time allow them to become dry, manure water being given now and then. There they invariably throw up an abundant second crop of leafage and fruit. These plants are housed in two lots, thus forming a succession, the last being left out as long as the weather is not likely to injure them. Before taking them indoors we tie them up loosely with a bit of matting in order to render them more convenient to lift and wash the pots, after which they are placed in saucers on airy shelves very close to the glass in the fruit houses, and carefully fed with manure water, the strength of which is gradually increased. A few neat stakes made

from laths support the fruit well above the foliage, and thus treated they do well. With these, as with many other plants, I find nothing to produce such vigour and depth of green in the leaf as soot water. An old boiler, barrel, or tank, sunk in some out-of-the-way corner kept full of water with an occasional shovelful of soot thrown into it, will afford an unfailing daily supply, and it is one of the cheapest and best of fertilisers.

Cranmore.

A. MOORE.

Water tanks in vineries.—I have lately seen several instances in which there were open rain water tanks in vineries, and the owners have been bemoaning the difficulty of keeping their ripe Grapes for any length of time. One indeed had almost decided to eradicate the Vines altogether and start afresh, owing to the Vines being covered with air roots, yet the young wood was strong and well ripened. The cause in this case was not far to seek, as an open tank ran the entire length of the house, and this and the plants growing in the house were constantly giving off moisture. I am no advocate of dryness at the root, for as a rule I believe Vines under glass more frequently get too little than too much water, but excessive humidity in the atmosphere is quite another matter. The leaves cannot properly perform their functions in an atmosphere constantly over-charged with moisture; open tanks in vineries are therefore a very questionable benefit. Although every drop of rain water should be saved for use, it ought to be in tanks, if inside the houses, closely covered, for the vapour arising from the water will render the task of keeping ripe Grapes well-nigh impossible, the heavy downpour this autumn causing all thin-skinned Grapes to keep very badly. This is especially the case where the vinery has to act as a plant house as well. The storing of plants in autumn renders it impossible to keep the atmosphere as dry and buoyant as is necessary for the keeping of ripe Grapes. I feel certain from daily experience that the greatest gain for many gardens of moderate extent would be a curtailment of the size of the vineries they contain and an increase in their number, as two small vineries are better than one large one. While thin-skinned Grapes are rotting by wholesale in November, one half of the quantity of late-keeping kinds in a house kept solely for their culture would yield a good supply until March. Nothing is so disastrous as plants in a vinery in which Grapes are to hang long after they are ripe.—J. GROOM.

Belle de Fontenay and other autumn fruiting Raspberries.—This is an autumn-bearing Raspberry, not so well known as its merits entitle it to be. It is a robust grower and prolific bearer, producing fruit of a dark red colour and of great size, which possesses a very pleasant flavour. In every respect it supersedes that good old variety, Merveille de Quatre Saisons Rouge. We are still (the end of October) gathering good dishes of excellent fruit four or five times a week, and the canes are still studded with fruit in various stages of development, which, with the protection of glass and the aid of a few hot-water pipes, would yield a good supply of ripe fruit during the next two or three months, and perhaps for even a longer period. Where the best possible results are aimed at the canes should be planted in ground deeply trenched and liberally manured, and occupying a warm situation in rows 4 feet apart and about a foot between the plants in the row; but should the number of canes in the possession of the planter be insufficient, they can be planted wider apart in the rows—say 18 inches or 2 feet, and next summer a sufficient number of the strongest young canes selected and trained to the wires or string 6 inches apart. When planted the canes should be tied to a couple of wires strained to a couple of neat posts or strings fastened to sticks—the former being the neater and better mode of training—and then have a mulching 3 inches or 4 inches thick of half-rotten manure between the rows. It will be seen by the foregoing remarks that the autumn-bearing Raspberries, unlike the summer-bearing varieties, bear fruit on the current year's shoots, those of the preceding year's growth being, as already stated, cut away in early spring; therefore all superfluous growths in the shape of suckers must be persistently cut away during the summer months, otherwise success, although all other cultural details may have been duly attended to, will not be attained.—H. W. W., *Gardeners' Chronicle*.

Roof pitch for vineries.—Not the least important part for consideration in the construction of vineries is the angle at which the roof should be. 45° is considered the safest pitch, but how often do we meet with houses so flat that the wet runs off them with difficulty, and sunk so low that the border is always cold and damp—two evils concerning which the cultivator can do but little to mitigate. In the case of flat-roofed houses Grapes do not colour so regularly as in houses with a sharper pitch, and especially is this the case with white Grapes; they invariably colour fastest and best on the shoulders, while towards the points they take longer, and very often do not colour well at all. Owing to the flatness of the roof the sun's rays penetrate the glass in a slanting manner instead of in a direct way, whereby their power is diminished; and, moreover, the top part of the bunch shades the under part. In a flat-roofed house here I have had Muscats as yellow as gold on the shoulders, while the lower parts were green. To obviate this, I raised the bunches by means of a piece of matting to a more horizontal position, and then they coloured rapidly and well. The sharper the angle of the roof the nearer the whole bunch is to the glass; but to this there must be a limit, or we might err in the other direction. In building a range of mixed houses on a given plan in which there are to be vineries to suit all seasons of forcing the safest angle to go by is certainly 45°, but if a house were to be built for early forcing in a detached position, I would not mind having such a house a little sharper, as the sun is not so high above the horizon at that time as it is when later forcing comes on. I would, therefore, require the roof to be steeper, in order to catch its direct rays, and thus a proper angle might be found to suit each forcing season. There may be a little saving in the way of masonry on the part of lean-to houses by building them low and flat-roofed, but that advantage is lost over and over again in results.—A. MACKIE, *The Woodlands, Darlington*.

Lifting old Gooseberry bushes.—Gooseberry bushes, like Apricots, often die off piecemeal, and that without any apparent cause. They are grown on the restrictive system, and while cultivators prune yearly, the roots are left untouched. They, therefore, fill the bush with a superabundance of sap, producing wood that cannot be ripened, and the subsequent mutilation is an agent of destruction. It is well to lift over-luxuriant growing bushes carefully and replant them in well prepared soil in which fruit trees have never grown before; lay the roots out flatly after cutting off any which seem decaying; cover them with a few inches of soil, and finish with a good mulching of farmyard manure (where soils are dry and gritty, I prefer cow manure), which may, for appearance sake, be covered with a little soil. By this practice the necessity of pruning is greatly reduced, and the bushes produce the best of fruit, while dying off is obviated. I have adopted this practice with bushes often, which appeared hardly worthy of notice, and the best results have been realised. We are now operating on large numbers of old Currants, Gooseberries, and Apples, which we cannot afford to throw away. Many of them must have been planted more than half a century. With a number of the worst of the Gooseberries we intend forming a hedge, and such a barrier, say from 4 feet to 5 feet high, few will attempt to force their way through, and it is possible that quantities of green fruit will be produced on this hedge which will be serviceable in the kitchen.—M. T.

Diseased Vines.—Allow me to ask some advice and assistance as to what is best to be done with my Vines. I send you some of the bark taken off to-day in preparing them for their winter dressing. The texture of the bark seems peculiar; I have never seen any like it before, although I have had many years' experience. The Vines have been planted three years, but have not done well. They are growing in a stove, the roots in an outside border. Stove plants are grown under the Vines. Last year the Vines were much infested with mealy bug, and at the winter dressing I painted

them with a rather strong mixture of sulphur, soft soap, lime and soot, with a little clay, and washed the walls, woodwork, and glass with paraffin oil and water to get rid of the bug, but did not quite succeed. In the spring, the Vines were so long in breaking, that I thought they were dead. They did break at last, but so weak; and it was the end of June before they commenced to grow fairly well. I should have said that they were cut back to within 7 feet of the front sashes, at the winter dressing as above. The laterals finished as they began—weak, but the leading shoots finished in excellent canes 10 feet long and well ripened. They have plenty of roots, but the border is very cold, drainage good. We have very good Grapes in a late house (same range). I may add that a Buckland Sweetwater planted at the same time and in the same soil, but in greenhouse temperature, produced a good crop of excellent Grapes this past autumn. I hope I have given sufficient data to form your opinion upon.—J. B. G. [There is no fungus on the material sent; indeed, no fungus is to be expected on Vines, except the well-known *Oidium*, common on all Vines; other fungi are rare and of no importance. I cannot account for the somewhat peculiar appearance of the bark, the inner part of which has perished. Fungi have nothing to do with it, neither have insects, I think.—W. S.]

PROPAGATING SMALL FRUITS.

THERE are many small gardens both in the country and also in the neighbourhood of towns in which Apple, Pear, Plum, Peach, and other large-growing fruit trees cannot be accommodated with profit or advantage; but there are few gardens indeed in which a few Gooseberry, Currant, Raspberry, or Strawberry plants cannot be grown with satisfaction, and while season after season may pass without one fruit being obtained from a Peach tree small fruits rarely fail to bear and do well. All the more reason, therefore, why we should press for their general and extended cultivation. Apart from their ordinary culture, at all times easy enough, there is both pleasure and profit to be derived from their propagation, and now is the season for attending to this matter. Only superior varieties of anything should be increased; inferior sorts should be cleared out as soon as possible, there being no economy in retaining them.

Gooseberry and Currant bushes in ordinary health will have made many shoots during the past season—many of them probably a foot or more in length, and it is young wood of this kind which should be selected as cuttings. Some when they prune their Gooseberry and Currant bushes allow the prunings to fall to the ground, gathering up and selecting those suitable for cuttings afterwards, but where close together the kinds are liable to get intermixed; therefore the better plan is to go over the bushes before the general pruning is begun and select all that are required for propagation. The best developed, cleanest, and most matured looking of the shoots only should be taken; they should be cut off at the desired length, tied up in a bundle, and named previous to covering up their ends with soil in any of the kitchen garden quarters. Red and White Currants are easiest propagated from cuttings, but we have frequently secured young Black Currants from the sucker-like growths that are often emitted from old bushes. These off-shoots have always roots attached to them, and may be lifted and planted again without being treated as cuttings. Apart from this way Black Currants may be propagated like the others. If the cuttings are selected now before they are spoiled or lost in pruning, the other operations connected with them need not be hurried, as they will be in good time if placed in their rooting quarters in March. The main point now is to get the ends of them placed in the soil to prevent them from shrivelling or drying up, and when convenient they can be taken up and dressed ready for planting. This kind of work we generally do on a wet day under cover. The cuttings are cut into lengths from 12 inches to 18 inches, according

to the height the stems are desired to be. All the buds are then cut out excepting three or four at the top, which are left to grow and form the first year's branches. After being made they may either be bundled together again for a time or they may be placed properly in the soil for rooting. We generally root them in some spare corner where the soil is rather sandy. We dibble them in rows 15 inches apart and 6 inches between each cutting in the row; 3 inches is quite enough under the soil for rooting, and they cannot be made too firm. When the bushes begin to become green they form leaves too, and make roots very early in spring, and strong, healthy shoots the first season. They should be hoed between as weeds appear, but no other attention except this is needed. We have sometimes allowed them to remain in the cutting ground over the second year, but they must be moved to good ground and given plenty of space before the third season, as by that time they will have become good sized bushes and will bear some fruit. Pruning and dressing of the ordinary kind then comes into annual practice, and I am sure that amongst the many pleasures which amateur cultivators derive from their gardens, few will be greater than gathering fruit from bushes of their own rearing.

Raspberries are still more easily dealt with, the best way to increase them being simply to lift the side suckers which are annually thrown out from old stools, and plant them in rows in fresh ground to form new plantations. When these young canes are moderately strong they bear fruit the first season. The best time to increase

Strawberries is in August, when plenty of young runners can be had from the old plants; but where runners are allowed to remain on all winter, the best of them may be lifted and planted whenever suitable weather occurs in spring.

CAMBRIAN.

Air roots on Vines are caused through inactivity at the root and a close, stagnant atmosphere. If the evil is to be removed the border must be examined in order to see if the drainage is complete and the soil sweet. The house should also be ventilated as early in the morning as the condition of the weather will permit, and closed early in the afternoon, or as soon as the temperature inside gets down to 85° in hot weather.—JAMES SMITH, *Waterdale Gardens*.

Pruning Vines.—Without entering at all into the late discussion respecting the Duke of Buccleuch Grape, allow me to say that it is a kind which I think requires a peculiar system of pruning. It will not, in fact, under all circumstances fruit freely if closely pruned. What I mean by close pruning is pruning back close to the rod, only leaving one bud to form a spur—the system generally practised. This also agrees exactly with the behaviour of the Golden Champion. The only successful grower of the latter that I know of was Mr. Shore, when he had charge of the gardens at Henbury Hill, near Bristol. He there grew the Champion on the extension system, and allowed the Vine to occupy one side of a good sized house. To do this it necessitated leaving every year a good deal of the young growth merely shortened back a little, and he always secured a good crop that fully maintained the character of this Grape as given by the raiser. I may remark here that there is a good deal more meant in the word extension, as applied to Vines, than is generally accepted. It not only means an extension of the roots and branches, but it means a more evenly balanced reciprocity between the two; and, further, as I understand the word, it means that instead of the incessant pinching of the lateral growth during the time when the Vines are in active growth, there should be room for them to extend without encroaching on the space occupied by fruit. Be this as it may, I have not seen the Champion grown successfully under any other conditions; and as these two Grapes are nearly related I believe the treatment that suits the Champion would also suit the other.—J. C. C.

PLANTS IN FLOWER.

IRIS STYLOSA.—This beautiful and fragrant Iris has blossomed for the last two or three weeks in a greenhouse in the Cambridge Botanic Garden, and from its refined appearance is as welcome as the choicest flowers of the season. The flowers open successively, and are so large as to be very conspicuous. The colour is a delicate violet, and the claws are marked with gold and lilac on a white ground. It makes a very good pot plant.—L.

NARCISSUS MONOPHYLLUS.—I send you a flower of this pretty species. It has expanded very early, and I am glad to say I have been very successful in its cultivation, having three pots with roots, some of the stems having two flowers. I cannot account for its early flowering, except that it was early set at rest, the leaves being quite withered early in summer. For this and its floriferous character with me I am inclined to ascribe warm treatment. Being a native of Algeria, I think it should be kept as a greenhouse plant.—JOHN FERME, *Haddington*.

URCEOLINA PENDULA, despite its extreme gracefulness of growth and beauty of colour, is still classed among rare plants. For the last three months at least we have seen it in bloom in various London nurseries, and it is still in great beauty in the Royal Exotic Nursery, Chelsea—a proof of its continuous flowering tendency. The drooping umbels of urn-shaped flowers, strangely coloured with pea-green and canary-yellow, are so singularly attractive, that it is a wonder it is not more generally grown than it is. Being a Peruvian plant, it requires a moderately warm stove.

LUCILIA GRATISSIMA, grown and flowered in a small state in pots, is extremely valuable at this season, the delicate beauty of the large clusters of flowers and their delicious fragrance rendering it unequalled amongst winter flowering plants. We were much struck the other day in Mr. Bull's nursery with the beauty of a group of such plants, associated with Ferns and other delicate greenery, and such a group would have had a still prettier effect under artificial light. This *Lucilia* is often seen in the form of large, planted-out specimens, but its value in the form of small plants does not appear to be much known.

PITCAIRNIA APHELANDREFLORA is a bright-flowered Bromeliad, particularly welcome at this season. It has narrow grassy foliage, produced in a dense tuft. From this tuft arise the flower stems, from 9 inches to 12 inches in height. These bear at their upper parts numbers of tubular flowers about 2 inches long, which spread out horizontally from the stem. The colour—a bright orange-scarlet—is very telling at this season among fine-foliaged plants in a stove or warm greenhouse. In the Victoria and Paradise Nurseries, Upper Holloway, this plant makes a bright display in one of the houses, where it is seen to excellent advantage.

AZALEA OBTUSA, though an old occupant of our greenhouses, is still one of the prettiest of all the earlier flowering Azaleas. The flowers are small, in fact not much larger than those of *A. amœna*, but far more striking in colour, being a clear cherry-red, a tint very uncommon, even among the many shades to be found among Azaleas. In Messrs. Veitch's nursery, Chelsea, where it is now beautifully in flower, it is found to be so valuable as a forced shrub at this season, that it has been propagated and grown in large quantities in pots for forcing. It is somewhat remarkable that such an exquisite variety should have been allowed to remain so long in comparative obscurity, few plants being more worthy of being brought into prominent notice.

NEW DOUBLE PRIMULAS.—Flowers of what we consider to be two new and beautiful sorts of Chinese Primrose have been brought to us by Mr. E. Woodall. Both have semi-double flowers, each as large as a crown-piece, and the petals of both are exquisitely crimped and fringed; one is a delicate soft pink, the other pure white with a

large and conspicuous yellow centre. The petals being large and loosely arranged, the flowers are not so button-like as those of some of the double varieties, to which many would prefer them. They are the produce, we understand, of seeds purchased of M. Huber, of Nice. Accompanying these were some very fine flowers of single varieties, large and beautifully fringed, and varying in colour from pure white to the brilliant crimson similar to that of the variety known as the Chiswick Red. These also were the produce of M. Huber's seed.

AMARYLLIS AULICA SUPERBA. This is just now one of the most remarkable plants in bloom in the stoves in Mr. B. S. Williams' nursery, Upper Holloway. The typical *A. aulica* is handsome enough, but this fine variety is very much superior to it, both as regards size and colour. The flowers, three or four in number, measure some 6 inches across, and are produced on stout, erect stems nearly a yard high. The colour is a vivid vermilion, beautifully reticulated with darker lines. When in full bloom a well-grown plant of it is a most conspicuous object, and one which could be used with fine effect in many ways in floral decorations. Several other varieties are in bloom in this nursery much in the same way, but this one stands out prominent from all the rest. As a contrast to the fiery brilliancy of *A. aulica superba* is the delicately-tinted Mrs. Garfield, a hybrid from *A. reticulata*, and we might again mention that it is still in flower, and has been for several months past, hence its great value.

TILLANDSIA LINDENI VERA.—Amongst the whole tribe of Bromeliaceous plants none are more beautiful than this. It combines elegance of growth with lovely floral colouration. The foliage, which is narrow, is produced in a dense tuft and recurves gracefully on all sides. The flower-spike, which springs from the centre of the tuft, is about 9 inches high and covered with closely imbricating bracts of a delicate, clear, rosy pink. The whole spike is flattened out for about 2 inches or 3 inches in width, and from the axils of the bracts from one to four flowers are produced at a time. These are from 1½ inches to 2 inches across, triangular in outline, and of the richest purple tint imaginable, affording a strange, but beautiful, contrast to the colour of the bracts. In this plant we have a small, but beautiful subject, which, either for the embellishment of the plant house or for floral decorations, is of great service, and the long time during which it remains in flower considerably enhances its value. The bracts retain their colour as long as the spikes last, which is for several months, and the flowers are produced in continuous succession all through the winter and spring. In order to obtain an adequate idea of its beauty it requires to be seen in numbers, as it may be just now in Mr. Bull's nursery, Chelsea, where there is a group consisting of some hundreds of plants, a large proportion of which are in bloom—a beautiful sight at this season. It may be well to mention that this description applies only to the true *T. Lindenii*, the other forms being inferior in many respects to the typical species.

AZALEA PRINCESS MAUDE, one of the varieties raised by Mr. Carmichael, is a most beautiful sort for forcing. A few days ago we had an opportunity of seeing it in great beauty in Mr. B. S. Williams' nursery, Upper Holloway, from whence it and several other varieties of a similar class were recently distributed. The flowers of Princess Maude may be best described as rather larger than those of the well-known *A. amena*, but bright magenta shaded with warm rose. They are produced abundantly even on small plants, and, as may be imagined, have a beautiful effect. This variety, and also all the others of its class, force admirably, even much earlier than the present date, and they supply a great want among shrubs suitable for early forcing. The names of the other sorts which, like this one, have for one of their parents the old *A. amena* are William Carmichael, Princess Beatrice, Mrs. Gerard Leigh, Miss Buist, Prime Minister, Lady Musgrave, and Mrs. Carmichael, all of which will be shortly in bloom in Mr. Williams' nursery.

TREES AND SHRUBS.

THE SILVER FIR.

(*PICEA PECTINATA*.)

To travellers in the mountainous districts of Central and Southern Europe the Silver Fir is a familiar tree, constituting, as it does, an important element of the vast forests that clothe the mountain-sides in those regions. It is, however, the detached or outlying groups that most arrest attention, as then the picturesque beauty of the tree is seen to advantage, nestling at the foot of some lofty mountain, and often by the margin of some mountain stream, as shown in the accompanying illustration, where it frequently reaches more than 100 feet in height. Most arboriculturists will admit that the Silver Fir is a noble tree, and that when well grown and fully developed it will compare favourably with any hardy Conifer we have. With this Gilpin, however, does not agree, for he says, "The Silver Fir has very little to boast of in point of picturesque beauty. It has all the regularity of the Spruce, but without its floating foliage. There is a sort of harsh, stiff, unbending formality in the stem, the branches, and in the whole economy of the tree, which makes it disagreeable. We rarely see it, even in the happiest state, assume a picturesque shape. Assisted it may be in its form when broken and shattered, but it will rarely get rid of its formality. In old age it stands the best chance of attaining beauty." Notwithstanding this it must be maintained that the Silver Fir is a majestic tree either singly or in a clump, and when planted sufficiently far apart to allow its branches full development, it becomes feathered to the ground. Its habit is symmetrical, pyramidal, and very formal, particularly when young; but when old it presents a greater variety of form and exhibits many picturesque features. Its leaves are dark, glossy above and silvery beneath, and the branches grow in regular whorls round the stem, which is erect and not very tapering. The cones, in contradistinction to those of the Spruce Fir, are upright, while the cones of the latter are pendent and hang on the tree for a longer period. It is the loftiest-growing Conifer we have in Britain.

Situation and planting.—The Silver Fir may be planted as a mixture amongst hard-wooded trees, or rather in groups, or single trees at wide distances apart amongst them, to form a contrast, at once bold and striking, amidst the rounded cloudy tops of the deciduous class. It is very productive of branches if allowed room in which to develop them, and these in turn produce coarse grained and knotty wood. On the other hand, if much confined, it is apt to contract certain diseases on the top, which dies down several feet, and sometimes causes the whole tree to fail. Its liability to be blown down, in consequence of the immense quantity of branches with which it is usually clothed, is a disadvantage in districts much exposed to wind. An objection to the Silver Fir, too, among planters, is its liability to be destroyed by rabbits and hares, which are exceedingly fond of its bark, and prefer it to that of Scotch Pine, Larch, or Spruce. In this country the Silver Fir is not only planted for ornament but also for profit, though few have recommended it as a remunerative plantation tree. In its young state it is doubtless tender, but when fairly established in a suitable soil it makes rapid advances, so much so that it is rarely surpassed by any other coniferous tree, the Douglas Fir excepted. One commendable feature in its character is that on soils where Larch and Spruce are deteriorated through dry rot the Silver Fir is rarely affected. It is seldom, indeed, that the Silver Fir is planted in large masses alone, but when closely planted it can be reared up as straight and clean in the stem as either Larch or Spruce, and for producing shelter in belts no other tree will equal it. The liability of this tree when young to start into growth very early in spring and lose its leading shoots from the effects of frost has often proved disappointing, and probably on this account it has

not been so extensively planted as the Larch and the Scotch and Spruce Firs; neither has it ever been so cheap and plentiful in the market as the two latter, owing, no doubt, to its being so difficult to rear when young. When older and fairly established in its permanent quarters it will withstand the severest winters and will thrive on the most exposed sites. The roots possess considerably more vitality than those of other coniferous forest trees; not only do they remain longer in a vital state after the tree is cut down, but make an effort to prolong life, as is seen in the exuding resinous matter around the top of the stool between the bark and the sapwood. It is a tree that attains to a large size, both in this and other countries, and under favourable circumstances grows to 150 years of age. It thrives on a variety of soils and subsoils; but as a rule it does best in rich loams and clays. It does not succeed well where lime and chalk abound, and will not thrive at all on gravel. Although the Silver Fir cannot be classed amongst the most useful of timber trees, it is one of the quickest and tallest-growing Conifers for giving shelter and ornamental effect. There are few better trees to plant for filling up blanks in old woods for game shelter, thriving so well as it does in the densest shade and close under the drip of overhanging trees. The Silver Fir is raised chiefly from seed, but it can also be readily propagated by cuttings and layers.

The timber of this tree is less valuable than that of the Larch; under ordinary circumstances it sells at about the same price as Scotch and Spruce Fir, and is used for similar purposes. For railway sleepers there is no difference or distinction made between those of Silver Fir, Norway Spruce, or Scotch Pine. Boards or scantling of Silver Fir do not warp or twist as those of Larch or even Scotch Pine do; hence, on that account it is very serviceable for water-spouts, troughs, cisterns, and such like. It is an excellent wood for any purpose connected with sluices, embankments, or canals, and is specially adapted for making coffer dams. For roofing purposes there is no home-grown wood better adapted, being equally suitable for rafters, joists, beams, and lintels; but its greatest superiority is for soaking, as it does not warp or twist, or spring the nails at the ends or edges, which some other description of wood does, a circumstance very hurtful to the roof, as it causes the slates or tiles to get displaced. No wood is more suitable for partitions, especially to cover with paper, as it is not liable to crack and break as Scotch Pine does, nor is it so liable to get worm-eaten, as is the sapwood of Scotch Pine. It is very well adapted for fencing purposes, especially for posts, and in wet ground remains sound much longer than the sapwood of Scotch Pine. It is not so suitable for rails (especially top ones) as for posts, as it is apt to break at the knots; but where the wood is clear of knots, and of moderately slow growth, it makes excellent rails for all except the top, which should be of Larch.

In almost every county of England and Scotland, very fine specimens of the Silver Fir are to be met with, growing upon a diversity of soils, and variously situated, both in regard to shelter and altitude. In England there are some famous trees of it at Bagshot Park, Strathfieldsaye, Longleat, Bioton, Cowdray in Sussex, Woburn Abbey, Clumber, Donnington Park in Leicestershire, and at numerous other places. In Scotland the most noteworthy examples are at Dupplin Castle, Blair Drummond, Mainswood, near Durrissdeer, Dumfries, Cowhill, near Dumfries, on the roadside at Annan, Dumcrieff, near Moffat, Stobo Castle, Dauwick House, Peebleshire, Oldhouse of Killearn, Riddell, Borthwick Brae, Stobs Castle, Branzholm, Wauchop, Springkell, Dumfriesshire, and many other places that might be named.

The Silver Fir was introduced from Germany or Switzerland in or about 1603. Among the first trees of it planted were those at Harefield Park, Middlesex, and which, according to Evelyn's account, became very large trees. There are several reputed varieties of it which have received names indicative of their habit of growth, such as pendula, columnaris, nana, fastigiata, tortuosa, and pyramidalis.

SYLVIA.

WINTER FLOWERS AT SWANLEY.

No matter at what season of the year a visit is made to Messrs. Cannell's nursery at Swanley—whether it be in the middle of winter or in the height of summer—one invariably finds some important classes of plants in perfection more or less largely represented. The display at this season is of course confined to the glass houses, of which there is quite a village, and their interiors, aglow with masses of the brightest colours, afford a cheerful contrast to the dreariness of the outside garden. The gay display made by the winter bloom of the zonal Pelargoniums, which occupy some half-a-dozen or more capacious houses 100 feet long, is alone worth a long journey to see. The brilliant and varied hues of the hundreds of sorts of these zonal Pelargoniums congregated here are quite indescribable, and their effect is all the more impressive owing to their being in such large masses. The zonal Pelargonium is generally considered to be a flower of the summer, but really its greatest value is during late autumn, throughout winter, and far into spring, when there are but few bright colours in the outdoor garden to interest one. It is in the depth of winter that the zonal Pelargonium can be most enjoyed, for then no other flower can compete with it in brilliancy. On contrasting the zonal Pelargonium at Swanley, where it is grown to perfection, with the same plant one usually meets with in private gardens in winter, one cannot but come to the conclusion that it is in general but indifferently managed. There is certainly some skill required in bringing it to such perfection in the dead of winter as is done at Swanley, and Messrs. Cannell's cultivators possess that skill in an eminent degree. The thousands of plants which one sees here in winter are grown specially for winter bloom, the majority being from spring-struck cuttings, carefully grown on throughout the summer with that end in view, though in midsummer one may see these same plants loaded with bloom. The bulk of the plants are grown in 4-inch and 6-inch pots, and every plant is dwarf and bushy, densely covered with foliage and carrying from six to a dozen trusses of bloom, not small trusses, but some measuring 6 inches across. It is no doubt wise policy on Messrs. Cannell's part to maintain such a fine display throughout the twelve months of the year with which to regale their visitors, and at the same time to show what the Pelargonium is really capable of doing. To attempt to enumerate all the sorts amongst the numbers that attracted our attention would serve no useful purpose, but it may be well perhaps to jot down a few that struck us as being remarkably fine and especially adapted for winter bloom.

Single zonals—A select dozen and a half of varieties among single zonal Pelargoniums should include such as Eureka, the best white; James McIntosh, brilliant scarlet; Constance, deep rose; Dazzler, fiery scarlet; Henri Jacoby, deep crimson, one of the very best bedding kinds, and also fine for winter bloom; Bacchus, rose-magenta; President McMahon, flesh with pink centre; Nellie Thomas, brilliant scarlet; Czarina, large flower and truss white with pink eye; Eurydice, the best of the rose-pinks; Ceres, rosy salmon; Commander-in-Chief, vivid scarlet; Nancy Lee, cherry rose; Aida, white suffused with pink; Mrs. Moore, pure white, rose-pink centre; La France, bright magenta and scarlet blotched; Egeria, deep rosy red; Guinea, brilliant orange-scarlet; and Atala, bright vermilion. All these

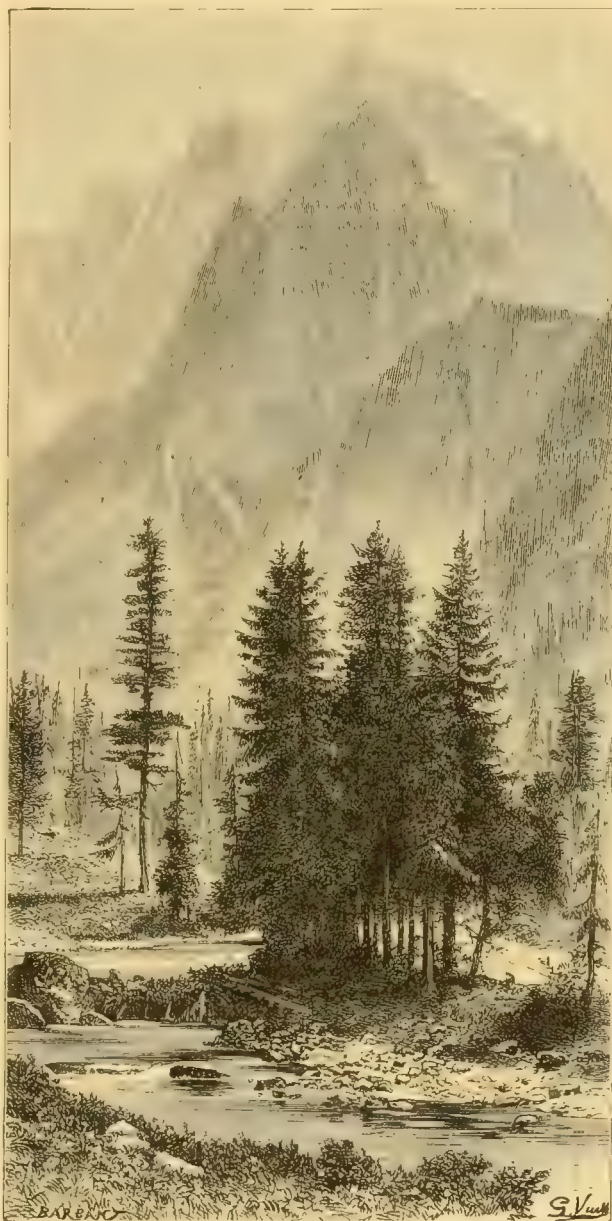
constitute the cream of their respective colours. Several of them do not differ from older varieties with respect to colour, but are great improvements in point of habit of growth, size of truss and pip, and floriferousness.

The double zonals, like the singles, are exceedingly well grown, every plant being furnished with dense healthy foliage, which sets off to perfection the profusion of huge trusses of

colour, which is bright and telling, particularly when seen, as in this nursery, in the shape of masses of some scores of plants.

Begonias of the evergreen or winter-flowering class are grown here on an extensive scale, a large house being entirely filled with them. Being represented by large masses, their beauty of flower and elegance of growth are seen to the best advantage, and produce a striking effect. The collection is a large one, comprising all that is good among the numerous kinds in cultivation. The following are some of the most prominent: The best display consists of the beautiful *B. semperflorens*, which bears snow-white blossoms amidst the bright green foliage. Some hundreds of plants of this are in flower in one mass, and near it is a similarly large gathering of the rose-coloured variety, *B. semperflorens rosea*, which is one of the loveliest plants imaginable. It is the exact counterpart of the original except in colour, the flowers of which, instead of being white, are flushed with a pleasing, soft, rosy pink tint, in charming contrast to that of the foliage. There appears to be various forms of this variety, some being much deeper than others and quite worth a distinctive name. Another very beautiful sort, perhaps the best of all, is one called *Knowlsleyensis*, a variety which we believe originated in Lord Derby's garden at Knowlsley. It is rather a dwarf-growing plant with numerous slender widely-spreading branches profusely hung at this season with large white flowers flushed with a pinkish hue. The foliage, too, is elegant and adds to the beauty of the plant. In *B. Dregei* we have a modest, but pretty plant, remarkable for its neat and compact growth, deep emerald green foliage, and profusion of pure white blossoms. It grows from 12 inches to 18 inches high, is very dense in growth, and remains in bloom for several months in succession. The well known *B. ascotensis* and *castanæfolia*, both amongst the most valuable for bedding out in summer, are likewise bearing abundance of bloom, as are also the old *B. weltonensis* (still one of the best), *B. Sutherlandi*, and *B. fuchsoides*. The last named is really a beautiful plant as any in flower just now, its long drooping clusters of deep cherry-red blossoms being so valuable for cutting, and few flowers associate so charmingly with white as these do. The above-mentioned Begonias comprise the cream of the small flowered winter-flowering sorts, and anyone who desires a beautiful display of blossom in winter cannot do better than grow some or all of these Begonias.

Chinese Primulas are now, as indeed they will be throughout the winter and spring, one of the brightest features of this nursery. Being favourite flowers with Mr. Cannell, they receive considerable attention, and great care is paid to the selection of the strains and also to the cultivation of the plants which, as may be supposed, is thoroughly understood here. They are grown on a similarly large scale, as are all other things here, and to give an idea of this we have only to mention that one side of a span-roofed house 100 feet long is entirely taken up with a lovely white flowered sort called Swanley White. The plants in this batch are of uniformly large size with abundance of healthy foliage, above which they develop large heads of flowers. The other varieties, of which there are many, are scarcely less numerous represented. The best sorts now in flower are Swanley Red, Swanley Purple, and Princess of Wales, one of the loveliest pink sorts we have seen, the flowers being



The Silver Fir (*Picea pectinata*) at home.

bloom with which the plants are so abundantly beset. The sorts are not so numerous as the singles, and there is not that wide range of colour. A representative dozen would consist of Sergeant Hoff, one of the finest scarlets; La Quintine, pure white; F. V. Raspail, with brilliant scarlet, one of the most reliable sorts; R. Brett, orange scarlet; Clara Pfützer, deep rose; Magenta King, amaranth; Paul Bert, purplish pink, light centre; Paul Charbonnier, bright scarlet; Charles Darwin, deep amaranth; Candidissimum plenum, one of the best whites; Denfort Rochereau, orange-red and mottled; and The Lord Mayor, the best of rose-pink sorts; it is new and perfect in habit of growth, size of bloom and truss, and

very large, exquisitely fringed at the edges, and produced plentifully well above the foliage. Of other new sorts we noticed—one was *The Queen*, the fine new white variety which excited so much interest when shown last year at South Kensington. It is without doubt the largest white flowered variety yet exhibited, though it does not seem so free as regards flower as some of the smaller sorts. Another novelty was the yellow-eyed *Primula*, which is remarkable for having an enormously large yellow centre nearly occupying the whole of the corolla; indeed, it may be better described as a yellow-flowered *Primula* edged with white. All Chinese *Primula* flowers have a yellow eye, but in this one it is so unusually large, that it might appropriately be called the yellow-eyed *Primula*. However, it will no doubt be soon known as *Primula sinensis fimbriata lutea oculata*, though we regard jargon such as this by which simple sorts of *Primulas* are named to be very objectionable to flower lovers, who care more for the plants themselves than their names. The double-flowered varieties of the Chinese *Primula* are now receiving a deal of attention by Messrs. Cannell. There is now a large house full of the finest varieties, though the progress made in propagating them appears to be tardy owing to their being difficult to manage. Though the collection includes all of Gilbert's fine sorts and the best of the others, the old Double White still holds its own; indeed, it is doubtful if it has an equal among the newer white varieties.

Winter flowering Salvias, which Messrs. Cannell have exhibited so freely of late, and which we have so often favourably commented upon, are seen here to perfection, and one can scarcely have an idea of their beauty unless they saw them as here in large numbers. A beautiful effect is produced by a large group of *S. Bethelli*, with its long, erect spikes of magenta blossoms, and in the same house are the deep, clear blue flowered *S. Pitcheri*, which, as we have so often said, is among the loveliest of winter flowers. *S. angustifolia* and *S. azurea*, though somewhat similar to *S. Pitcheri*, are scarcely so fine; in fact, where *Pitcheri* is represented, the others are not wanted. *S. splendens* and its brilliant variety *S. Bruanti* make the house all aglow with their vivid colours, a striking contrast to that of the other variety, *Mons. Issanchou*, which has creamy white blossoms, striped with scarlet. Other good kinds of *Salvias* are *S. Hoveyi*, with long spikes of deep purple blossoms, and *S. leucantha*, a singular species with close spikes of small blossoms, having the appearance of being covered with white and purple wool. It is only recently that the value of *Salvias* as winter flowering plants has become known, a singular fact, seeing that most of the species are old inhabitants of botanic gardens. The fine varieties, however, of the species are of recent date, such as *Hoveyi*, *Bethelli*, and *Bruanti*, and this fact shows plainly what may be done with regard to improving old introductions.

Heliotropes are now in great perfection and their delicious perfume pervades the house. Of the beautiful new variety, *White Lady*, there are some scores of plants covered with large clusters of white blossoms, showing well what a profuse bloomer it is. Without doubt this is the finest of all the *Heliotropes*, and invaluable in every garden for affording an abundant and continuous supply of cut bloom almost throughout the year. Another new variety called *Swanley Giant* is appropriately named, for its flower clusters attain an enormous size for a *Heliotrope*. We measured one the other day, and it was over a foot across the spreading cluster. The colour is a deep lavender, not so effective as that of *White Lady*. President Garfield is a handsome new sort with very deep purple flowers freely produced and strongly perfumed. Among miscellaneous plants of special interest are

Othonna crassifolia, a remarkably elegant plant largely used here for draping the edges of stages, so as to fall over in graceful fringes for about 2 feet in length. It is a composite plant with thick fleshy leaves produced on long slender stems, and bearing numerous yellow blossoms. It is one of the best plants we know of for

relieving the monotonous appearance of naked plant stages, and it is a singular thing that it is not more grown for that purpose than it is.

Calceolaria Burbidgei, a new hybrid variety, having for one of its parents the handsome *C. Pavoni*, is thought much of here, as it continues to produce its large clear yellow blossoms throughout the winter. *Alonsoa incisa* is also grown largely for winter bloom, and an exceedingly bright and pretty plant it is, small compact bushy specimens of it being profusely laden with brilliant orange-scarlet blossoms. The *Marguerites* are of course largely represented, particularly the Paris Daigths of the *Chrysanthemum frutescens* type, and *Agathæa cœlestis*, the pretty blue sort which Mr. Cannell a few years since almost rescued from oblivion and made again popular. The Tree *Dahlia* (*D. arborea*), with handsome large white blossoms, and the ever beautiful *Canna Ehemanni* are among the choicest of the miscellaneous plants, nor must we omit to mention the new *Bouvardia* President Garfield, which is like the double *Alfred Neuner*, but instead of being white the flowers are of a soft pleasing shade of pink. The yellow *Bouvardia* called *flavescens* is also a very distinct and uncommon variety. The flowers are about as large as those of an ordinary single kind, and the colour is a clear primrose-yellow, a colour which associates charmingly with that of the other varieties.

AMATEURS' GREENHOUSES.

It may sometimes happen that the owners of plant houses, through the absence of a regular attendant, or, perhaps, from a wish to manage such structures without assistance, do not like to invest money in a boiler and the usual collection of pipes and other appliances connected with hot-water heating. The thing seems to be too complicated, and to require such an amount of attendance by day and night as cannot be assured to it. In such a case I would strongly advise a return to the old-fashioned flue, with some slight modification. This flue, or smoke canal, was usually built free on all sides, the bottom even in some instances being supported at intervals by bricks laid transversely. The sides were built of tiles placed vertically, and the top with thickish tiles, usually having depressions made in them to hold water for supplying atmospheric moisture. These flues could be made warm enough to keep out any amount of cold, but the effects of the dry heat from the sides were such that in spite of the evaporating pans, tender-leaved plants suffered much from etiolation and from the ravages of red spider and thrips. Owing also to the large heating surface, the temperature was but little under control.

There is, however, a method of making a flue which obviates many of the defects just alluded to, and which, instead of the dry, pernicious warmth emitted by the old-fashioned flue, can be made to supply a moist, gently diffused warmth, particularly enjoyed by stove plants, Orchids, or for forcing-houses of any sort. I am writing from experience of this method, and can therefore state confidently that it is fairly under control, the more especially when coke and breeze are burnt. In this case the flue must be 18 inches in width and 15 inches deep. It may return on itself or may go direct from the furnace to the chimney, and this latter is the better plan if the house is more than 40 feet in length. It is necessary that the sides be built of ordinary brick; the bottom may be made of concrete, except for about 4 feet from the fire, where fire brick must be used, as also for the inner lining of the furnace. The top of the flue must be covered with cast-iron plates, neatly overlapping and made smoke-tight with fire clay. This flue must be built with a running level of 1 foot in 30 feet, and should be built in the ground of the house, so that not more than 4 inches to 8 inches of the sides appear above the ground level. Such a flue not only gives off a moist heat owing to the contiguity of the damp soil of the house, but warms that soil for a distance of 4 feet from itself, thereby adding to its heating capability and preventing a sudden fall in tem-

perature between midnight and morning. The iron plates may be covered with sand, which can be kept moist or otherwise as may seem desirable. Water can be poured down by the flue sides for the same purpose. I have found such a method of heating well adapted for houses that were below the ground level, and which were furnished with gravel or shingle paths, and where moist air was desired. The best position for them is around the outer walls of the structure, under the staging, or disguised under lightly-placed rockwork.

SYLVESTRIS.

GARDEN IN THE HOUSE.

ARRANGING CUT FLOWERS.

THE subject of cut flowers concerns us all, and a few hints as to the arrangement of them may not be out of place. Much of the beauty of these lovely gems is often lost through a want of taste in this respect, as, for instance, when stiffly arranged in a bouquet, ring after ring with little intervening foliage, and no graceful form of tendril, leaf, or bud allowed to break the monotonous circle. It is not by size, but by expression of colour and shade that we have to measure, and thus the effect of a group of flowers prettily and harmoniously arranged may be completely spoiled by being multiplied in number or increased in size; that is, by repeating the same flower or adding to the same group. A safe general rule for guidance in the arrangement of flowers is, if there are many flowers use delicate shades; but if the flowers are few and the foliage among which they are laid dark, use shades of much deeper tones. In the arrangement of cut flowers for the parlour, side-board, or dining-table, much depends on the shape and colour of the vessel in which they are placed. The white of glass or of Dresden china vases is so intense when placed in artificial light, that the pure white flowers would scarcely look their whitest in them. Very light flowers are also likely to look darker by the striking contrast. A quantity of green is, therefore, the best fringe for such dishes, and Ferns and Smilax are the most suitable. In all floral arrangements, whether for vases, bouquets, or designs, it is better to put in the green first and gradually work up to the required brightness, always remembering that the collection had better lack a flower than have one too many, the object being to form a graceful, refreshing, and suggestive picture.

The art of constructing bouquets and the classification and arrangement of flowers for the table cannot be communicated in writing. It requires as much taste, skill, and practice to become a good artist in the making-up of flowers as it does experience to become a good gardener. But to proceed with the subject of the arrangement of flowers in general, the main feature should be to show each flower separately, and not a quantity crowded together, forming a mass of petals, but so that each flower may be seen reposing quietly among the green, giving to each bloom an individual character. A few colours in a bouquet have a much prettier effect than a mixture of many colours. Red, white, and buff go well together with green between. A few Rose-buds with their own leaves and a little green Smilax make a bouquet much more handsome than one composed of many kinds of inferior flowers. These remarks hold good in the arrangement of designs for the table. One of the most beautiful

Table designs I ever saw was a large open dish of *Lycopodium*, a few white and pink Rose-buds, with a handsome *Dracæna* in the centre. The effect produced by the fresh green Moss and the gay leaves of the *Dracæna* was simply beautiful. It is to be hoped that a better taste will soon supersede the enormities now common in so-called floral design. The monstrosities often seen at horticultural exhibitions are something to be avoided. They are unpleasant to look at, and cannot be appreciated by persons of good taste. Of course, monstrosities in the way of design are admired by certain people, whose taste leads them to admire a huge pyramidal bouquet with an *Arum*

Lily in the centre; but the people who are pleased with this style of floral work are not those who exhibit the best taste. It becomes a question whether a horticultural society is properly educating the public by offering premiums and thus encouraging a false taste for flowers. It is a relief to turn from such horticultural absurdities to a simple bouquet of Roses and Smilax, and to the most appropriate of all funeral designs—a plain, heavy wreath and cross of white flowers fringed with green.—*Gardener's Monthly*.

GARDEN DESTROYERS.

THE ANTLER MOTH.

(CHARÆAS GRAMINIS.)

THE caterpillars of this well-known moth sometimes appear in almost incredible numbers; when this is the case, they are more injurious to Grass and pasture fields than any other insect. They feed chiefly on the roots of Grass, but they will at times attack Barley. After a severe visitation the ground on which they have been feeding is left almost bare. This insect is not uncommon throughout the United Kingdom, but its ravages, fortunately, are nearly entirely confined to our



The Antler Moth and Caterpillar.

more northern counties, where every now and then they appear in most alarming numbers. Last year a large district in Clitheroe was devastated by these caterpillars. A local paper gave a long account of their doings, from which it appears that they travelled very fast and by thousands together. In one place the road was quite black with them, and they even entered dwelling-houses. The appearance of the caterpillars in such large numbers was considered very mysterious, and appears to have considerably excited the inhabitants of that neighbourhood; a great many persons went to see them, and they were even exhibited in shop windows. The land over which they passed was devastated to an alarming extent. On the Continent they are even more injurious than they are in this country. Sweden has frequently suffered from their attacks. A correspondent to a German entomological periodical states that they made great havoc last year among the pastures in Thuringia, and that they were so abundant, that they crackled under his feet as he walked over the infested ground. The locality which was the worst attacked was a wood clearing of about 90 acres, in which all the pastures had become entirely withered on account of the roots having been eaten by the caterpillars. In a square foot he counted twenty-five to thirty caterpillars and chrysalides, which gives a total for the 90 acres of nearly one hundred millions. School children from the neighbouring villages were employed to collect the caterpillars and chrysalides, for which they were paid at the rate of about a shilling a quart. When an insect like this appears in such extraordinary profusion, it is difficult to devise any satisfactory means of contending against it. A heavy dressing of lime in

the spring has been recommended. Probably rolling with a heavy roller would kill a great many of them, and any of the moths or caterpillars which may be found, even in years when they are scarce, should be destroyed, which would doubtless tend to check their increase. As to their natural enemies, certain ichneumonids are parasitic on the caterpillars, and many birds, particularly rooks and gulls, destroy them whenever they have the opportunity.

The moths leave the chrysalides in August or September, and lay their eggs in clusters at the bottom of the leaves or stems of Grass. These eggs are hatched in the course of a fortnight or three weeks. The young caterpillars feed at night, hiding themselves during the day. They lie dormant (probably at the roots of Grass) during the winter, and wake up with sharpened appetites in the spring. They are full grown towards the end of May or in June. Soon after attaining their full size they bury themselves in the earth and become chrysalides, in which state they remain until August or September. The antler moth belongs to the family of moths called Noctuidæ, a family which contains a great number of species, among which are many of our best known moths. The genus *Charæas* contains only one species. *C. graminis* may be described as follows: The moth measures from 1 inch to 1½ inches across its extended wings, and is very variable in colour. The head, thorax, and body are usually of a reddish brown. The ground colour of the upper wings is much the same, but somewhat lighter; on it are both paler and darker markings. Across the upper half of each wing is a whitish longitudinal line; above which and near the centre are two whitish spots separated from one another by, and having on either side, a dark brown patch. From this longitudinal line proceeding downwards, are several pale lines, between which near their junction with the longitudinal line, and near the edge of the wings, are dark spots. The hind wings are brownish grey, and are much paler towards the base.

The caterpillars when full grown measure about 1½ inches in length; they are cylindrical, with their joints well defined; they are greenish or pinkish grey in colour. Down the middle of the back is a pale band, bordered on either side by a dark brown line; then on either side is a paler band, beneath which is a line of black crescent-shaped markings, then a pale line followed by a fine dark line and a few dark markings. Body below pale; head brownish, shining, with two darker marks down the face. The first three, the sixth, seventh, eighth, ninth, and last joints of the body each bear a pair of legs. The chrysalis is reddish brown.

G. S. S.

PARAFFIN AS AN INSECTICIDE.

CULTIVATED plants, even those that succeed in the open air, often suffer severely from the different animal parasites to which they are subject; but it is those grown under glass, especially such as are kept continually in heat, that suffer most from insect attacks. The leaves and young shoots formed under such conditions are more tender than growth produced out-of-doors; moreover, plants grown in artificial heat are less able to bear the attacks of insects than those in the open air. Therefore, unless these destructive pests are kept well under successful culture cannot be expected. The course frequently followed of allowing the worst kinds of insects, like mealy bug, thrips, scale, and red spider, to get established in quantity, and then to make an extra effort to clear them off, is never satisfactory, for not only does it entail a great amount of additional labour, but it leaves the plants in a weakened condition through the twofold cause of the mischief done by the insects feeding on their juices, and the more or less injury generally done to the leaves by the cleansing process adopted. In a collection of plants it is needless to expect a complete immunity from some or other of the different insects that attack them, but where timely means are taken to keep them down to the lowest point the work is much the least. Bugs and scale are generally looked upon as the most formidable to contend with, on

account of the mature insects living through the dormant season to an extent that aphides, red spider, and thrips do not. The latter make their appearance more in summer, and if even completely cleared in winter are almost sure to appear again when warm weather sets in. Winter, when the lower temperature has a like effect in arresting plant growth and insect breeding, is obviously the best time in which to make an effort to get rid of insects, but especially scale and mealy bug, but half measures will not suffice. I have tried all the different insecticides that have come prominently into use and some others that have been little known, but I have never met with any that would completely rid plants from

Mealy bug and scale at a single application, however thoroughly well carried out—not even when the plants were completely immersed. Enough always escaped to breed, and it is only by careful and repeated applications that a thorough clearance can be effected. Where large numbers of plants are affected the cost of some insect killers is considerable; but since the ability of paraffin to kill insects has become known, the cost has been reduced to a mere trifle; yet, notwithstanding all that has been said and written about the necessity of using this oil with the care its nature demands, there has probably been more who have failed than have succeeded with it—that is, who, if they have killed the insects, have also killed or injured their plants, so as to not only deter them from again using it, but it has left them with the conviction that it cannot be used as an insect killer without injury. Nothing could be further from the truth, for where the directions that have so often been given are followed implicitly, plants of most kinds may be washed with diluted paraffin strong enough to kill any insect with no more injury than would follow their being syringed with plain water. The cause of injury being so often inflicted with paraffin is simply through the powerful nature of the oil not being sufficiently considered, and the determined inclination which it has to float on the top of the water instead of mixing with it; through this not being fully realised it has frequently happened that where a dressing has been applied to Vines, for instance, where after giving the mixture a good stirring to begin with, the operator has simply kept on dipping his brush in it and laying it on his canes, when through the whole of the oil having risen to the top, the painting virtually consisted of more than half oil, the outcome of which has been death, or a near approach to it. In the same way where plants not too large to have their heads dipped in the solution are so immersed, unless the greatest care is taken to keep it stirred, the leaves come in contact with the floating oil, and it sticks to them in much too large a proportion. I have also seen large specimens where laid down over a trough, tub, or other large vessel, whilst being syringed, have the ends of their lower branches allowed to dip in the liquid, and in this way they have been killed, although the syringed portion above was not in the least injured. For this reason it is better not to

Dip the plants at all, but to syringe them, and the work should never be entrusted to incautious hands, or those who have not been shown and had impressed upon them the powerful nature of the oil unless used with care. In all cases where plants are syringed with it there should be two people, one constantly stirring the mixture whilst the other syringes the plants, and in no way can the mixing of the oil with the water be so well done as with a second syringe, the individual using it keeping drawing and discharging the contents into the vessel, by which a boiling motion is maintained that keeps the oil and water mixed. This method of keeping the mixture in a fit condition for washing plants has more than once been mentioned in *THE GARDEN*, but repeating it can do no harm, for there is nothing so effectual or so cheap for the destruction of insects as paraffin, although those who have injured plants with it often feel reluctant to make another trial. A wineglassful or two to a gallon of water is

strong enough to kill scale or mealy bug. As a still further prevention against too strong an application of the mixture care should be taken that at each draw in filling the syringe its end is got deep enough below the surface of the liquid so as not to draw it off the top, to which the oil so quickly rises, and for the same reason when the supply of the solution gets low it should be replenished, not using it all to the bottom of the vessel, otherwise a larger proportion of the oil than is safe to use will most likely reach the plants. The harmless nature of paraffin when not used too strong is evident by its not injuring the roots of plants. Mr. Beckwith, of Tottenham, one of the largest of the London market growers, uses it to an extent that requires to be seen to be fully understood. Gardenias and everything on which bugs or other pests will live are syringed indiscriminately overhead as they stand in the houses, the mixture as a matter of course running right down into the soil with no worse effects than would follow from the use of clean water. They are thus treated more by way of prevention than cure, for the acres of plants grown are collectively models of the most perfect health and freedom from insects, but as often as a trace of mealy bug is seen in a house, the whole are syringed as described, one man and an assistant always doing the work. T. B.

FIR TREE OIL.

Fir tree oil (p. 488), like other insecticides, should only be used when really necessary, as there are few insecticides that are not in some degree hurtful to plants, and to apply them when there is no need is to run risks that should not be incurred, although there is an old saying that prevention is better than cure, and no doubt that is so, but wrong means may be taken. Much may be done in the way of warding off insects by the use of clean water, which is one of the best remedies against bug, but the water must be applied with force so as to wash them from their hold by breaking up the filamentose webs by which the young are surrounded. This may easily be done by the aid of a syringe or garden engine if the plants are laid on a stage or raised platform, so that the operator can get before and behind them, when the water may be driven with such force as to carry away the insects without hurting the leaves. Whenever Fir tree oil, paraffin, or any of the insecticides are used, they should always be followed by a drenching of this kind, as it thoroughly clears them off and leaves the foliage free from any deposit.

The best insecticide, and the safest I have ever met with, is nicotine soap, which, from containing the active properties of Tobacco with other ingredients, is fatal to insects, and has a marvelously cleansing effect on the bark of trees, which it frees from all parasites in very quick time. For using on the stems of Vines and Peach trees it is quite unrivalled, as with a brush and a slight scrub, followed directly after by a dash of water from the syringe, it leaves them bright and polished, free from all slimy deposits and other confervæ. At one time Peaches and Vines used to be daubed with a coat of liquid clay and other mixtures to smother scale, but with nicotine soap there is no need of this, and anyone who is troubled with that insect, or red spider, or thrips, has only to apply the wash to be rid of the pest. If on the young shoots of Peaches, the best way is to syringe it on at a strength of 4 ounces to the gallon of water, used at a temperature of 90° or 100°, and immediately afterwards the stems of the trees should be scrubbed and the whole rinsed off at once. S. D.

New insecticide.—A writer in the "Journal" of the French National Horticultural Society thus describes some trials of a new insecticide, the invention of M. Reinie, of Argenteuil, and named *Eau et Poudre Végétalines*. A Peach tree covered with green-fly, having in the first place been syringed with pure water, was then dusted with

the powder. Two hours afterwards the soil was covered with dead flies. Judging by appearances, one would have supposed the Peach tree to be too much crippled to recover, but three weeks afterwards we were assured that it was again in full growth. On May 16, 1878, forty small Apple trees, badly infested with American blight, were washed with the insecticide in a pure state. In the same garden several Gooseberry trees were being eaten up by small caterpillars. Three hundred grammes of insecticide being poured into a can of water, the bushes were watered with it, with the result that the caterpillars were killed. Three months afterwards the Apple trees were again examined, when it was found that the infested trees had quite recovered their normal vigour, there being no trace left of the blight, whilst the Gooseberry trees had made new leaves, and the fruit was coming to maturity satisfactorily. Since that time we have been enabled to observe the result of other experiments made with the view of extirpating black-fly, and in every case the trials were successful. This insecticide is also very cheap, being only two shillings a quart. From the above it will be seen that this insecticide may be used in the form of powder or in solution, a fact which, if its deadly properties are maintained, should render it of infinite service.—J. C. B.

GARDEN FLORA.

PLATE CCCLXVIII.

DENDROBIUM INFUNDIBULUM AND ITS ALLIED SPECIES.*

THE nigro-hirsute or black-haired section of *Dendrobium* is a study alike interesting to the botanist and the cultivator. The flowers are borne at the apices of the leafy stems, and are generally white, rarely yellow, with a cinabar blotch on the lip—rarely gold or amber, and the young growths are densely set with short black hairs, hence the popular name by which the species of this group are known. Speaking from a cultural point of view I think I may fairly say that as a class they are somewhat neglected—there are but few collections in which justice is done to them. As I write a dear old Orchid-growing friend is looking over my shoulder, and he tells me that I may say the same of all *Dendrobes*, even old *D. nobile* being far too seldom seen in perfect health and vigour of blossom. With the section of which we have now to do, however, failure seems to be the rule, success the exception, there being but few collections where they are successfully grown and flowered year after year. When well grown they are so beautiful, and their blossoms endure fresh and fair for such a length of time, that I wish someone would make a speciality of this group, feeling sure that such a venture would be well rewarded. Orchids are now so numerous, that it is only by special culturists taking up one group or section, and devoting to it all their energy and skill that the best results are likely to be attainable. This might well be done in the case of *Cattleyas* and *Lælias*, *Cypripediums*, *Odontoglossums*, *Masdevallias*; and for *Dendrobes*—especially for this particular section—it is almost an absolute necessity unless we are to be satisfied with small things in the shape of results. Where could one look just now for a plant of *Dendrobium formosum*, a good specimen bear-

ing over a hundred of its Lily-like flowers? And yet is not there a sketch of such a plant given in the "Gardeners' Magazine of Botany" for 1851 (vol. i., p. 239) as it was exhibited by the late Mr. Rucker at a July show in the Regent's Park?

D. formosum is one of the finest of the group, and has long been in cultivation, as we find its portrait in the "Botanical Register" for 1839 (t. 64). It is rather widely distributed throughout Burmah and Moulmein, and one of its finest forms is found growing on the trees in the Mangrove swamps of the Andaman Islands. We are told that "the special home of *Dendrobium formosum* is on the hills to the south of the road running from Moulmein to Amherst. It is found sparingly scattered over other parts of Burmah, but here they are in thousands. The first sight that meets the Orchid hunter travelling down the road to Amherst during the summer months is large baskets full of the flowering growths of this splendid plant being brought into the Moulmein market, where they are sold to the Burmese women to decorate their hair. The market price of each flower-spike is about 6d. Sometimes as many as ten men at a time are seen each carrying two baskets full of these flowers slung on a Bamboo pole and the air along the roadway is actually redolent with their fragrance."

It is worthy of remark that *D. formosum* is essentially an inhabitant of trees in the lowlands or plains near the sea. Lieut.-Colonel Benson tells us that he never saw it elsewhere; unless indeed, as he thinks may be the case, *D. infundibulum*, *D. eburneum*, and *D. Jamesianum* are but climatic or mountain forms of the same plant. The favourite habitat for *D. formosum* (I quote from *Gardeners' Chronicle*, 1870, p. 763) is on trees growing on a laterite soil, as *Dipterocarpus lævis* and a species of *Dillenia*. It does not seek shady places for growth; in fact, as far as my knowledge goes, few Orchids do, beyond what is naturally afforded by the trees when in leaf. During the months of February, March, and April they must be exposed to an atmosphere of 110° in the shade. That the fresh-grown pseudobulbs are by this heat reduced in size or shrivelled there can be no question, and in some of the mountain Orchids this reduction takes place to such an extent as to render it doubtful whether they are the same plants when first seen at the end of the "rains." So much for the "resting" season which *D. formosum* and its varieties obtain from that greatest and best of all cultivators, Dame Nature. But when it rains at Moulmein it pours; as much as 15 inches have been registered in one day, and the yearly average is about 216 inches, and it is during the rainy season of course that the plants make their growth. In addition to actual rain the dews all the year round are excessively heavy, and it is this heavy dewfall no doubt which enables the plants to survive the ordeal of 110° in the shade during the dry season. Heavy as it is, however, collectors tell us that thousands of seedlings and many old plants are killed annually during the dry monsoon. There are at least four very distinct forms of this plant known, namely, the type, *D. formosum giganteum*, which, under good treatment bears flowers 5 inches to 6 inches in diameter; *D. formosum Amherstianum*, *orcinum*, as it is sometimes called, similar to the last, but with a pale lemon-yellow blotch in the throat of the lip; and *D. formosum cinnabarinum*, with a blotch even deeper in colour than that of a good

* Our plate was drawn from a plant in Baron Schröder's garden, The Dell, Egham, in June last.

Growers or introducers of new plants will oblige us much by early intimation of the flowering of new or rare species, with a view to their representation in our "Garden Flora," the aim of which is the illustration in colour, and in all cases where possible life size, of distinct plants of high value for our gardens.



form of *D. Jamesianum*; it is from the Andaman Islands, and luxuriates in one or two of the Orange orchards in Singapore and Labuan.

D. infundibulum is a more slender habited plant than the last, and was first introduced by Messrs. Low and Co. in 1862 or 1863, under the name of *D. moulmeinense*. Its original discoverer was Mr. Lobb, who met with it at an altitude of 5000 feet. Colonel Benson says that *D. infundibulum* attains an altitude of 6500 feet, so that it is perhaps amenable to the coolest treatment of any species of this section, excepting *D. Jamesianum*. The Rev. Mr. Parish, who sent living plants to Mr. Low, mentions that he had "forty-four blossoms open at one time upon some plants that he kept in a small basket, and he adds that it continued in perfection for a long time." Very near to this plant is *D. Jamesianum*, one of Messrs. Veitch's introductions, through Colonel Benson, only differing in having a cinnabar-red throat to the lip. Both species grow 12 inches to 18 inches in height, strong growths bearing ten to fourteen leaves; flowers 3 inches to 4 inches in diameter, in clusters of two to four flowers, borne near the apices of the last made growth. Both flower in May or June, and bear six to ten flowers on the strongest growths. The sepals and petals are of ivory whiteness and of great substance, and last for a period varying according to atmospheric conditions, say from six to eight weeks.

D. Jamesianum is perhaps more distinctly nigro-hirsute than any of its congeners, unless we except *D. infundibulum*, which it most closely resembles. It is doubtful if it was ever found growing near Moulmein; it seems more probable that Moulmein enjoys the credit of its having come there from the interior, just as many Malayan plants from widely different localities are often said to come from Singapore, because shipped to Europe from that port. In this way *Cypripedium niveum*, from the Straits of Malacca, is credited as being a Burmese plant because introduced accidentally by way of Moulmein. To return to *D. Jamesianum*, however, it seems to be really a native of Tonghoo, Siam, and Bhamo, in Western China. It is most beautiful. During winter the thermometer often falls to 40° in the early morning, with very heavy dews also, and it seems to be more sensitive to dryness at the root when at rest than any of its congeners.

D. eburneum, the ivory white-flowered Dendrobe, is another of Mr. Parish's introductions to the Clapton Nursery about the year 1862. The flowers are smaller and do not expand so fully as do those of *D. formosum*, and have, according to Bateman ("Second Century Orch. Plants," t. 166), "exactly the appearance of polished ivory," relieved by lines of dark Indian red at the base of the column and on the disc of the lip. Bateman's figure is the same as that in the "Botanical Magazine," t. 5564. Mr. Spyers describes it as an evergreen species, producing pseudo-bulbs 12 inches to 18 inches in height and half an inch in diameter where thickest; the flowers are produced from the points of the last-made growth in clusters of six or more, and last long in perfection.

D. longicornu, the long-spurred Dendrobe of the "Botanical Register," t. 1315, is also an interesting plant, somewhat resembling the last named in habit, growing 12 inches to 18 inches in height, and flowering in June or July; sepals and petals, ivory-white; lip, white, with a cinnabar blotch on the

disc. It is now and then met with in gardens under the name of *D. longicornu majus*, and its flowers possess so much endurance that it well merits careful culture.

D. hedyosmum is another dwarf-growing plant of this group. Its pseudo-bulbs are very slender, and rarely exceed 1 foot in height; flowers small, two or three in a cluster, produced from nodes near the apices of two-year-old pseudo-bulbs. It flowers in March or April, and is worth cultivation if only for its grateful perfume. Perhaps we do not as yet fully comprehend the capabilities of this plant, of which collectors speak in high terms. Here is an account of it from a collector's letter, published in a contemporary some years ago: "To see *D. hedyosmum* growing in masses on the trees near Pegu is a sight not easily forgotten. It is rather widely distributed throughout the Pegu country, and also in the interior, some fifty or sixty miles from Moulmein. The plant has a very compact habit; it produces its flowers in pairs from the top of the last growth, and in very flourishing plants it also throws out several flowers from the sides towards the apex of the bulbs. It bears pure alabaster white flowers of waxy substance, having the labellum tinged with green and yellow, and marked on the throat with very bright orange stripes. The flowers, being of great substance, last eight or nine weeks in beauty. It is easy of cultivation, and for sweetness no *Dendrobium* equals it, the perfume being rich and grateful like that of Wallflowers" (Bot. Mag., t. 5515; Bat. 2nd Cent., 155).

D. Williamsoni is a little-known species from Assam, which serves to commemorate the services rendered to Orchid growers by Mr. W. M. Williamson, of the Indian Service, a nephew of Mr. John Day, and a gentleman to whom we are indebted for *D. chrysotis* (*D. Hookerianum*), the present species, and other good plants. I never saw this species alive, and Reichenbach's description is sufficiently ambiguous; however, here it is: "A very pretty new *Dendrobium*, with certainly a good deal of Orchidaceous charm in the strong texture of the tissues of its fusiform, upright, velvety pseudo-bulbs, with firm, velvety leaves, while its eboraceous flowers, much like those of *D. Dracanis*, Rchb. f. (*D. eburneum*, Rchb. f.), with some light Bismarck-brown hue contrasting with the ivory-white colour of actual peace, and bearing on the lip a grand, three-lobed, blood-red spot, reminding one of the past war, are so exquisite as to render the plant a highly interesting one."

D. cariniferum.—This is another rare Dendrobe of our group. It most nearly approaches *D. xanthophlebium* and *D. Williamsoni*, both of which agree in having lips distinctly bearded. *D. cariniferum* has a "thick, long callosity running over the whole disc and middle line of the lip." The plant is of dwarf habit, with ligulate, bilobed foliage, both leaves and young bulbs having the characteristic covering of hairs. The sepals have highly developed heels, and, with the oblong, wedge-shaped petals, are of shining whiteness. The lip is white, suffused with yellow on the disc, the callus middle hue being reddish cinnabar, column white, orange-red under the stigmatic cavity, anther-case bearded at its base. This species first bloomed with Mr. Marshall, of Enfield, and, like its congeners, has a grateful perfume.

D. xanthophlebium (*D. marginatum*, "Botanical Magazine," t. 5454).—This is another of Mr. Parish's discoveries, and was one of a batch of Moulmein Orchids sent by the reverend col-

lector in 1862 or 1863. It flowered beautifully with Mr. Rucker, who obtained one of the best plants of the importation. It grows freely and flowers in spring, according to Bateman, who also suggests that it may well be known as the "yellow veined Dendrobe." It is a pretty plant that one now rarely meets with, even in the best collections. It has the characteristic ivory white sepals and petals—the lip continued at its base with the sepals into a long spur, and a cinnabar blotch on the lip, which being margined with white suggests the origin of its synonym, *D. marginatum*. The flowers are in pairs, from the joints of what Bateman calls the "old stems;" by which, perhaps, he means the nodes near the apices of two-year-old bulbs.

D. villosulum (Wallich).—In Moore and Ayres' "Magazine of Botany" we find a note descriptive of this species with a reference to Paxton's "Flower Garden," vol. ii., p. 82. The popular name is given as "Roughish Stemmed Dendrobe," and the note goes on to say that the plant is handsome, with long slender stems, sparingly clothed with short black hairs, and having small linear acute leaves, and rich orange coloured flowers in pairs from the apices of the pseudo-bulbs. The sepals and petals are linear, obtuse, and curved, the latter broader at the base than the former, and the lateral sepals forming a short obtuse chin; the lip is linear, lanceolate, three-lobed, the lateral lobes very short, the central one having three wavy elevated lines running through the middle. From the East Indies—Tillicherry. Introduced probably about 1848. Flowers in June. By the East India Company. "Rich orange-coloured flowers in pairs." This at first suggests *D. Lowi*, but then that is Bornean, and then it has at least five elevated lines rather than the three wavy ones mentioned as characteristic of this plant. Is it now in cultivation? If not, Tillicherry must be searched over again. Nigro-hirsute Dendrobes with rich orange blossoms are rare, and this one deserves looking after.

D. Lowi.—This is one of the rarest and most distinctly beautiful of all the Dendrobes. It was originally discovered by Mr. Hugh Low on Bukit Sagan, a tree-crested hill beside the Pandarowan River, in Borneo. It differs from all its Indian congeners, save *D. villosulum*, in having golden yellow flowers. Mr. Low introduced it in 1861, but it has always been rare in cultivation. The finest specimen I ever saw was grown in the old Fairfield Nurseries at Manchester, and which was bought by Mr. Edward Salt for 30 guineas. It produced fifteen to twenty flowers annually, and was a lovely sight when in flower. The pseudo-bulbs are 12 inches to 18 inches in height and about a quarter of an inch in thickness. The flowers are borne in racemes of three to seven together from near the apices of the two or three-year-old growths. Well grown it is a lovely Orchid. It blooms in June or July; sepals and petals orange or gold colour with five to seven reddish ridges on the lip bearing long crimson fringes. It is difficult alike to import alive and to cultivate in a permanent way. It is figured in the "Botanical Magazine," t. 5303, as also (same plate) in Bateman's "Second Century Orchidaceous Plants," t. 189. Bateman says that some plants supposed to be of this species have produced white flowers, but I am inclined to think that there must have been some mixing of Indian species or other mistake here.

There is yet another Bornean Dendrobe of this group as yet un-introduced. It was also first found by Mr. Low, who told me by letter of its habitat. It has large white flowers similar to those of *D. formosum*, borne in racemes five to seven together from the two-year-old bulbs, which vary from 2 feet to as much as 7 feet in height. This plant grows among rocks and low shrubs, at an altitude of 3000 feet to 4000 feet, along with *Nepenthes Rajah* and *N. Edwardsiana* on the Marie Parie spur of Kina Balu, and, like *D. Lowi*—indeed, tropical mountain Orchids in general—it is difficult to import alive. It is a most distinct and beautiful plant, and, so far as is at present known, it is the giant of its race.

F. W. BURBIDGE.

KITCHEN GARDEN.

FORCING VEGETABLES.

THERE are several kinds of vegetables which lend themselves very readily to forcing, and none more so than *Asparagus*, which is the most delicious and wholesome of all garden esculents, and one that is quite deserving of much more extended cultivation than it now receives, as in few places does one meet with it in any quantity, and yet it is very easy to manage and grow. This is a matter, however, that I do not intend to go into now, but to show how it may be forced, the first thing towards this being the preparation of the manure and frame, which should be got quite ready before the roots are disturbed. The most suitable manure for affording bottom heat, which is quite indispensable in

The forcing of *Asparagus*, is that from stables with a good proportion of straw in, it and if fresh fallen leaves can be got to mix with it, all the better, as the leaves help greatly to modify the fermentation and prolong the time that it lasts. To sweeten the whole and let out the noxious gases, the manure and leaves should be thrown in a large heap together, and when hot turned over, and if this process is repeated once or twice it will then be ready for use. The next thing is to get it into the pit, or to build it up for standing a frame on, which done, 6 inches or so of rotten leaves or very light rich soil should be shaken or placed over it to keep it from coming in too close contact with the *Asparagus*. To have this good, strong crowns must be selected and taken up with care, so as to secure as many roots as possible, which can only be done by working at one end of the bed in a systematic way, and so clearing the earth from the plants as the lifting proceeds. When up the crowns should at once be wheeled to the frame and packed flat together as closely as they will go, as the room there is valuable, and the thing is to get it to hold as many as can be got in without unduly crowding or pressing each other, but in putting them in great care is requisite to well fill up the spaces between. This ought to be done with light rich soil, that the young roots when they form may have something to feed on; and to insure the soil being carried properly in it is a good plan to give a soaking of tepid water, which will warm it and help to give the plants a good start. Till the shoots appear above ground no air need be given, as by keeping the frame close, growth is expedited and the most made of the heat; but when the shoots can fairly be seen a little air is necessary to prevent them from drawing and to give them flavour. This latter quality may be added to by full exposure to the light, so as to get the *Asparagus* green instead of blanched, as when in the latter condition it is generally poor and insipid. The worst part about the forcing of *Asparagus* by taking it up and putting it in frames is that it destroys the beds; but there is an old saying that "you cannot eat your cake and have it too," and yet this apparent impossibility is partly got over in the matter of *Asparagus* by forcing it where it stands. This may be done by digging out a wide, deep trench between the beds and filling it with

hot manure, which can be renewed again and again as occasion requires. Of course *Asparagus* cannot be obtained so early this way, but it may be forwarded considerably, and by adopting the plan a long succession is kept up. Any old lights do to cover the beds and ward off frost, the effects of which are fatal to the tender tops of the plants, killing them at once. Frames made up in the way referred to with hot manure come in admirably for

Forcing Potatoes, which thrive splendidly on a little bottom heat, and yield a great number of tubers. The best sorts for the work are the Ashleaf kinds, Myatt's being the most prolific and one of the hardiest. If it is not convenient to make up frames at once, the Potatoes may be started by potting them singly in small pots, or laying them in boxes of sifted leaf-mould, by doing which they may be planted out or lifted with balls and plenty of roots without much disturbance. Any warm place does to start them in, as they do not require light till they begin to grow and show their tops, when they should be planted at once. The soil most suitable for the culture of Potatoes in frames is a light rich sandy one, in which the sets should be planted in rows about 1 foot apart and 9 inches from tuber to tuber. The space between may be turned to good account for growing Lettuces, Radishes, Mustard and Cress, or pricking out and forwarding young Cauliflower, as any or all of these will be out of the way by the time the tops of the Potatoes spread and require the room. What injures Potatoes in frames more than anything else is the coddling they are often subjected to by keeping them close, which is a great mistake, as though they like artificial heat below they will not bear it at the top without drawing and becoming weak in the stem. To prevent this, they should have air on all favourable occasions, and be grown up near the glass, that they may have all the sun and light which the early season affords.

S. D.

MUSHROOM CULTURE OUT-OF-DOORS.

A GOOD deal has of late been written about the culture of Mushrooms, but what has been said upon the subject of growing them in the open air has seemingly been received by some with a certain amount of incredulity. This applies more particularly to the excellent article that Mr. Barter gave in *THE GARDEN* some time ago, in which he detailed in an explicit manner his practice in the production of Mushrooms in the open air for market. We lately visited Mr. Barter's Mushroom grounds in Lancefield Street, a short distance from the Harrow Road, and were not a little interested in what was shown and explained to us on the subject. The whole matter as regards Mushroom culture here is simple enough—so simple, indeed, that it is surprising that the system is not more largely practised. In order to obtain the necessary amount of heat for the beds ordinary stable litter is employed, but it contains only a small percentage of horse manure. This is brought from stables in London, and placed in one huge heap, which is turned about half-a-dozen times before it is made up into beds. The latter consist of mounds of tightly packed fermenting material about 1 yard high, 2½ feet wide at the base, and tapering towards the top. There are numerous rows of these beds, each about 50 yards long. When the fermenting material of which they consist indicates a heat of about 80° Fahr. they are spawned with good sized pieces placed about 6 inches or 8 inches apart. When a certain time had elapsed after spawning, the beds are "cased," i.e., a layer of about 1½ inches of mould is placed over the surface, and in about six weeks afterwards the Mushrooms begin to appear. A layer of long litter is placed over the beds as soon as they are made—more or less heavy according to the weather. During severe frost a thick layer is necessary in order to maintain the requisite heat. This surface layer of litter is only removed when cleaning or gathering; in short, the less disturbed the better.

A few weeks ago these beds in Mr. Barter's ground were yielding between 3 cwt. and 4 cwt. of Mushrooms a week, sufficient proof, one would think, of the success of his system. We happened to visit the grounds on the evening previous to the morning gathering; therefore we saw the crop to advantage. The whole surface under the litter was completely covered with Mushrooms of all sizes, from 6 inches across down to the smallest button, and crops equally good are produced throughout the winter; indeed, the only slack period is July and August, when naturally produced Mushrooms are plentiful. The produce is sent to market in three sizes, technically called buttons, cups, and broilers.

The mainspring of such successful culture is the excellence of the spawn; without good spawn no amount of skilful culture will produce a remunerative crop of Mushrooms. To the making of this, therefore, Mr. Barter naturally pays much attention, manufacturing it under his personal supervision on a large scale. On the day of our visit men were employed in making the "bricks" in moulds, and laying them out in the open air to dry before being made capable of producing Mushrooms. In the sheds adjoining the grounds we observed piles of "spawn bricks" in various stages of manufacture. When one considers how comparatively simple the culture of Mushrooms on a large scale is, it is a matter of surprise that it is not carried on to a greater extent than it is. Farmers at least might make, we should think, Mushroom growing remunerative; they have every appliance for the work, and might carry it on with little expenditure of labour. Mushrooms, too, are a very marketable commodity in large towns; they are always in demand and invariably command fairly good prices, too good indeed for the majority of people. To anyone interested in the subject we have Mr. Barter's authority to say that his grounds are open for inspection at any time, but in order to see the crops it is necessary to visit them on gathering days, viz., Monday, Wednesday, and Friday, when the beds are exposed. An hour might thus be profitably spent. The grounds are within a few minutes' walk of the Queen's Park Station, at Kilburn.

W. G.

STORING SEED POTATOES.

SORT, mild winters always give those who have to store large stocks of seed Potatoes considerable trouble, for a comparatively high temperature allied to a damp atmosphere are about as troublesome and perplexing conditions as can well be presented. If we could succeed in keeping our seed Potatoes in a dry, airy place, where the temperature never fell below 32° nor rose above 36° from September till the end of March, then should we find the tubers at the end of the winter just about in the same condition as when stored at the beginning, but when the temperature varies from 30°, or even in frosty weather 3° or 4° lower, up to 45° in soft, mild weather, then indeed does the keeping of seed tubers in a stagnant or resting condition become difficult. Without doubt the best place for a Potato store is the north side of a wall or other building. In such a position the temperature would always be the more equable, because not exposed to sudden bursts of sunshine which now and then break out in the winter season, and for a few hours make us almost think that summer is come again. But a north position will certainly prove to be the colder one when really severe weather does come, and if the store will not exclude frost, and it must be a stout one to shut out the cold when the thermometer outside stands at 16° Fahrenheit, then happy indeed is the owner of the store if he has at his disposal a little fire-heat in some form, and especially if furnished in the shape of hot-water pipes. But even then there is danger that too much warmth may be given, especially in the day, in order the better to repel the stronger frost at night, but where the arrangements are perfect the temperature will never be permitted to exceed 36°, whilst the nearer throughout the frost the temperature is kept just over freezing point the better. Failing no heating

power, protection for the tubers, in the shape of coverings of mats, sacks, straw, and litter, has to be fallen back upon. And in a stout well-secured building this will not be ineffective if thick enough, the tubers perfectly dry, and the covering not removed till after the frost has gone off. One of the chief dangers resulting from a very

Low temperature in the Potato store is seen in the sweating which follows when the outer and moister air, the product of a warm thaw, comes in, and this result it is without artificial heat difficult to avoid. Where the heat enables the atmosphere of the store to be kept dry, the outer air when admitted exercises no bad influence, but where there are no such aids the reaction from great cold to moderate warmth is an inevitable one, and the sweating is a conse-

quence. Then we all know that in stores seed tubers keep much the best, and are far the most suited for early or late planting, if well hardened and seasoned on shelves where the air can play about the tubers, and any growth made is robust and healthy. But such shelves if open or made of thin board will prove very insecure places in which to store Potatoes without having upon them a good layer of hay or straw, as frost if it gets into a store will pass up quite as readily from beneath a shelf as from above. And it is of little use to cover up the tubers with 6 inches thickness of litter whilst below they have next to nothing between them and the air. But whilst seed Potatoes stored thinly in any suitable house may be kept resting and healthy with little difficulty—the same cannot be said of tubers lying in bulk during such a season as the present. I find that many first early kinds have pushed stout shoots, and these must not be broken off under any circumstances. Early kinds during the past summer ripened early, and many of the earliest sorts, and specially early seedlings, having been out of the ground for four months, naturally and in keeping with their precocious

habits, have pushed growth early, and have had to be spread out thinly on dry shelves and in plenty of light and air at any cost. One of the chief difficulties which must ever be found where it is attempted to grow first early kinds only in preference to late ones is seen in this invariable tendency to push growth early also. Purchasers of seed of early kinds would always do well to obtain their tubers early in the winter, for if the seed merchant is compelled to store such kinds in bulk, he must of necessity do so at the expense of growth and weakening of the sets. The purchaser of small quantities may perhaps find ample space to store the tubers so that growth may not be forced, and if they can be got in early it is wise to do so.

Storing in boxes.—Small growers will find in common bloater boxes, which may be bought at

growth. If tubers are permitted to lie until the heat generated has promoted immature growth, and the sets have to be all rubbed over in turning, then the tubers might just as well be thrown to the pigs. Close by here in a market garden I saw a large breadth of Myatt's Ashleaf tubers planted last April, all of which had been thus badly cared for, and before planting had been sprouted. As a result, the plants came thin and weak, and never has the crop been worth digging, so that the grower has suffered a heavy loss. Some little discretion exercised during the previous winter might have prevented that bad crop and consequent failure. Whilst many tubers that have thus been spindled will not again produce buds, and consequently are blind, all those properly stored and healthily sprouted in the spring in light and air will assuredly give a crop. There is another advantage in the healthy spring sprouting which is not always apparent. It is that these rogues may be easily detected and be thrown aside. Further, and not least, the resulting crop is always far more even and reliable from properly sprouted sets than is one from sets that do not at the time of planting afford any indication whether they are thrifty or blind. A. D.



The Angelica (*Archangelica officinalis*).

THE ANGELICA.

(*ARCHANGELICA OFFICINALIS*.)

NOTWITHSTANDING the similarity of the plants which constitute the large Order Umbelliferae and their wide geographical distribution, most of the species are of an ornamental character, and many of them are worth cultivating in gardens if only for their foliage; indeed, it is for this purpose rather than for their flowers that Umbelliferous plants are valued horticulturally. Like most of the large Natural Orders, the uses to which the plants are put vary considerably. In many of the Umbelliferae a poisonous principle is present, while others are aromatic, and are used either in medicine or as condiments. As instances of strong smelling gum resins of varied character we need but mention Asafoetida, Ammoniacum, Galbanum, and Opoponax, and amongst those whose stalks are edible, Celery holds the most prominent place, the plant we figure being also useful in this respect, though probably not so important now as formerly. The common Angelica is a hardy biennial, with an erect, cylindrical stem from 4 feet to 5 feet high. The large alternate leaves and many-rayed umbels of numerous greenish white flowers give the plant a very ornamental appearance. It is widely distributed in Lapland, Norway, Sweden, Austria, on the Alps and Pyrenees, and is especially abundant on the banks of rivers in those countries. It was cultivated in English gardens prior to 1568. Every part of the plant, particularly the root, is fragrant and agreeable, possessing an aroma somewhat like that of Musk. It has a sweetish, balsamic taste at first, followed by a warmth and bitterness. The leaves and seeds do not retain their virtues for any length of time after gathering, but the root may be preserved for a long time if thoroughly dried and kept from damp. Amongst the manifold virtues attributed to Angelica, Gerard enumerates the following. He says, "The roote of garden Angelica is a singular remedie against poison and against the plague, and all infections taken by evil and corrupt aire; if you do but take a peece of the roote and holde it in your mouth, it doth most certainly drive away the pestilentiall aire." The fresh stalks of Angelica candied with sugar form an agreeable sweetmeat. The following is given as the best recipe for preparing it: "Remove from the young stalks the outer rind, cut them into pieces 3 inches or 4 inches long, whiten them in boiling water, and lay them on a sieve to drain; then put them into a syrup made of purified sugar, boil till the aqueous vapour ceases to ascend, and leave them to dry in a stove chamber on a wooden frame." Notwithstanding all that has been said in praise of the virtues of Angelica by the old writers, it has no reputation at the present time for any medicinal or economical properties. Its chief use is as a picturesque garden plant. JOHN R. JACKSON.

ls. per dozen, capital mediums for the successful storing of Potatoes. Packed full, each one will hold a peck of tubers, but half-filled, so that the sets may get all possible air and light, the dozen will store a bushel and a half, and that would make a large setting of first early kinds for a small garden. When hard weather comes the boxes placed on each other three and four deep may be covered up securely from frost with any old wrapping, carpets or other protective material, and when the weather is open and dry the boxes may be exposed to air and light with ease. Finally, the sets may be carried to the garden and be planted from the boxes, so that by the non-necessity for moving, the danger of breaking off the first and most robust shoots is avoided. Where seed tubers perforce must lie in bulk, then it is well all through the winter in mild open weather, to keep them moved weekly, not roughly, but carefully, so that not only are any diseased tubers kept from contaminating their fellows, but almost every tuber gets a chance of light and air. Naturally tubers lying in a heap will generate some little warmth, but oft turning prevents that from inducing early

INDOOR GARDEN.

TACHIADENUS CARINATUS.

THIS plant, which is a native of Madagascar, and a member of the Gentian family, has been brought into prominent notice the last year or two by Messrs. Veitch, who have exhibited it at various times. It is an attractive and elegant plant, growing about 1 foot high and of the habit of growth shown in the annexed engraving. The flowers vary in colour from the richest violet-blue to bright purple, the colour fading according to the age of the flower. Its chief value is that it habitually flowers in winter, commencing in September, and flowering throughout the winter till spring. It has the desirable tendency to flower in a very small state, and at the Royal Exotic Nursery, Chelsea, may be seen numbers of plants in flower ranging from 2 inches or 3 inches to a foot or more in height. It is a serviceable plant for winter decoration, as the colour is so scarce among winter blooms. A stove temperature suits it best, and it is apparently



Tachiaadenus carinatus (flower natural size).

of easy treatment, and may be propagated freely by cuttings; therefore, it may be inferred that it is a true perennial. W. G.

AMARYLLISES AND THEIR HYBRIDS.

THESE noble spring flowering plants have within the last few years become deservedly popular, and so rapid has been their improvement that instead of being confined to spring and early summer, we will soon have an autumn flowering section which will in their way be as useful for decorative purposes as the spring flowering sorts, the garden varieties of the Amaryllis, which have been obtained during a series of years by crossing and re-crossing distinct species and varieties. Usually spring flowering kinds have been found to cross freely with the autumn flowering *A. reticulata*, and not only to cross freely, but to produce hybrids much superior to their parents. The raising of seedling Amaryllises in the Royal Exotic Nursery, Chelsea, has been well carried out, Messrs. Veitch having had peculiar advantages for such work, inasmuch as some of the best species have been introduced by them and flowered first in this

country in their nursery. Owing to this they were able first to utilise *Hippeastrum pardinum*. This, in the hands of Mr. Seden, was used as the pollen parent with which to cross *A. Ackermanni pulcherrima*, the result being three very fine garden hybrids, viz., *Brilliant*, *Chelsoni*, and *maculata*. *A. Leopoldi*, a still finer species, though not more distinct in character, introduced from Peru, was next used as a pollen parent with the most satisfactory results. When this was exhibited in 1869 its showy crimson, creamy-tipped flowers measured as much as 7 inches in diameter. This species was crossed and intercrossed with richly coloured varieties, *A. aulica* and *A. Graviana* helping to infuse colour into the first seedlings. Since *A. Leopoldi* obtained first-class certificates from the Royal Botanic and Royal Horticultural Societies in 1876, Messrs. Veitch have obtained no fewer than forty first-class certificates for hybrid Amaryllises; of these the largest proportion have been produced by crossing and intercrossing the type form, *A. Leopoldi*, with other sorts; and Mr. Heale, who has charge of Messrs. Veitch's collection, still prefers *Leopoldi* for such work on account of its good form and the great substance of its petals. The variety named John Heale certainly possesses the best form of any Amaryllis yet raised. It has larger and better formed petals than *A. Leopoldi*, from which it originated by crossing that species with a seedling form named *Thalia*. Besides certificated varieties, many really

Good seedlings have never been exhibited, owing to their not being in good form on the day of exhibition. Of these the following are a few of the best: *Media*, the first on the list, is the result of a cross between *Leopoldi* and *Ackermanni pulcherrima*; *Virgil*, between *Agatha* and *Electra*; *King Arthur*, between *Thalia* and *Leopoldi*; *Princess Augusta Victoria*, between *Leopoldi* and *Adriana*; *Emilia*, between *Model* (*Staniforth*) and *Leopoldi*; *Iris*, between *Kara* and *Junius*; *Royal Standard*, between *Circe* and *Leopoldi*; *Henry Little*, between *Thalia* and the Rev. T. Staniforth; *Cecilia*, between *Agatha* and *Prince of Wales*; *Madame Albani*, between *Beauty of Cornwall* and *Agatha*; *Charles Dickens*, a recently certificated variety of great merit, between *Kara* and *Junius*; *Duke of Connaught*, between *Circe* and *Graviana*; *Autumn Beauty* (the first of the autumn flowering section), between *A. reticulata* and a seedling of the *Leopoldi* type. These *reticulata* seedlings will doubtless be used as seed and pollen-bearing parents, with the result that many varieties will be raised with brighter coloured and better formed flowers than those of the parent. Within the last few years we have had some very fine

Continental varieties. Foremost amongst these stands *Empress of India*, a kind which usually produces four flowers on a stem and sometimes six, but a large bulb will always throw up two stems with four flowers on each. By crossing the *A. Leopoldi* type, which gives but two flowers on a stem, with this some valuable varieties may be obtained. The *Giant*, introduced last year, is quite a new type of Amaryllis. It is a garden variety of great merit, robust in constitution, and very floriferous. The plant exhibited had a very large bulb, quite a giant, from which sprang three stout, very tall stems, carrying on the aggregate sixteen flowers with well shaped petals of great substance, creamy white, marked with lines and flakes of purplish crimson. *Milton*, also exhibited at the same time, had four flowers on a stem of a light scarlet colour. *Princess Beatrice*, though not yet certificated, is a very showy, good garden variety, and one which produces six flowers on a stem; also scarlet with a white band in the centre of each petal instead of greenish white. *Duke of Albany*, a large well-formed flower of a glowing scarlet colour, has broad petals of good substance, marked in the centre with greenish white, and bears four flowers on a stem. *Shakespeare* is a light scarlet, with the centre of the petals creamy white. These were all exhibited on the 10th of April last at South Kensington.

Other good kinds are *Alexandra*, the best of the *marginata* type; *Sybil*, with flowers 9 inches across, tipped with creamy white and flaked with crimson; *Coningsby*, purplish crimson, the centre of the petals marked with lake; *The Siren*, light scarlet, edged white, and bearing six flowers on a spike; *Madame Antoinette Sterling*, a very large flowered kind raised from the same seed-pod as *John Heale*, but very different in colour and form, the former being purplish crimson with the centre of the petals purple; *Duchess of Connaught*, the best pure white variety we have; *Cecilia*, the most beautiful of the *Leopoldi* type, the white being very pure, and the remaining portion of the flower rich crimson; *The Baron*, a free growing and free flowering form of *pardina*; *Sir Garnet Wolseley*, very rich, bright scarlet; *Maiden's Blush*, a pleasing pale pink kind; *Miss Alice Gair*, a variety bearing when seen two flower-stems with four flowers on each, the flowers being nearly 8 inches across, and of a scarlet colour, shading off to crimson in the centre of the petals; *Thalia*, a sort with broad, well-formed rich crimson petals, shaded with purple; *Mr. H. Little*, a grand variety and novel in colour; *Iris*, scarlet, with very broad petals, and good in shape; *Royal Standard*, a finely formed flower, purplish crimson in colour, with white margined petals; *Excelsior*, flowers 7 inches across, light scarlet, and good in form. There are also besides these numerous others that I did not see. It will soon be time to

Repot the bulbs, the first week in January being as good a time as any for such work. See that the compost is prepared at once, and that it consists of good turfy loam, with a little peat or leaf-mould added to it, and some rotten stable manure. It should be laid up in a shed to dry for a few weeks before being used. The largest pots we employ are 8-inch ones, but for a bulb like that of *The Giant* a 9-inch pot might be necessary. When potted plunge them at once in a gentle bottom heat, but do not be too free with water until roots are formed. After the plants start growth is very rapid, and in many cases flower-stems are developed before the leaves.

J. DOUGLAS.

LIFTED CHRYSANTHEMUMS.

WHILST it is imperative that for house and conservatory decoration Chrysanthemum plants should be grown in pots through the summer, it is by no means essential that such should be the case to secure a big supply of flowers from them merely for cut bloom. There are few places of any extent where these are not at liberty in the late autumn months—some floor space in vineries, Peach, or orchard houses, the which it is not purposed to start with heat perhaps till after the new year has come in. Under the protection of a glass roof and where there is ample light and air Chrysanthemums need no heat, and indeed are best without it, except as rarely happens that the outer temperature gets unusually low in the fall of the year, but a few degrees of frost in a dry house does the flowers no harm. The great desideratum with lifted plants is to have them blooming as late as possible, and to secure this the first thing to do is to plant in the spring in a late or cool situation where there is plenty of light and air to make the growth sturdy and full of buds without its getting in any way drawn. It is very rare indeed that frosts of sufficient intensity to harm the bloom buds come before the end of October, and the later the plants can be left outdoors the better. Then very much of the after success depends upon the care bestowed in lifting them, for each plant should have the aid of a good ball of earth and roots, and so removed under glass it will in no respect suffer. A plank fixed on edge makes a capital side for the beds, and a little fine soil may with advantage be worked in about the roots as the plants are put in thickly together. When the entire bed is complete, and a good soaking of water is given, very little further care or attention will be needed for some time, and perhaps one other good soaking of moisture will suffice for the plants until all the flowers

have been cut. My own practice in rearing a stock of young plants in the spring is to break up the clumps of roots in February, and after the old wood has been cut away, to select the strongest and shortest of the young shoots, and to dibble them into pans or shallow boxes in quantity of a sort, and to allow them to remain in a frame till April, when they are dibbled out into the open ground. Pompones are the best, or kinds that have a dwarf habit and bloom freely. Certainly of white kinds none are more useful than *Mdlle. Marthé*, for whilst the Japanese *Elaine* produces such elegant flowers, it is early and does not prove so floriferous up the stems after the top flowers have been removed as does this best of all Pompones. *Julie Lagravère*, though not a Pomponé, is nearly one, and affords not only the most striking contrast to the white-flowered sorts, but perhaps of most kinds the greatest quantity of flowers. *Adèle Presette* is a lovely and very free rosy lilac-coloured Pomponé, that when better known will be universally grown; and for a brilliant yellow there is none better than *St. Michael*. *Marabout* is too beautiful to be ignored, though not so free as many others, and a charming small late white is *Bijou d'Horticulture*. Some half dozen kinds are enough to grow, and a dozen good strong plants of each will yield a big lot of bloom. Late striking of cuttings, late planting out into a cool position, and late lifting all tend to make the blooming late, so that with care and judgment the supply is maintained long after the flowers of the established plants in pots have been cut or have decayed. There are for the production of beautiful white flowers at Christmas no better kinds than *Princess Teck* and the *Anemone-flowered Fleur de Marie*. A. D.

Cycas revoluta.—This handsome plant is well adapted for conservatories in which there is a temperature of about 50° in winter. As regards soil, I find it to grow freely in turfy loam, a little peat, sand, and charcoal. If scale gets established on the foliage, a good dressing that not only cleanses, but appears to add fresh lustre to the leaves, is Fir-tree oil, applied with a sponge or syringed over the entire plant. When young this *Cycas* is of comparatively slow growth, but this is amply compensated for by its decorative value when it has arrived at maturity. A very large plant of it may be grown in a pot 10 inches or 12 inches in diameter, and when it gets old and pot-bound, it forms young embryo plants or root buds around the base of the old plant rather freely. These should be carefully detached with a sharp, strong knife, potted in quite small pots, and placed in a propagating frame, keeping them moderately moist until they commence to grow. A little finely powdered charcoal and sand is a good substance to place around the freshly cut portions; it absorbs any excess of moisture and encourages root formation, but as soon as young roots are formed and leaves are developed, the young plants may be transferred to more airy quarters. *Cycads* flourish in the Palm house at Kew; the heat there seems to suit them, but I know from experience that they will also succeed in a much lower temperature.—JAMES GROOM, *Seafield, Gosport*.

SHORT NOTES.—INDOOR.

Layering the Lapageria.—Will some practical cultivator describe the best method of doing this? In the cultural remarks on this plant, which appeared lately in *THE GARDEN*, the mode of layering is not given.—J. E. I. R.

Meyenia erecta.—I have a large plant of this in a house, the temperature of which is about 60°. A month ago it was covered with foliage and well set with bloom buds; now both foliage and buds are falling off. Will someone kindly give me a few hints as to the culture of this plant?—C. D.

Seedling Carnations (J. K.).—There are now so many good varieties of perpetual flowering Carnations, that a seedling worth naming must possess very high qualities indeed. Amongst the flowers you send some seem good, but their merits cannot be judged by single blooms alone. Among those you send the kinds numbered 1, 6, 7, and 3 appear to be the best.

SEASONABLE WORK.

FLORAL DECORATIONS.

J. HUDSON, GUNNERSBURY HOUSE.

By the time this week's *GARDEN* reaches our readers many will be busy with their Christmas decorations. In these Evergreens are, we think, oftentimes used to an injudicious extent, and frequently with an amount of labour that is quite unnecessary. Take Ivy, for instance; instead of arranging it in an easy, graceful, and natural manner, with painstaking labour the leaves are first severed from the shoots on which they grew, and then they are strung or tied closely together, so as to form a compact wreath devoid of all natural beauty. Holly and Box leaves are oftentimes subjected to similar treatment; single leaves of Holly can certainly be worked into pretty designs, but each leaf should be so arranged that it can be seen to advantage. I, however, do not decorate in this way myself; on the contrary, I prefer using everything in the way of Evergreens as nearly in a natural way as possible. Of Ivy we like to get long trailing growths (of the smaller-leaved kinds especially), and also some of the same in the case of variegated varieties. The former will be prettiest if taken from an old wall or other position where the sun has shone upon the leaves during their development. Shoots of *Berberis Aquifolium* are also pretty; these can be had with that bronzy hue on the points which is peculiar to them, as well as in a green state. Berried growths of *Cotoneaster microphylla* can likewise be effectively arranged, especially on a white background. *Azara microphylla*, which somewhat resembles the foregoing, may also be usefully employed for indoor decoration, and the same remark applies to *Berberis Darwini*, *Garrya elliptica* with its partially developed catkins, *Aucuba japonica*, and common Laurel. Two or three of the most distinct forms of variegated Hollies (*Golden* and *Silver Queen* are two of the best) will also be found to associate well with the green-leaved kinds. We like to secure a few of the white sports from the silver variegated forms for dark backgrounds, against which they are very effective. Of berry-bearing plants, Holly stands in the front rank; other genera, however, furnish useful accessories. The berries of *Crataegus Pyracantha*, for instance, are quite distinct from those of the Holly as regards colour; *Skimmia japonica* and the *Pernettyas* (with berries of various shades), may also be effectively arranged in various ways. The *Barberry* (*Berberis vulgaris*) will retain its pretty racemes of fruit till now in favoured localities, and where that is so these will form a pretty addition to this class of plants. The *Snowberry* (*Symphoricarpos racemosus*) is another resource upon which one can fall back, though not brought so much into requisition as it might be. An arrangement composed of this and some shoots of *Solanum capsicastrum*, a spray or two of Holly, and about two or three spikes of the *Gladwin Iris* in the centre would look well. If a stem has to be entwined, use *Cotoneaster microphylla* or a small-leaved Ivy (*Hedera Helix digitata*, for instance). Of Moss such as one sees growing in woods and hedgerows in pure country air one never valued when it could be got in abundance and close at hand; now we often think how useful it would be, and to what various uses we could appropriate it had we the opportunity so to do.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

General work.—Though at this season there is little or no work of a pressing character to be done, it should be remembered that a busy time is coming; prospectively, therefore, every operation that can now be performed should be done by way of relieving the pressure of duties in spring. Trenching, digging, and draining can of course be done whenever the weather is open, and so can the planting of shrubs and trees in all but the most plastic soils, and when such work as this, through stress of weather, has to be postponed,

there is the mending of coach roads and walks, the digging and carting of gravel, manure, soils, not to mention the clearing out of shrubberies, lopping off irregular and dead branches from trees, clipping hedges, and trimming into form all shrubs that are required to develop evenness of outline. Only by thus seeking out, as it were, all such jobs, and doing them at this comparatively leisure period of the year, can we hope to keep pace with the work at the busy season. The preservation of neatness by rolling and sweeping both turf and walks, is about the only routine duty at the present time, but on the due performance of which, it need hardly be added, depends so much the real enjoyment of a garden.

Roots and seeds.—Cannas, Dahlias, and other bedding plants that are being wintered in cool sheds or cellars should be occasionally examined as to their safety in respect of frost or of rotting through damp. As a rule all roots winter safely if the temperature does not fall below the freezing point, and as to injury from damp there never need be any danger of this if the plants are well packed in dry leaf-soil or Cocoa fibre. Of course no water should ever be given them; the only source to generate damp would then be the decaying stems, and these should be removed as soon as perceived. Any varieties of Dahlias that it is intended to propagate in quantity may now be potted and started in gentle heat for the production of cuttings. The single varieties have lately become so popular that all should have a few. The named kinds to be true must of course be raised from cuttings, but a fine show of them may be had next summer from seeds if sown any time between this and the end of February. Seeds of slow-growing succulents should be sown at once, as also should the following, which make good sub-tropicals, *Arundo conspicua*, *Cannas*, *Erythrina Crista-galli*, and *Grevillea robusta*.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Ferries.—Where these are planted in the natural style, even if due care has been taken in the first instance so as to place each Fern in such positions as are least calculated to admit of their unduly encroaching upon each other, still there are almost certain to be some that so far out-grow their allotted space, as to overhang and prevent the weaker species from thriving; and it is obvious that at this time of the year when there is the least growth being made, any alterations that are necessary in the reduction or removal of such plants as need to be disturbed can be best carried out; beyond this, it frequently happens that a change in the whole arrangement may become needful, and where work of a more extensive character such as this involves is to be done, no time should be lost in its completion. Where new ferries are being made, or any alteration such as above alluded to is to be effected, I should advise that no wood be used in the work, except where Bog Oak or Yew can be had; if these are obtainable there is nothing that can be introduced into a natural fernery that produces so good an effect, inasmuch as they are less artificial in appearance than the best imitations of stone, or even the real article itself. In the arrangement of such material it is all but impossible to lay down any rules for guidance, as the difference in the size and position of the structure will need to be taken into account, and, above all, the after well-being of the plants. Where stone is used, it may be taken, as a rule, that the larger and more rugged in their outline the blocks employed are the better will be the effect. The meaningless piling together of quantities of ordinary boulder stones, such as are sometimes seen doing duty in Fern houses of this description, is so unnatural and poor in appearance that it is far better to form irregular mounds of earth without such stones. Beyond the object of giving to a fernery as much as possible a natural effect, the well-being of the plants must not be lost sight of. Where a fernery of this description happens, as is not unusual, to stand where it is much shaded by an adjoining building, it often

occurs that the plants are so much in the dark that, with the exception of a few of the most shade-loving kinds, they have little chance of attaining the free vigorous growth which is the first essential to a pleasing effect. With the tree species, such as the *Dicksonias*, *Alsophilas*, *Cyatheas*, and *Cibotiums*, so essential for effect, it is better in most cases to confine their roots to moderate sized pots or tubs and to have these plunged, by which means, as will easily be seen, the root extension can be kept within due limits, without which, except in the case of the very largest structures, the plants grow so fast, their fronds attaining such a large size that a few specimens monopolise the whole space, effectually smothering the weaker, but equally beautiful and interesting kinds, in addition to becoming in themselves so crowded that the whole appearance of the structure is ruined. Much has been learnt in the cultivation of Tree Ferns of late years; the big boxes or tubs, at one time supposed to be an advantage, are wholly a mistake. By the use of liquid manure during the growing season the healthy condition of large, old specimens can be maintained for years, at the same time avoiding their getting too big. As a filling or under-growth in Ferneries of this description the best kinds of *Gleichenias*, *Polypodiums*, and *Davallias*, from the strong-growing *D. Mooreana* to the miniature *D. Tyermanni*, should be freely used, the natural spreading disposition of these plants especially befitting them for the purpose, in addition to which they are excellent for use in a cut state, a matter of no slight importance. For roof drapery *Lygodium scandens* and *Asparagus plumosus* are especially adapted, the *Asparagus* in particular being an excellent climbing plant, easily kept in bounds without the cutting in giving it a clipped, formal appearance, added to which its leaves are of the most elegant and enduring character for mixing with cut flowers. In all ferneries of this kind I should recommend that there be none of the heat-requiring *Gymnogrammas* or any other species that require much above an ordinary greenhouse temperature, as where these are used amongst the cooler kinds, either they must be sacrificed, or the majority kept much warmer than is conducive to their well-being. In the planting of ferneries there is one matter that cannot be too strongly impressed upon those who have not had much to do with this kind of work, that is, the necessity for every plant being perfectly free from scale, which entails an unlimited amount of after labour in keeping it down, or the ultimate affection of the whole stock with the pest, for on no plants is scale such a nuisance as on Ferns.

Destruction of insects.—Thrips have a particular liking for many kinds of Ferns, especially *Dicksonias*, and where the plants have been so affected it is a good plan to dip the fronds at this season in strong Tobacco water, which if repeated three or four times in succession will generally kill both the insects and their eggs. Where planted out there is a difficulty in thus dipping them, but to get over this I have used a long, narrow, shallow trough, such as would take a frond laid in it full length; in this way a plant can be gone over in a very short time, leaving the liquid to dry on the fronds. This is more effectual and much safer than syringing overhead with the Tobacco water, as I have found that when it gets into and lodges within the crowns of the plants, the next season's crop of young fronds laying curled up therein is often injured. Where Ferns are affected with scale means should be taken to reduce the insects as much as possible now when there is little increase going on in them. I have not found any insecticide that will do more than partially destroy the scale unless used so strong as to injure the plants; consequently there is no alternative but resorting to brushing and sponging. All the affected stock should be gone over if possible two or three times within the next month. In no way can there be such an ultimate saving of labour as by the reduction of insects as low as may be during the winter months.

Gymnogrammas.—The gold and silver-powdered fronds of these, though not nearly so

suitable for general use in cutting as *Adiantums*, *Pteris*, and others, are nevertheless by some held in estimation and largely grown for the purpose. Where to be so employed no more heat should be used than requisite to fairly develop the fronds, otherwise they will be so soft as to flag immediately they are cut and removed into a lower temperature, yet the heat that would be quite enough for the great bulk of other cultivated kinds will now through the winter months be insufficient to keep *Gymnogrammas* in a healthy condition; from 55° to 60° in the night will do for them, and if possible they ought to have a drier atmosphere than most plants.

Violets.—Where a continuous supply of these is wanted through the winter, the stock for the purpose requires to be differently treated. All during the months of the present autumn they have bloomed out-of-doors freer than usual, and so far have saved the necessity of bringing them on by other means. Where plenty of leaves are at hand so as to make up beds that will give a little heat to stimulate root action, and to throw off enough top warmth to keep the frames placed over the plants at a genial warmth, there are few better devices by which these sweet-scented flowers can be had, as under such conditions they usually succeed well. Beds of this description, not made too strong, if too great a body of leaves is used they become over-hot, should be put together at intervals, putting on a few inches of soil, upon which stand the plants which ought to be taken up with good balls, having as many of their roots intact as possible, placing them as close as the clumps will stand, filling in the interstices with a little loose soil, after which water moderately, and give air daily proportionate with the warmth in the bed and the condition of the weather. It is an advantage to treat them in this way, so as to draw out the flower-stalks a little, which makes them more manageable in arranging, but if kept too warm or over-much confined, the stems are too weak to support the flowers without drooping when exposed.

ORCHIDS.

J. DOUGLAS, LOXFORD HALL.

East India house.—Winter having come upon us in real earnest, we have been very much put to it to keep the plants in good condition. The dense fogs which have prevailed are exceedingly injurious, and there does not seem to be any means whereby their withering effects can be mitigated. The occupants of this division seem to suffer most. It is heartrending to see the magnificent flowers and buds of the various species of *Phalaenopsis* shrinking up and dropping off yellow and dead; while this is taking place it is easy to believe that the plants must also suffer in constitution. We do all we can by attending to the heating and ventilating of the house, keeping up the requisite temperature of 65° at night, but not being alarmed if it falls to 60°, or even less, during intense frosts. The roof glasses are also washed as soon as the fogs clear off. The last fog we had was very dense, lasting forty-eight hours, and it left a sooty deposit which made the glass look as if it had been held over a smoky candle. All Orchids that have any deposit on the leaves should be carefully sponged over with rather warm, soapy water. At this season more than any other one cannot be too careful in watching that no drops of condensed water fall into the centres of valuable plants. All good Orchid houses are so constructed that a groove in the rafters and sash-bars carries the condensed and other water down to the plate at the base of the rafters, and if the house was not constructed in that way at first I have seen the same result obtained by nailing a piece of zinc to the undersides of the rafters, and turning up the edges to form a groove. I noticed in the hot-houses exhibited by Messrs. Foster & Pearson, of Beeston, Notts, that all the rafters and sash-bars were grooved in the greenhouses, as well as those for stoves and Orchid houses. Another decided improvement made by this firm is in

the way the glass is cut, rounded so as to carry all the water to the centre of the squares instead of to the sides; this improvement, though apparently a slight one, is, I think, quite as important as the grooved sash-bars and rafters, and I would never think of building an Orchid house minus these improvements.

Cattleya house.—Most of the above remarks apply to this department as well as to the cool section. I find that *Cattleyas* when in flower do not suffer so much from the fogs as some of the occupants of the warmest house. During the densest fogs of last winter some of the choicest forms of *Cattleya Mendelli* were in flower at Messrs. Veitch's nursery in the King's Road, Chelsea, and some of them remained in full beauty for more than four weeks. The flowers of *Cattleyas* are thick in substance, and of a firmer texture than some others of the family of Orchids, and the lasting qualities of the flowers depend to a certain extent on the temperature and atmospheric conditions under which the flowers open. They last longer when the plants are kept comparatively dry at the roots; the air should also be as dry in the house as it is possible to have it consistent with the health of the plants; a close, humid atmosphere would destroy the best flowers in less than ten days. We removed a number of the evergreen *Dendrobiums*, such as *D. Farmeri*, *D. thyrsiflorum*, *D. densiflorum*, *D. Dalhousianum*, and others of this type from a warm house to this department; their growths were late in ripening, but as they are now well matured, we have put the plants here, where they will be kept as dry as possible, only getting water once in ten days or two weeks. *Vanda teres* should also be placed in this house now from the warmest house, if it has not already been done, and it should also be kept very dry indeed. If there is not sufficient room in the house, some of the deciduous species, such as *D. nobile*, *D. Wardianum*, *D. crassinode*, and *D. Falconeri*, that have made their growth late may be placed in a greenhouse temperature, and they need not get any water for weeks at a time while they are there. The earlier flowering plants should be placed in heat; indeed, some of them ought to be well advanced by this time or in flower. I find it does not answer to place them in a high temperature from the warm greenhouse all at once. Such sudden changes will cause many of the flower-buds of such fine Orchids as *Dendrobium Wardianum* to become abortive. The resting and after treatment of these *Dendrobiums* have something to do with their successful flowering, but not so much as the treatment they receive while making their growth the previous season.

Cool house.—I have noticed in many even well-managed houses that green or yellow aphids is by far too common, especially on *Masdevallias*. It is very desirable indeed to free the plants from it, and as it is very dangerous to fumigate, washing or dipping must be resorted to. This pest increases fast during severe weather, when much artificial heat has to be employed. A good plan where the collection is comparatively clean is to have a vessel at hand containing Tobacco or soapy water with a brush, and as soon as any fly is seen, remove it with the brush dipped in the mixture. A week or two ago we potted some cool house Orchids that had been received from the nursery, and they are rooting away most vigorously in the fresh compost. In a week or two we will commence repotting all the plants that require it. I would again urge the importance of getting the compost ready, and the pots washed quite clean with warm water. The principal requisites for cool house Orchid culture are clean pots and potsherds, charcoal, good fibrous peat, dried and fresh Sphagnum. The pots should be well drained in all cases, because the larger proportion of cool Orchids require so much water, and if there is a large body of potting material, the organic matter decays and becomes sour, with the result that the roots of Orchids will either not grow into it, or will die if they did. Those who have been accustomed to repot Orchids, will have noticed that they never do really well, unless the roots

have taken firm hold of the sides of the pots, and that all the most active and useful rootlets are there. How very necessary it is, then, to have the pots washed perfectly clean, or if they are new pots they should be well soaked in clean water for a few hours before using them. When the plants have to be turned out of the pots in which they have been growing, it is often better to take a hammer and carefully break the pots in pieces rather than risk the injury to the plants by tearing off the roots when they have been turned out in the usual way. In all collections, even the best managed, there are some plants which have not grown well, owing to the roots and compost decaying. In that case, have some rain water rather warm in which to wash every particle of compost from the roots before repotting in smaller pots and good sweet fibrous material.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Vines.—By this time the buds in the early house will be sufficiently forward to admit of a slight advance in the day temperature, but no alteration must be made by night until we have a change to more genial forcing weather. Follow up the daily syringing until the bunches are well advanced and all the buds are fairly on the move, but avoid constant saturation of the spurs at this dead season, as too much moisture often induces weak, elongated growths and loose, straggling bunches which rarely set properly or colour well, while a light, buoyant atmosphere with a gentle circulation of air and moisture in moderation lead to the development of stout leathery foliage capable of laying up plenty of colouring matter so essential to the perfect finish of early forced Grapes. If the inside borders have not been watered since the house was closed, another nice watering with diluted liquid at the maximum temperature of the house may be given, and the borders may be well mulched with fresh short horse manure, which will exhale ammonia when gleams of sunshine raise the temperature of the house. External borders hitherto covered with Ferns, litter, sheets, or shutters may now advantageously receive a good covering of moderately dry fermenting leaves which will set the surface roots in action and draw them into the autumn surfacing of turf and bones ready for the performance of their work when the stoning and colouring processes draw so heavily upon the Vines.

Late vineries.—Muscats, Alicantes, and other thin-skinned Grapes will now require cutting, as they will keep better in the Grape room than on the Vines. When the latter are cleared, get them pruned and cleansed; dress the cuts with styptic, and throw the ventilators open in suitable weather to give them a month's rest before growth is again excited. If the internal borders are not satisfactory, immediately after the Grapes are cut is the time, and the only time, to get them put right. Years ago many people were afraid of disturbing the roots of Vines, but it is now well known that external or internal borders may be taken out alternately, and every particle of the old soil may be replaced with new, not only without endangering the succeeding crop, but with the certainty that it will be greatly improved. Lady Downes, Mrs. Pince, and that excellent Grape, Black Morocco, are keeping unusually well, but they had a liberal share of fire heat early in the spring, and they will hang for any reasonable length of time without shrivelling. If the Vines are not already clear of foliage, all the leaves will be ripe enough for removal, and the Grapes will be in a fit condition for cutting and bottling by the end of the month. When cutting Grapes for keeping, always remove every doubtful berry, as the smallest spot is sure to end in decay. Choose a bright, dry day for bottling; never cut away any of the wood beyond the bunch without applying styptic, and avoid disturbance of the berries in the removal of the bunches to the Grape room. Growers who have Mrs. Pearson hanging in late houses will do well to give it a

fair trial, as it promises to be a good keeping Grape, and the quality being so excellent it cannot be too soon or too well known that we have at last a worthy companion to the invaluable, but often badly treated, Lady Downes.

Peaches and Nectarines.—With the thermometer standing at the freezing point, the ground and roofs of cold houses buried in snow, and a leaden atmosphere, through which the sun cannot penetrate, the forcing of an excitable tree like the Peach must be carried on with great care and patience. In mild weather the temperature best suited to this valuable fruit (45° at night and 55° by day) can be maintained almost without fire-heat, but under existing conditions 5° lower will be safer figures to work upon until brighter days set in and the flower-buds get well advanced and show by their plump, robust appearance that the most critical stage in forcing has been safely tided over. In proportion to the diminution in the day temperature let syringing be reduced, as too much moisture is apt to injure the buds, but keep the atmosphere in a nice growing state by damping the pipes and borders and by turning the fermenting material at short intervals. If plants of any kind occupy the early house, see that they are kept clear of the trees, and fumigate as often as may be needful to secure freedom from aphids during the flowering period. Ventilate the house on all favourable occasions, and, if possible, leave a chink of air on all night, but avoid draughts of cold, frosty air, particularly when the blossoms begin to unfold and the wood buds burst into growth. Many people think it is quite unnecessary to ventilate a Peach house until the trees get into growth, but when it is borne in mind that a modern house is hermetically sealed and that many Peach trees are ruined by being kept in too high a temperature, the importance of now doing for ourselves what the old generation of glaziers so thoroughly performed for us must no longer be overlooked or neglected.

Peaches in pots.—Where the number of permanently planted Peach houses is limited and the earliest is, perhaps planted with the good old sorts which are beaten in point of time of ripening by modern varieties, but still hold their own with something to spare in quality, it is a good plan to take the first crop from pot trees plunged in or placed over fermenting material in light, efficiently-ventilated, span-roofed houses. To ensure success, take kinds like Amsden's June, Alexander, Hale's Early, Early Grosse Mignonne, and A Bec, which ripen in the order named; Lord Napier and Advance Nectarines should be potted up and grown into fruiting trees under glass before they are taken in for forcing. In many places there are houses well adapted for this kind of work, as the trees need not be large, and this being a suitable time for getting maidens or cut-backs, preparation may still be made for having a good stock of suitable trees for next year's forcing. Of the two I prefer the compact maidens with plenty of side shoots from the union of the bud upwards, and as Peaches are not improved by being cut back, all that is needed is firm potting in 10-inch pots and pruning back all the side shoots to a single bud when they begin to break into growth in the spring. It is hardly necessary for me to say the house in which these trees are prepared should be moderately heated, as the pots should be full of roots and the wood thoroughly ripe by the end of July. If the side shelves or pits are too low for Peaches, Figs in the bush form will do well for a great number of years.

KITCHEN GARDEN.

R. GILBERT, BURGHEY.

If Globe Artichokes are not yet protected, lose no time in doing it. When frosted they may live, but the stems will be weak and the Artichokes small; in fact they are useless. We are cutting from under a few leaves very fine heads of Snow's Broccoli, not large, but close and white, a vegetable that is in high repute here. Outside Lettuces, covered with the same material, are now green, fresh, and delicious. Of Black-seeded Brown

Cos, the king of all hardy Lettuces I know of, we cut a constant supply outside, and have done so for many years past. The time is now at hand when leaves and manure must be put together for frame Potatoes, Radishes, early seeds of Lettuce, Cauliflower, &c. No labour is lost in having the heating material well looked after; when the beds are made tread them firmly, and think you are making Mushroom beds. To build up manure beds from 3 feet to 4 feet, and set frames on them, is not only a waste of time in building, but a positive disadvantage to the inmates. The right plan is to dig out pits the size of the frame, 2 feet or 3 feet deep, and fill them a foot or so above the pit, to which they will sink level; every bit of heat is then utilised. Any kind of light soil enriched with manure will grow Potatoes well; but for Carrots and small seeds I use refuse from under the potting benches, mixing sand and mud scrapings with it. Of Potatoes, we use the true Myatt's and Wilson's frame; the latter, a new kind, I shall try this season. Early Scarlet and Shorthorn Carrots are among the best forcers. Do not be caught napping in not having a good supply of what are called little things, such as green Mint, Tarragon, Mustard, and Cress. Keep an eye to the Mushroom house, and do not let the supply of Endive fall under what is usually blanched in that house. In the case of Celery here, as elsewhere, Bracken is brought into use; it is so light and feathery that it makes the best of all protectors. Speaking of Celery, my favourite is Major Clark's, and White Heart is better than Hastings Dwarf. The latter I had from Hastings last year. Frost and snow, unwelcome visitors, having to a large extent departed, outside work may be resumed.

FLOWER GARDEN.

HARDY FLOWERS FOR CUTTING.

I SEE that a correspondent asks for a list of hardy flowers for cutting, and as most people who have gardens are desirous to have as many good plants as they can for the same purpose as well as the ornamentation of their borders, I now give a brief notice of the best. Taking them in alphabetical order, the first and most important are

THE ALSTROEMERIAS, which should be largely grown where cut bloom is required, as they give very little trouble after first starting, and when established yield a fine supply of very fine Lily-like flowers that look dressy in vases and last long in water. The best place to cultivate Alstroemerias is on a sloping south border under a wall or house, where they should have free drainage and a deep, light, sandy soil, without which their tuberous roots are apt to suffer and die in the winter. The way to prepare the border is to dig it out a yard or so deep, and then throw in brickbats to fill up 6 inches, over which brickbats a little litter should be strewn, which will prevent the earth running in among the drainage and filling the interstices. If the soil to be returned is not naturally of a light and gritty character, it will be necessary to make it so by adding leaf mould and road scrapings or sand, and if the whole is then thoroughly incorporated the plants are sure to do well. They may be obtained in pots at a moderately cheap rate, and should be planted out in spring just before they begin to start; and that they may have their crowns well down out of the way of frost, they should be dropped in at least 6 inches below the surface, and to make them safe in winter it is always advisable to mulch over them with half rotten leaves after their tops are cleared off in the autumn. Alstroemerias may be easily raised from seed, but when so obtained they do not flower the first year, as the tubers they make are not strong enough, but if sown and left without disturbance where they are to grow, it is a good way of forming a bed that will come in the following season and last for an indefinite time afterwards, as there seems no end to their existence. Next to Alstroemerias in point of usefulness I should place

ANEMONES, which are gorgeously beautiful, especially the large Poppy-flowered kinds, both

double and single, which make a grand show, and then there is the brilliant *A. fulgens*, which is almost the first thing in bloom in the open ground in the spring, as it comes very early when planted anywhere in a warm sheltered position. To start with these *Anemones*, the best way is to buy the tubers and plant some at once, and another batch later on for succession. For a supply during the autumn, the plan is to sow a good large bed or border any time in April or May, and if the following winter be mild the plants will go on yielding bloom till the others come in. *Anemones* like rich light soil that has plenty of sand in it, so as to make it free and open, and the beds or borders where they are grown should be sheltered from wind and well exposed to the sun. Besides these Poppy-flowered *Anemones* there are the Japanese kinds, which are equally valuable, more particularly *A. japonica alba*, or, as it is sometimes called, *Honorine Jobert*, which sends up stems from 1 foot to 2 feet high, that branch freely out and bear numerous blossoms. These are very large and handsome, having pure white petals and a well raised green conspicuous disc, surrounded with rich yellow anthers, which form a fine setting, are highly ornamental, and add much to their beauty. *A. japonica* has just the same habit and strength, but bears rosy purple flowers, and there is a hybrid which has blooms of a lilac shade that make a pleasing contrast when grown or used with the others. To have fine plants of these *Anemones* they should be planted in deep rich soil where they can stand and spread without any disturbance. The way to increase them is by division, which is best effected in spring just as they begin to start, as then they transplant more readily and suffer less from removal than they otherwise would do.

AQUILEGIAS are quite unrivalled, especially the newer kinds, such as *A. chrysantha* and *A. cœrulea*, which, with their long, spur-like appendages and curiously formed flowers, vie with some of the *Orchids*, and quite equal many in richness of colour and beauty. There are also numbers of hybrid *Aquilegias*, besides other varieties, all possessing more or less merit and deserving a place in some part of a garden. The different types of *A. vulgaris* are so strong and hardy, that they will live and hold their own anywhere, and may, by planting, after clearing away a bit, be naturalised among shrubs or along the margins of woodland walks, positions which they help to enliven, and where they look quite at home. *A. cœrulea* is unfortunately a little tender, and to grow it well the plants require light soil and shelter, and even then they gradually die away; but as they are easily raised from seed by sowing annually, there is no difficulty in keeping up a stock, as the young seedlings may be nursed on in beds to be drawn from when wanted. *A. chrysantha* is a fine, strong growing kind, and as it has nice, soft, canary-coloured flowers, they contrast and show up well against the pale blue of *cœrulea*. The way to get *Aquilegias* is to sow under glass in April, and if the seed can have the benefit of a little warmth it will germinate better, and the plants grow quicker and stronger than treated in any other way.

ANTIRRHINUMS have been so much improved of late as to be deserving of extensive cultivation, and from a packet of seed great variety may be obtained, as they not only produce self-coloured flowers, but may come beautifully striped or marbled, and are very pleasing to look on. To get the plants to bloom the same season, the seed must be sown early in heat, and the young seedlings pricked off as soon as large enough to handle, and nursed on under glass till they are sufficiently large and hardened for planting out in the borders. Exceptionally good sorts that it is desired to keep should have cuttings taken from them and struck in the autumn and then stored in cold frames, as severe winters often seriously injure or destroy the whole of the plants.

CAMPANULAS.—Too much cannot be said in praise of these, as they make a grand display, and more particularly the biennial varieties, all of

which are very showy and beautiful, affording, as they do, numerous branching stems bearing a profusion of large bell-shaped flowers of nearly all colours. To have strong plants seed should be sown in April or May, and the plants grown in good soil in any part of the garden, from whence they may be lifted with good balls in the autumn and transferred to positions where they are wanted to bloom. Among the perennial kinds *C. pyramidalis* and *C. pyramidalis alba* are the two best, sending up spikes from 3 feet to 5 feet high, and *C. Van Houttei*, *C. persicifolia* and *C. turbinata* are also very desirable sorts.

CENTAUREA CYANUS also makes a fine border plant, and is one of the most serviceable that can be grown for cutting, as the blooms are very light and elegant in appearance, and last long in water. A mixed packet of seed, will yield many colours besides the blue, which is the universal favourite, as it is so rich and fine for working up in bouquets.

WALLFLOWERS need only to be mentioned to commend themselves, as, independent of the gay character of their flowers, the delicious odour from them is such as to perfume the whole air of a garden. The finest kinds that can be had from seed are the double *Rocket*, or mixed German, and there is a single one named *Harbinger* that blooms late in the autumn. The very best doubles can only be perpetuated by cuttings or slips, which strike freely when the wood is about half ripe and put in on a shady border in sandy soil under handlights, where they soon emit roots.

CHRYSANTHEMUMS, both annual and perennial kinds, are indispensable where cut flowers are required, the one affording a continuous supply during the whole of the summer, and the other till quite late in the winter. To have them at the latter season all that is necessary is to lift the plants directly they have formed buds, and plant afresh close up to the foot of a high wall or sunny fence, or on borders where they can be protected with old lights and mats. The annual sorts, of which there are many, should be sown early and grown in good soil quite out in the open.

DAHLIAS, though not hardy, must not be omitted, as the single sorts are perfection for cutting, and to be without them is to lose the greatest ornaments anyone can have in their rooms. The way to raise them is to sow seed in heat during March, and when up the plants must be pricked off or potted singly, and kept growing on till the end of May, when they will be safe planted out in the borders.

DELPHINIUMS are an exceedingly showy class of plants that no garden should be without, as they are very striking, especially the tall branching varieties like *Barlowi*, *Belle Alliance*, and *formosum*, which send up spikes from 3 feet to 5 feet high, crowded with their splendid blue and white blossoms. *Delphiniums* require deep, rich soil, and when so accommodated they escape mildew and last much longer in beauty. All the kinds may be obtained from seeds, and a packet of mixed seeds affords a good deal of variety. The best time for sowing is in April, as plants raised then will bloom the same year.

THE CARNATION commends itself, and the several sorts of *Sweet William* and *Indian Pink* are equally valuable, the *Heddewigi* section of the latter being very large and richly marked, thus making a fine display in a border. The *Indian Pinks* flower the same year within a few months of the time of being sown, but *Carnations* and *Sweet Williams* do not come into bloom till the season after, and should be sown early to get strong plants. *Carnations*, *Picotees*, and *Pinks* may also be propagated and increased by cuttings and layers, and that is the way in which choice sorts are done.

DICENTRA, or as it used to be called *Dielytra*, *spectabilis* is a lovely plant, with its spikes of gracefully drooping pale pink flowers, which hang like pendants from the arching stems, and are very chaste and ornamental when growing. As the plants are soft and succulent and come into bloom early, they should have a warm, sheltered situa-

tion and light soil, and when so cared for they always do well. The *Dicentra spectabilis* may be increased by division, the best time for which is just as it starts in the spring, as then the crown buds can be seen, and the most may be made of the stock.

DICTAMNUS FRAXINELLA is a fine old border plant, forming in good soil quite a bush, and sending up numerous tall spikes of curiously shaped flowers that give off a strong and agreeable perfume. There are two varieties of this *Fraxinella*, the one bearing rosy purple blooms, and the other white; and, although the individual spikes may be a little too large for associating with others, they produce a striking effect used singly in vases, in which way they are seen to the greatest advantage. As seeds are very slow in germinating, the best way is to get plants, which may soon be divided by splitting them up right through the crowns.

FUNKIAS are fast becoming favourites, and deservedly so, for they are among the most valuable of herbaceous subjects, and well worthy the popular name of *Plantain Lilies*, as they vie with the *Lilies* in the form and beauty of their flowers, and greatly outlive any *Plantains* in the highly ornamental appearance of their foliage, for which several of the varieties are exceedingly prized. The handsomest of all as regards leafage is *F. Sieboldi*, which is very noble looking, and in moist, shady situations assumes quite a bluish, metallic hue, that renders plants of it very conspicuous and distinct from anything else. Besides this fine large kind, there are several varieties of *F. ovata* that are richly variegated, and these and the plain-leaved sort of the same are the best for affording cut blooms.

GENTIANA ACAULIS, though somewhat small, bears blossoms of such a lovely blue that there is nothing approaching it for colour, and as it does well in moderately stiff soils for edgings to walks, it should be largely used for that purpose, and if planted between large flints or pebbles, they will help to support it and give it a base.

GEUM COCCINEUM and its semi-double variety are very fine things, and should have a place in every border, as they are both bright and showy scarlets, and of great value for cutting.

HELIANTHUSES, even the common *Sunflower*, have become very fashionable of late, but without going to that extreme there are several that may be regarded as handsome in form and rich and clear in colour, chief among which are *H. cucumerifolius*, *H. angustifolius*, and *H. rigidus*, kinds that are very telling in vases.

HELLEBORUS, OR *CHRISTMAS ROSE*, is simply invaluable, coming into bloom as it does at this season when there is little or nothing else to cut in the open. To grow plants of it well, they should have a partially shaded situation, such as may be afforded on a border under a wall or building, where, if they have a deep, light soil, they are sure to do well. The freest blooming kind is *H. niger*, but the largest and finest is *H. niger maximus*, which bears flowers nearly 3 inches across.

IRISES of the *Flag-leaved* kind are gorgeously beautiful, and the *English* and *Spanish* are almost equal to *Orchids*, being exquisite as regards their varied and delicate colours, and remarkable for the peculiar forms of their flowers. The first-named sorts do best in moist soil, but the *English* and *Spanish* require a drier medium, and when the bulbs are planted should have a little sand scattered over them, which will preserve them from rotting.

LATHYRUS, both the annual and perennial varieties, are remarkable for the profusion of flowers they show, the former affording many and varied colours, and the latter rose or rosy purple and pure white, and from the whole during the summer there is no end to the gathering. The annual sorts should be sown at once, and the perennial kinds may be raised in the same way, or increased by division. Good soil and plenty of depth suit them best, and when so favoured they stand dry weather and afford a more liberal harvest of bloom.

LILIES of all kinds are charming border plants, the most showy being *L. auratum*, and the most pure and chaste *L. candidum*, which will grow and flourish almost anywhere out in the open. For cutting and dressing vases, either singly or associated with anything bright, this latter is simply perfection, and single blooms mounted are of great value for working up in bouquets, to which they impart a fine finish.

STOCKS of the Emperor or Queen kinds, and also the Intermediate sorts, are fine plants for borders and cutting, and where many flowers are required for the latter purpose they should be largely grown, as, besides their showy character and general adaptability, they exhale the sweetest perfume.

MYOSOTIS, OR FORGET-ME-NOT, is very choice, the blossoms being exquisite in the softness of their shaded tints of blue and the spikes light and elegant, and just the thing when seen peeping out from among *Eucharis* or white *Camellias*, with which they blend well. The finest kinds are *M. dissitiflora*, *M. sylvatica*, and *M. azorica*, the two first named of which may be pulled to pieces or increased by means of cuttings and seed to any extent.

PENTSTEMONS are splendid border plants, and their fine spikes of gracefully pendent beautiful flowers are among the best for cutting, and last long in water. A packet of mixed seed of the best strains will yield great variety, and if sown in heat in March or April the plants raised will flower well in the autumn.

PYRETHRUMS of the large flowered kinds, both single and double, are also very valuable, as they come in early, are large and showy, being quite equal in those respects to the best French Asters, which the double kinds in form and general appearance greatly resemble.

STATICES of all the different sorts are quite worth growing, as they are mostly of different shades of blue or lavender, and very light and elegant in appearance, which makes them of great use for dressing vases or for working up as bouquets. In a dried state they last in good condition for a great length of time, and as all they require is being freed from dust now and then, they are much valued as indoor plants. S. D.

LABELLING BORDER PLANTS.

IN reading "F. C. B.'s" interesting remarks (p. 499) on flower borders, I noticed a difficulty of which he speaks, and I will repeat his words, as the hint I wish to convey will then be clearer. He says, "I know that every practical gardener will bear me out when I say that labels often get lost, and that, moreover, when you have a large clump of Lilies marked with a single label at one spot, and a single bulb marked in exactly the same way in another, the gardener is sure, in going over the border in spring, either to leave too much space for the single bulb or dig up half the larger number." To get over this twofold difficulty I adopted the use of a simple, but substantial label, which not only keeps its place, almost defying tools that would disturb it, but also denotes in a great measure the direction and size of a clump of dormant bulbs. It consists of 2 feet of stout galvanised wire, so bent as to form an eye in the middle, and when brought nearly together each prong will be about 10 inches long. The label proper is a piece of zinc with a hole punched in it at one end; this, when written on with ink specially prepared for the purpose, can be easily slipped along one of the prongs, and by a slight wrench suspended in the eye. If it is intended to do duty for a single bulb the prongs may be pushed into the earth, so as to embrace it; if for a clump of moderate size, they may be sprung open so as to include a space of 12 inches or 15 inches. Larger clumps cannot have their sizes indicated by these labels, and if such large clumps of established Lilies existed in my garden, I think I should not have them dug about in any way. If "F. C. B." cares to adopt this or a similar plan of labelling, I am confident it will prove to be efficient in every way.

Woodville, Kirkstall.

J. WOOD.

Covering for Tulip beds.—I have two Tulip beds, 25 feet long each, raised some 18 inches out of the ground. I should be glad of any good suggestion as to utilising them for growing something else without interfering with the taking up of the Tulips after blooming and their replanting early in November. What is the best material to cover the Tulips with when in bloom? —J. C.

Anemone-flowered Chrysanthemums.—I am no great admirer of these in a general way, but in one stage of their development I think them charming. This is when the flower is about three parts grown, and when the disc is not expanded. Then they have all the grace and simplicity of a single flower, equalling in this respect such types of floral elegance as the Japan Anemone and the Paris Daisy. —J. C. B.

Christmas Roses.—A good stock of these hardy plants will now and for a few weeks be proving invaluable for furnishing white flowers that almost rival those of the *Eucharis* in purity if grown under such conditions as enable the flowers to develop cleanly and perfectly. Not a little prejudice exists against lifting the roots for the purpose of housing them for the blooming period, and it may be that in very light soil it is dangerous to do so. In the stiff soil here plants do well and soon get strongly established. I have now lifted into a greenhouse bed a few dozens of strong roots that were treated just in the same way last winter, and were split through once and replanted early in March. When these were lifted a few weeks since the roots had gone down to a depth of 12 inches, and seemed as though they had been growing in that position for two or three years. All the roots are now fast throwing up bloom, and if not real Roses will indeed be Christmas Roses. The pure white hue of these flowers doubtless renders them most popular, but because of its exceeding novelty of hue, I find very much admiration given by ladies to the reddish bronze or copper-coloured *Helleborus cupreus*, of which a strong plant just lifted from the open ground is showing a large quantity of flowers. It may be a question whether it was wise just now to split such a root into some twenty crowns, each one carrying a branching stem of flowers, but it is done, and I have no fear for the result. I prefer planting at this time of the year in a deep soil bed, because the roots can be kept much more evenly moist than if in pots or deep pans. In a house also the flowers are well protected from grubs and slugs, and the stems get a little drawn, so that they thus render the flowers all the more acceptable. It is possible that where tender plants give plenty of bloom under glass in winter, hardy flowers are held in light estimation, but it is the few only and not the many who can enjoy such luxuries. —A. D.

Bedding Marigolds.—A correspondent mentions a dwarf bedding Marigold called by him "Dean's Dwarf." I have not heard of such a variety of the name as applied to any self-coloured Marigold, and think there must be some mistake. The compact-habited, dwarf striped French Marigold grown and selected here may perhaps enjoy that special appellation, but the only self-coloured bedding variety we have is known under the name of *aureo-floribunda*, and is in colour not orange, but bright yellow, the plants averaging 10 inches to 12 inches in height, and carrying neat, perfectly double flowers in great abundance all the summer and autumn. The kind of double Tagetes to which "S. D." alludes is doubtless the not unknown *patula nana flore-pleno*, the flowers of which are orange in colour and the petals of that peculiar quilled form that so much characterises all the Continental forms of the double Tagetes. In habit this strain has no similarity to the compact-habited form of the French Marigold. I have grown plants from the same strain as "S. D." mentions here this year, and find it pretty enough for the production of orange coloured masses of flower, but vastly inferior in every way to a good selection of *aureo-floribunda*. I had many plants of this latter kind here during the past season that were from 15 inches to 18 inches across, and

carrying at once from 30 to 40 clean, fully-expanded flowers. I have never met with any forms of Marigold that produced anything like so much good double bloom on so limited an area. To get a good mass of these dwarf French Marigolds it is advisable to sow seed in shallow boxes thinly early in April; raise it in a little warmth, and transfer the boxes to a frame where the plants will harden, and then pot them up singly or dibble out in a shallow frame thickly, where the plants may remain till they show a bloom each. All that are found double will remain so, and single-flowered kinds can be thrown away. —A. DEAN, *Bedfont*.

ORCHIDS.

SOME OF THE ORCHIDS OF ASSAM.

THE province of Assam, although not much blessed in the matter of beautiful flowers generally, has at least been liberally treated as regards the diffusion, variety, and loveliness of the Order *Orchidaceæ*, many genera of which grace her forest shades, clothing with blossoms of surpassing elegance and richness of colour unsightly dead trunks in clearances made for the purpose of Tea cultivation. At the head of the list for chaste loveliness and rarity we must place

Vanda cœrulea, a species found in comparative abundance in the Naga and Kasia hills of Assam, though in the latter hills the ravages of collectors have effected a great diminution in the numbers of this beautiful plant. *Vanda cœrulea* naturally is a small Orchid with very stiff, somewhat curved dark green leaves and an upright habit of growth. Each leaf is incised at the apex by an irregular notch containing a little prickly-like extension of the mid-rib. The flowering season is the autumn, and the flowers, which are large in size and of a pale cœrulean hue, are borne upon an upright spike, which usually carries from eight to a dozen or more blossoms. The labellum is of a deeper colour than the other parts of the perianth. This Orchid is a great favourite, and it is capable of being grown without much artificial heat. As it is naturally found in open exposed situations, it should not be deprived of sunlight, which it loves, except during the heat of the day in very hot weather. It will grow well if attached to the trunk of a tree in such a position that the rays of the sun have full access to it and I have grown it thus in the plains of Assam.

V. teres is an extremely beautiful Orchid, and one of the commonest of the species met with in Assam. Its leaves are cylindrical, looking like stems, and its flowers, which are produced in early spring, are borne six or eight together upon upright spikes. The blossoms are large and exceedingly handsome, the labellum forming a cup, orange coloured, streaked and tipped with purple, while the other parts of the perianth are rosy purple and white. This Orchid is found upon living trees, but flourishes best upon dead naked trunks in clearances, and it seems to delight in full uninterrupted exposure to the sun.

V. Roxburghi, so common in Bengal, is found but sparingly in Assam. It is greatly inferior in beauty to the two *Vandas* just described, but it is worthy of a place in every collection. Its flowers are greenish yellow, marked with brown in a sort of marbling, and the labellum is purple. Of the genus *Dendrobium* large numbers of species are found in Assam. One of the commonest and at the same time one of the most showy is

Dendrobium litiiflorum, a species which flowers in early spring, when its masses of pendent stems are clothed with rich purple flowers. The blossoms are large and dark purple in colour, the labellum being white, with a purple edge. This *Dendrobe* is found in the plains and also in the hills of Assam. Specimens from the hills have often short, stiff, thick stems, while those from the plains have thinner, longer, and more flexible ones. When in flower it forms masses of rich purple upon trees and dead trunks, and in this condition it may be seen a long way off. Plants

of it which I brought from Assam have flowered well under shade in Mysore.

D. Pierardi is a very common Orchid, but one unsurpassed as regards the chaste purity of its blossoms. Its stems are long, slender, and flexible, and it is found growing with apparent impartiality upon trees in the forest and upon dead trunks in clearances. Its flowers are extremely delicate, the outer perianth parts being white, suffused with a more or less faint blush of pink, and the labellum pale primrose in colour.

D. densiflorum is a native of the hill country, and is found in abundance in the Kassia hills. The stems of this species are thick, stiff, and erect, somewhat square in shape, and tapering at each end. It flowers in early summer, and throws out large, pendent racemes of golden yellow flowers. It is an exceedingly handsome species, its golden racemes producing a very fine effect. It is a pretty hardy species, and bears a journey well.

D. heterocarpum is found in the Kassia hills. It is a small species, with short bulbous stems, bearing in pairs or threes from each node large, sweetly-scented flowers. Its flowering season is during the cold weather, and its blossoms are yellowish white, the labellum being yellow marked with crimson. The seed-pods of this species are variable in shape, hence its name.

D. transparens is a hill species of the same type as *D. Pierardi*. Its flowers are white, or pale pink, or lavender, with the labellum marked with violet-purple or crimson. It flowers after *D. litui-florum* and *Pierardi*.

D. aggregatum is an extremely dwarf species, a native of the Kassia hills. Its pseudo-bulbs individually are often not more than three-quarters of an inch long; each is terminated by a single leaf. The flower is bright orange, very large in comparison with the size of the plant. The pseudo-bulbs grow close side by side in masses, and the plant when in full bloom is an extremely handsome object.

D. moschatum is a giant species found in the plains as well in the hill country. Its flowers are of large size and scented like Rhubarb. The labellum is bag-shaped, purple inside, and the other parts of the perianth are yellow.

There are many other beautiful, but rarer *Dendrobiums* to be found in this district, notably *D. Farmeri*, *chrysotoxum*, *Devonianum*, &c. Among

Other Orchids, *Aerides virens*, *Aerides roseum*, and *Saccolabium guttatum* merit some description. *Aerides virens* has bright green leaves and peach-coloured, very fragrant flowers, which are borne upon a semi-pendent peduncle. It is an inhabitant both of the hills and of the plains. *A. roseum* has darker foliage than *A. virens*; its flowers, which are bright rose, are borne upon a pendent spike and scentless. *Saccolabium guttatum* is a species with purple and white flowers, thickly crowded together upon a pendent flower-stem. The individual flowers both of the *Aerides* and the *Saccolabiums* are small. There are many species of terrestrial Orchids, some of which are very handsome and many rare.

Packing Orchids for despatch to England is an easy matter, but great care must be taken with regard to their condition at the time of packing and to the season at which they are collected. They should be removed from the trees upon which they are epiphytal during the season of rest, *i.e.*, when they are neither making growth nor flowering. They must be perfectly free from any extraneous moisture which would induce rapid decay. The plants should be packed in layers without any foreign packing substance, in wooden boxes, and be laid so that they cannot shift about and so incur the risk of breakage. The lid should be gently pressed down upon them to ensure stability, but not tightly enough to bruise the plants in the topmost layer. It is best to send Orchids as "cabin freight," as they are less likely to suffer from sea water getting into the boxes or from heat than if placed in the hold. I have shipped many boxes of these plants to England, but in those first sent, from ignorance of the right

method of packing, and from removal at other than the right season, but few survived the journey. In those sent later comparative success was attained. R.

Dendrobium nobile.—Some flower-stems completely wreathed with blooms of this favourite Orchid come from Mr. Field, Stanley Hall, Bridgenorth, showing that the treatment necessary to get this Orchid in bloom so early and so well is thoroughly understood there. *D. nobile* is still one of the finest of the genus to which it belongs, and its flowers are especially welcome at Christmas time.

Phalænopsis Portei.—This lovely Orchid, which was figured in the last volume of *THE GARDEN*, is now in flower in Colonel Deare's collection of Orchids at Englefield Green, Egham. It is rather a small-flowered kind, but the exquisite colour of the blossoms renders it very charming. The sepals and petals are pure white or suffused with a delicate blush white; the lip is of the richest amaranth. It is unfortunately one of the rarest of the genus, and comparatively few collections contain it.

Dendrobium formosum giganteum.—We have at the present time five single spikes of flowers of this plant from two imported pieces, the least number on one spike from the axil of one leaf being three and the most six, all the flowers of the largest size with deep orange throats (Heath's variety) and fragrant. These blooms are on the young bulbs produced since last May. The old bulbs bloomed in July. A couple of flowers lasted in a cut state in the house here about six weeks.—J. SIMPSON, *Wortley Hall*.

Temperature for Phalænopsids.—Mr. Jas. O'Brien says (p. 502) that these may be grown well in a minimum temperature of 50° or less "under certain circumstances." May I ask whether there is any special treatment in summer whereby they are inured to this? I have grown them in a house where the temperature falls below 60° occasionally in winter, and they do not succeed, although it is only sometimes that the temperature falls so low. I fancy Mr. O'Brien's remarks may mislead, as he says *Phalænopsids* do well in the temperature indicated for *Vandas*, and that was from 40° to 45° with a frosty air blowing on them.—J. D.

Orchids at Stamford Hill.—There are just now a few remarkably beautiful Orchids in flower in Mr. Bockett's collection. In the cool house, a lean-to structure, 100 feet long, are about a score of spikes of *Odontoglossum Alexandræ* (*crispum*) and three or four of *O. Pescatorei*. One remarkably fine form of *O. crispum* had a dozen flowers on a spike, the lateral sepals being white, the top and bottom petals flushed with pink and marked with very large spots. Another form was deep yellow instead of the useful white or blush, and was also densely spotted. In the *Cattleya* house *Lælia autumnalis* was finely in flower, and there was also a neat little plant with one flower on it of *Cattleya dolosa*, the type recently introduced by Messrs. Low, of Clapton. It is very pretty. In the warmest house *Cypripedium Spicerianum* is producing larger and more delicately tinted flowers than the original plants sent home to Mr. Spicer, of Woodford, proving it to be one of the best of recent introductions. In the same house *Saccolabium giganteum* is in flower, an Orchid not quite so highly valued as it ought to be, as its dense spikes of sweetly-scented flowers are always produced at the dull season of the year. *Angræcum sesquipedale* had seven flowers on two spikes. It is an Orchid easy enough to grow and flower if kept free from thrips and receives a high temperature.—J. DOUGLAS.

Cypripedium insigne.—A flower-spike of this Lady's Slipper, bearing twin flowers, has been sent to us from Mr. Tate's garden at Roseleigh, Woolton, Liverpool. He says he has six twin flower-spikes on three plants.

Cypripedium insigne two flowered (R.).—The occurrence is not uncommon. We have seen frequent examples of it this season.

Geodorum Dupreanum.—This was exhibited at a meeting of the French National Horticultural Society by M. Regnier, nurseryman, Fontenay-sous-Bois. It is a native of Cochinchina and of Cambodia, growing in moist woods. It has been cultivated in the Botanical Garden at Saigon since 1866. Although the specimen exhibited was a weak one, it is described as being very attractive, and it would probably prove a welcome addition to our list of terrestrial Orchids. The flower, which is white, has a reddish lip somewhat resembling that of its congener, *candidum*, from which it is however distinguished by the number of flowers composing the spike as well as by the colour and form of the lip.—J. C. R.

NOTES OF THE WEEK.

NEWS FROM CHAMPAGNE states that a new enemy to the Vine has made its appearance in the shape of a minute fungus, a kind of *Peronospora*, the dangers of which are said to be far more serious than those of the *Phylloxera*.

ALEXANDRA PALACE ESTATE.—It is stated that there is at present a probability of the Alexandra Palace, which has cost so much money in its erection, being taken down to clear the site for building upon. Under their present Act of Parliament the Financial Association, as owners of the Alexandra Park and Palace estate, are under an obligation to keep up the palace and grounds as a place of public entertainment. Amongst the private Bills to be submitted to Parliament next session, one is promoted by the Financial Association, in which they give notice of their intention of applying for the repeal of so much of the existing Act as prevents them from laying out the palace and grounds for building purposes.

HIMALAYAN PRIMULAS.—The last journal of the Linnean Society contains a paper on some undescribed and imperfectly known Indian species of *Primula* and *Androsace*, by Mr. George Watt, of the Bengal Educational Service, Calcutta. There are 24 species of *Primula* described and six of *Androsace*. The descriptions are copious and lucid, and are accompanied by a series of lithographic plates, which show well the relative value of the plants from a garden point of view. Some are small and inconspicuous, while others are large and showy, and well merit introduction to cultivation. Among these are *P. Gambeliana*, *P. pulchra*, *P. obtusifolia* var. *Griffithii*, *P. elongata*, *P. Kingi*, *P. Dickiana*, *P. Stuarti* vars. *purpurea* and *Moorecroftiana*, *P. uniflora*, *P. Elwesiana*, and *P. Wattii*. The *Androsaces* do not appear to be attractive species.

ROYAL HORTICULTURAL SOCIETY.—The following changes in the composition of the committees (each numbering thirty members) for the ensuing year are announced. In the fruit committee the retiring members are Messrs. Cox, Dancer, Miles, Nutting, A. Paul, and Wildsmith. The new members are Messrs. S. Ford, Goldsmith, Howcroft, W. Paul, Rutland, J. Roberts, and A. Sutton. The retiring members of the floral committee are Dr. Masters (vice-chairman), Messrs. Baines, Bethell, Lathbury, Little, Parker, and Smith. The new members are Messrs. Hibberd (vice-chairman), Bealby, Ballantine, Dominy, Ebbage, W. Lee, and Ridley. In the scientific committee the changes are Messrs. Bauer, Cooke, Glaisher, and Murray, who will succeed Messrs. Anderson-Henry, Baker, Blackmore, and Carruthers. Dr. Masters retires from the vice-chair, and is succeeded by the Rev. M. J. Berkeley.

GLASGOW ROYAL BOTANIC INSTITUTION.—At the annual meeting of this institution held the other day in the Accountants' Hall, the secretary read the sixty-fifth annual report of the directors, which stated that the revenue from annual subscriptions, £1353 18s. 6d., shows this year a decrease of £33 2s. 6d., although the number of subscribers has increased. This diminution, then, is no indication of a waning interest in the garden on the part of subscribers, but is entirely due to

an alteration that has been made in the date of issue of tickets to subscribers, the directors having resolved that in future all tickets, at whatever period of the year issued, shall be valid until 31st March next following, and shall be dated accordingly. The directors take this opportunity of making an urgent appeal to the public for more support. The increase of £136 3s. over last year in receipts from ordinary admissions is evidence of an extending interest in the garden amongst the general public, and the directors trust this may continue to spread. The winter garden has proved one of the greatest attractions of the garden during the past year. Now that the new range of houses is in a condition far enough advanced to admit of the reception of plants, Palms and other unsuitable plants have been removed from the winter garden, and the building will now be devoted entirely to the purposes of a temperate plant house, for which it was reconstructed. In the outdoor collections many alterations have been necessitated by the building operations; but the most important work completed during the past year has been the rearrangement of the herbaceous ground for study. A most instructive addition has been made to the collections in the garden, in the formation of a tank for water and marsh plants.

HIGH GROVE, PINNER.—The *Building News* of the 8th inst. gives an illustration of Lady Hume Campbell's handsome new house lately erected on the site of the old one, some time ago burnt down. It is built entirely of red brick, with cut brick quoins and dressings, and is roofed with red Broseley tiles. The illustration, taken from that exhibited in the Royal Academy, shows the garden fronts of the dining-room and drawing-room. The main approach is on the other side. A fine avenue of Elm trees leads up to the garden entrance, and stretched out in front of the principal windows is a charming lawn, over-canopied here and there with high trees, the shade of which in summer is delightful. Amongst them are some grand specimens of Elm and Scotch Fir.

CHRISTMAS EVERGREENS.—Covent Garden Market is again filled to overflowing with hardy evergreens for Christmas decorations. Fully a fortnight ago large consignments of Mistletoe began to arrive in crates, chiefly from France, and from these large supplies were sent to the northern and other large towns. Holly, of course, chiefly predominates, and many a fine tree has, doubtless, been sacrificed to supply the fine boughs now in the market. We even noticed the other day some huge trees of the yellow-berried variety covered with berries. Another evergreen consisted of the common Laurel, which can well be spared by the wagonload from many a garden. As an instance of the wanton destruction of tree growth carried on this season for house decorations, we may mention a shop in the Tottenham Court Road, where the other day we saw some huge limbs of Cedar of Lebanon, not, we fear, the result of a gale. The common Spruce for Christmas trees is sent to market by the thousand. In most cases they are sturdy, well-rooted young plants, ranging from 3 feet to upwards of 10 feet high.

Hiram Sibley, the great seedsman.—The head of the seed house of H. Sibley & Co., and which is the successor of the former house of Briggs Brothers, is one of the representative men of whom America may well be proud. Sibley came from North Adams to Western New York when he was but sixteen years of age. He went sawing wood as he travelled, and doing anything that would make a honest living. At twenty-one he was making carding machines. About this time he was what some boys would call "lucky," that is to say, someone let him have what money he needed to start the machine business. But the "luck" only came because the lender saw the boy's "word was his bond," and that his head and his hands were equal to his word. It is the "luck" any boy may have. There are hundreds of people with money

who are only too glad to help young men along when it is evident they are helping themselves at the same time. From that time to this—now in his seventy-sixth year—his course has been successful. The money he has given away to good purposes may perhaps be counted by millions; of which nearly a quarter of a million went to two institutions alone, namely, the Universities of Rochester and Cornell.—*Gardeners' Monthly*.

FERNS.

ADIANTUMS.

(Continued from p. 530.)

A. Capillus-veneris.—Although this favourite species is generally termed British, from the fact of its being found in Cornwall, Devonshire, South Wales, Ireland, and on the banks of the Carron, in Scotland, and also from its being the only indigenous representative of the genus, it is really a cosmopolitan plant, inasmuch that it is very common in all parts of the south of Europe, in the south of France, Italy, Spain, and Madeira, where it is found in profusion adorning the brooks and rivulets with its elegant fronds, often attaining the height of 18 inches. It is a very accommodating plant as regards heat, and not at all fastidious in its habits, for it will do equally well in a frame, a greenhouse, or in the moist, shady part of a stove. In the latter it thrives marvelously, and produces fronds quite as long as those of the specimens from the south of Europe, with which it is precisely identical, and if it once takes fair hold of a damp wall it forms a most beautiful and interesting covering of gorgeous dark green foliage all the year round. On account of its numerous black scaly rhizomes it makes a splendid object as a pot plant, and in that capacity will stand and flourish in the same pot for many years undisturbed. In that case it should be potted in a mixture of lime rubbish, sandy peat and pebbles in equal parts, and have a thorough good drainage. The following distinct varieties which this species has produced will do very well under similar treatment as regards both temperature and compost.

A. C.-v. crispulum.—A very handsome form of robust and vigorous habit; the fronds, which grow to about 12 inches long, are produced from a creeping, scaly black rhizome, remaining on the surface of the ground; the pinnules are broad and crisp, and of a very rich bright green colour.

A. C.-v. cornubiense.—A very fine variety found in Cornwall. The fronds, which are produced in great numbers, are dense and compact; the pinnules, which are prettily undulated at the edges, are broad and dark green. It is a distinct and very effective variety.

A. C.-v. daphnites.—This is a most distinct and handsome form; the extremity of the fronds and pinnæ are curiously crisped and dilated, giving the plant a semi-cristate and singular appearance. The fronds, bearing a flattened crest of some 2 inches in width, are of a dull green colour, and attain a height of about 14 inches.

A. C.-v. fissum.—A very elegant form, in which the pinnules are split into segments of various sizes and forms. It is a most pleasing addition to our list of Adiantums for conservatory and greenhouse culture, as it possesses entirely the neat and dwarf habit of the species, but the pinnules are of a brighter colour, which is also retained for a longer period.

A. C.-v. magnificum.—In this fine and massive form the fronds often attain 15 inches in height, and are of upwards of 4 inches broad; they are also beautifully arched. The pinnæ are much larger than in the species, and of a soft, rich, green colour. Their edges are prettily fringed and overlap each other.

A. C.-v. Moritzianum.—The most gigantic form, I believe, of the *A. Capillus-veneris*. The fronds are not produced in such numbers as in the species or in some of the varieties above described,

but they attain a length of 2 feet or even more. They are bi or tri-pinnate. The pinnæ and pinnules, which are set rather apart, are of a bright green colour, fan-shaped and cuneate at the base, giving the plant a most elegant habit. This variety comes from Madeira.

A. cardiochlaena (A. polyphyllum).—This noble-growing Fern, from Caraccas, is well adapted for planting in the fernery or for exhibition, as it certainly is one of the finest of its tribe. The fronds, which often attain the height of 5 feet, are three or more times divided, and of a bright green colour. They are produced from a very thick, stout rhizome creeping underground, and last a long time when cut and put in water. Stove.

A. caudatum.—A distinct and handsome species from the East Indies, where it is found in great quantities. It is an evergreen plant, well adapted for baskets, as the fronds are pinnate, about 15 inches long and proliferous at their extremity; they are hairy and of a dull greyish green colour. In a hanging basket this plant makes a charming object, as it is not unusual to see from the same specimen three generations of plants hanging down 3 feet long or more. Stove.

A. ciliatum (A. Edgeworthi).—This species also from the East Indies, although possessing some resemblance to the one just described, is quite distinct from it. Its fronds, more slender, are double the size in length and width of those of *A. caudatum*; they are also produced in greater numbers with the pinnæ boldly cut or fringed; their colour is also different, being of a bright, soft, pea green. Stove.

A. chilense.—This pretty and comparatively new species is still very scarce. Its lovely fronds are triangular in shape and of a glaucous green; they are wonderfully hard, being of a leathery texture. It is a very neat and compact growing species. Greenhouse.

A. colpodes.—This elegant species, from Tropical America, is well adapted for suspending in baskets. The fronds, which are produced profusely from a crown, grow to about 2 feet in length, and are of a very rich green when matured, but when in a young state they are of a very delicate pink colour. Stove.

A. concinnum.—This well-known charming evergreen stove Fern is well worthy of a place in every collection. Its fronds, produced from a crown, often reach 2 feet in length; they are tri-pinnate and of a very light green; their stalks are very black. The pendulous habit of this plant makes it a beautiful object when used as a basket plant and suspended from the roof. Although a species from the West Indies, it does remarkably well in an ordinary stove.

A. concinnum Flemingi.—A very grand variety of the above species of garden origin. It has the same graceful habit, and the fronds are of the same light green colour, but they are produced in greater quantity and are much more dense. It is certainly an improvement on the species. Stove.

A. concinnum lætum.—This is a fine robust growing species from the East Indies, much more erect and stiffer in habit than the two above described forms; besides it is broader in all its parts, the pinnules being twice the size of the others and set much farther apart. It is a most valuable and distinct Adiantum. Stove.

A. cristatum.—A very fine Fern from the West Indies, of a dark green colour, and of stiff or rather rigid growth. The fronds, which are tri-pinnate, are somewhat triangular in shape and produced from a thick underground rhizome. Stove.

A. cultratum.—This is a grand evergreen species from Brazil, and belongs to a group of gigantic growing Adiantums, all remarkable by the lasting quality of their fronds, which are coriaceous in most cases. In this instance they are produced from a short, thick underground rhizome, and grow about 2 feet in height; they are broad, tripinnate, and of a dark green colour. Planted in the rockery, this makes a noble ornament if sufficient space is allowed it. PELLÆA.

ON THE CONSTRUCTION OF FERNERIES.

ALTHOUGH almost any glazed structure will do for Ferns, and in almost any situation, they will be found to do best in a house entirely devoted to them, and to such plants as will do in a moist temperature. Ferneries have been greatly improved of late; formerly the so-called ferneries were a mere barren rock of masonry. There are now several different materials used in constructing the rockeries, such as tufa, sandstone, and common stone, also virgin cork, while some use the roots of trees, but I do not think that an advisable material, as it encourages the growth of fungi and soon rots. But in building rockwork for any plants, either in or out of doors, care should be taken not to allow one stone to overhang any of the recesses or crevices; when this occurs the plants beneath seldom get any water, and are either killed or brought into an unhealthy condition; it should also be borne in mind to put plenty of earth between the various stones and to make the whole firm and solid. The best situation for a fernery is a south-west aspect, and either a lean-to or span roof; if intended for Tree Ferns, as well as others, I should certainly prefer a span roof. No glass is required for the sides, which can be made into rockwork, and have cases fitted up for the growth of Filmy Ferns; form the walks, and rockwork as winding and undulated as convenient and make pockets and crevices where Ferns may be planted with advantage. Some have water laid on for watering those that are planted out through a perforated pipe, but it is a bad plan, as they are all watered whether requiring it or not, and many are killed in that way. For growing plants in pots, stages or slabs should be erected to place them on. There should be if possible a tank with a fountain, as there are many Ferns which do well near water, and it adds to the beauty of the structure; baskets may be suspended from the roof, while the pillars, if any, may be clothed with the climbing species, and upright walls may be clothed with advantage by fastening wire netting to the wall, and filling the space between with Moss and peaty soil. Ferns thus planted will soon establish themselves and form a grand feature. In the tank may be grown many aquatics that would do well and add to the interest of the fernery; the quantity of pipes the house requires depends on the size and height of the house. There are to be seen in different parts of the country ferneries which appear to be the acme of perfection, having been erected by leading horticultural builders, London or provincial. When a large structure is in contemplation it is always worth while to consult some good firm of hot-house builders and to rely on their experience.

E. SANDFORD.

THE WEATHER AND ITS EFFECTS.

A WEEK ago the thermometer here stood at 50° Fahr., and for almost two months persistently there was a constant unvarying rainfall. We had a smart frost on the 8th and 9th inst., followed by a very heavy fall of snow. Another week has elapsed, and the cold has become more intense without any apparent sign of change, 14° of frost or 18° Fahr. being registered last night. This has its dark and bright side, like almost everything else in this world. Let me note some of the probable effects *pro* and *con* as they strike me, taking the former first. Potatoes must be very securely covered and very carefully housed that 14° of frost will not reach them. In this consideration one paramount fact tells for much when the probable effect of frost comes to be estimated—the pre-existing moisture that the frost can lay hold of. Unfortunately everything was saturated. The clay in which Potatoes and other farm and garden crops are too often stored must now be a mass of ice about 6 inches thick. I have fortunately our stock of seed and eating Potatoes in a secure house, but I may say that is not the custom here; and too many houses, especially open sheds, except well covered with fine hay, will be no protection against such a temperature. Whatever crops such frost catches, perhaps excepting Parsnips,

Savoy Cabbage, and in a less degree "Ragged Jack" will have the cellular tissue ruptured, and when thaw comes, decomposition sooner or later ensues. I have "laid" Autumn Giant Cauliflower, Snow's Broccoli, and Carter's Sprouting Broccoli, but expect the former to be much injured, though covered by 8 inches of snow, which is an excellent protective mantle. There are, however, two reasons for the probable injury: (1) They were surfeited with moisture and growing, owing to the afore-mentioned mildness, until the frost came, and (2) we had 9° of frost before any snow. I hope for the sake of our gardening friends I may be mistaken, but I am afraid not. This state of things will tell severely against many plants left out in the flower grounds also. Pentstemons, Antirrhinums, blue Salvias, choice Carnations and Picotees, Gold-laced Polyanthus, the Cardinal Lobelia, and many other things often housed did best outside with me last winter. I am afraid I cannot say so after this. Bays, Veronicas, Euonymuses, Hydrangeas, Arbutus, Escallonias, Pernettyas, Myrtles, &c., if any such survived after two years since, for the above reasons seem to run an almost hopeless risk. I had just finished planting such dwarf Tea Roses as Catherine Mermet, Souvenir d'un Ami, Céline Forestier, old Gloire de Dijon, &c., and as the sap was not in active circulation, I expect less injury than to those in active growth. Is not the expectation reasonable? Niphetos I left in the pots in a cold frame, so it is partially protected. So much for the dark side in the kitchen and flower garden—what of the bright? Gardeners will forgive much if a complete or partial decimation is made of slugs, snails, and other destroyers, while the pulverisation from frost is another compensating agency we had not last year.

Clonmel.

W. J. M.

LAW.

Harwood v. the London Cemetery Company.—This was an action tried before Mr. Justice Kay to recover compensation in damages for the subsidence and fall of a portion of a wall skirting the plaintiff's garden, adjoining the cemetery of the defendant company at Highgate, by reason, as alleged, of the escape of a large quantity of water through a fissure or broken drain pipe upon the defendant's ground, and which had remained unrepaired for several months previous to the accident. It appeared that the injury was done in the winter of 1880, which was an exceptionally severe one. The defendant company contended that the cause of the fall of the wall was not that which was alleged; but the fracture was to be attributed to a natural settlement of the earth which had occurred previously, and to the forcing of the wind during a severe storm. The hearing of the case extended over several days. His lordship pronounced judgment, giving it as his opinion that the artificial drainage of the defendant company gathered together a large quantity of water, which finding its way through the broken drain pipe had saturated the made earth in the locality to such an extent as to weaken the foundation of the wall, and to bring it ultimately down. That he considered to be the act of the defendant company, for which they were as much responsible as if they had wilfully pushed down the wall. They had neglected to repair the fractured pipe in time, and they must now be held accountable for the consequences. The action was a proper one, and the defendant company must pay the amount of the damage, which he estimated at £150, together with the costs of the present proceedings.

Hardiness of Gloire de Dijon Rose.

It seems to me, from a pretty wide experience, that Mr. Fish's admiration of this Rose has made him speak too sanguinely as to the temperature it will sustain, and afterwards expand its blooms again. He writes, *vide* p. 521, "a genial change, after a frost of ten or more degrees, has only to invite them to open on the morrow, and forthwith they expand as if nothing particular had hap-

pened." The maximum cold here for the past ten days did not exceed 12° Fahr. I am visiting one of our best Rose gardens, and certainly on no stock nor in any position out-doors will this splendid Rose bloom again this winter. The few I have of it are on the seedling Brier, and their own roots in an open south aspect, and though I hope uninjured, their present flowering is past. That it is the hardiest of Tea Roses, I fully agree with Mr. Fish. To-day is comparatively warm and genial, 50° Fahr. out-doors.—W. J. M., Clonmel.

OBITUARY.

MR. HENRY WINTHROP SARGENT, whose death at his country seat of Wodenethe, on the Hudson, is announced, was perhaps the only American who has exclusively, and without other occupations, devoted by far the best part of his life to the enjoyment and study of the art of living in the country, and to the practice of horticulture. Such lives are not uncommon in England; they are rare amid the struggles of our newer civilisation. Chance took him to the neighbourhood of Newbury, the home of Downing. A similarity of tastes made the two men intimate, and Mr. Sargent received from his friend his earliest lessons in landscape gardening, of which Downing was a master, and his first knowledge of trees. He was an apt scholar; Wodenethe under his hand became one of the most beautiful and instructive gardens of the English school; and its master, during a full quarter of a century, the most widely known and famous of American gardeners. Wodenethe was not a great place, and its master wisely resisted that insatiate greed for land which has destroyed so many estates, and was content to look on without owning one of the fairest views on the Hudson to be seen. Mr. Sargent published with copious notes two editions of Downing's classical treatise on landscape gardening, and a useful guide to the finest country seats and gardens of Great Britain; but his writings are not a criterion of his reputation or his influence, to which may be directly traced the best inspirations of modern American gardening. Mr. Sargent was particularly interested in the introduction and cultivation of exotic trees, and his experiments and studies in this direction have been of great and lasting value to the country. Wodenethe has been the grave of thousands of trees, but they have not died in vain, and much of our knowledge of the power of the trees of other parts of the world to adapt themselves to our climate is due to Mr. Sargent's enterprise and zeal. No disappointments discouraged his enthusiasm or checked the energy that has made his garden a Mecca to the student of the art of gardening or the lover of trees.—*Boston Advertiser*.

The death of Mr. EDWARD J. HOOPER, in San Francisco, the first week of September, is recorded in the Californian papers. He was the author of the "Western Fruit Book," and a well-known newspaper writer on rural topics. He was an Englishman, but settled early in the West, removing to California in 1870. He was eighty years old when he died, and had the satisfaction of having spent a very useful life.

Names of plants.—T. W.—Vanda tricolor, Epidendrum ciliare (large white), E. erectum (pink).—*Sub.*—Please send larger and better specimens of the Ferns. If with spores, so much the better.—T.—Helleborus niger atitifolius.—R. (Devon).—We do not undertake to name florists' flowers.—M. H.—1, Phalenopsis amabilis (fine variety); 2, Caladium is apparently bicolor.—D. Thomas.—1, Dendrobium heterocarpum; 2, D. Wardianum; 3, D. japonicum.—T.—Pilea muscosa.—R. S. D.—1, Adiantum assimile; 2, A. setulosum; 3, A. polyphyllum; 4, A. hispidulum.

COMMUNICATIONS RECEIVED.

J. B. G.—R. C. M.—J. B.—T. B. B.—T. S. W.—Mrs. P.—S. D.—J. D.—J. C. C.—J. D.—T. B.—W. C.—A. W.—S. D.—W. W.—J. C.—B. C.—J. S.—Delta.—W. J. M.—R. A.—H. G.—J. A.—A. D.—B. & Son.—A. M.—D. T. F.—M. R.—J. S.—J. G.—L. J. H.—W. C.—J. G.—R. H.—S. G.—D.—W. S. L.—W. H.—J. C. & Co.—T. W.—T. S. W.—J. M.—K. & Co.—W. C.—A. G. B.—W. C.—S. D.—S. & Sons.—W. T.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

NOTES FROM WORTLEY.

BETWEEN Sheffield and Penistone, on the Manchester line, the traveller passes through some of the most picturesque scenery in Yorkshire, a pleasant contrast to the uninviting character of Sheffield itself. A few miles from Sheffield lie the Wharcliffe estates and Wharcliffe Wood, a vast tract of woodland some five miles in length. This fine stretch of woodland, chiefly Oak, occupies a rather steep hillside, running out at the top in a rugged and precipitous ledge of rocks some miles in length, and from which, at the time of its upheaval apparently, thousands of huge blocks have rolled down into the valley below, where they now lie rent and riven, covered with Ferns and Bilberry, Mosses and Lichens. A historical sketch of the district ranks "Wharcliffe Craggs," the scene, by the way, of the "Dragon of Wantley," among the remarkable places, and says: "There is scarcely any spot the traveller can light upon which affords a more magnificent prospect than that beheld from the heights of Wharcliffe. The grandeur and extent of the view are almost unrivalled." The whole of this wood, as well as the extensive deer parks, are, by the kindness of the Earl of Wharcliffe, free to the public three days in the week; and, lying on the outskirts of a thickly populated district, it is visited by thousands during the summer. The ancient "lodge" of the Wortleys, perched, like an eagle's nest, on the very edge of the precipice, still stands, and is in the care of the deerkeeper, one tapestried and wainscotted room being reserved for shooting parties and visitors from Wortley Hall, situated a couple of miles to the east of Wharcliffe. This mansion, a handsome modern structure, is built with a soft, creamy grey stone, which harmonises well with the surrounding foliage, but, being placed on the side of a high ridge of ground with a considerable elevation behind it, its effect is somewhat impaired. It stands on the verge of and overlooks a finely-wooded park, besides an extensive range of country beyond, beautifully diversified by hill, dale, and wood, particularly to the south and south-east. The pleasure grounds immediately surrounding the house are extensive, and contain some remarkable examples of deciduous trees. The paucity of coniferous growth, however, is conspicuous. This is owing rather to the nature of the climate and high and bleak aspect than to want of appreciation, for, notwithstanding that Sheffield is some eight or nine miles distant, the clouds of smoke which its myriads of factory chimneys and coal pits belch forth reach as far as Wortley, to the great detriment to vegetation in general, and to coniferous trees in particular. Among the finer examples of deciduous trees there are some veteran False Acacias, whose gnarled boles and deeply corrugated bark are draped with a luxuriant growth of Ivy, the greenery of which is very refreshing in winter. Notwithstanding the prevalent idea that Ivy is injurious to trees, it is encouraged here, and the health of the trees does not seem to suffer in consequence. In front of the principal façade of the mansion is a rectangular flower garden quite on the level, and laid out in geometrical beds on Grass. The beautiful stretch of rising lawn beyond is supported by a terrace, which, as well as the flower garden, is bedecked with what to me seemed to be a redundant array of terra cotta vases, a defect which unhappily accompanies the majority of geometrical gardens, though a few would be desirable. I was much interested by the way in which the beds were planted, particularly those forming the central points in the design. Instead of being planted with the ordinary run of bedding plants, these were filled with tall growing her-

baceous perennials of the showier type intermixed with fine foliaged plants and single Dahlias, an intermixture made, I believe, by way of experiment, but one which might well be carried out more extensively. Some contend that a flower garden laid out in geometrical pattern should only be planted with dwarf plants, so as to preserve the outline of the design. This to some extent is admissible, but any attempt to relieve the monotonous flatness usually seen in geometrical gardens is commendable. The plants most suitable for this kind of gardening should be such as continue long in flower and are neat in growth and attractive, all coarse or weedy plants being rigorously excluded. Wortley has figured prominently in the history of gardening. Here it was that Harrison, who wrote a "Treatise on Fruit Trees," and edited the *Floral Magazine*, was for many years gardener, and here also (according to "Loudon's Magazine") the Wortley Hall Seedling Grape originated. The garden has been conducted by many good gardeners, and some of the ablest practitioners of the present day have added to their experience here. Mr. Simpson, the present gardener, like his predecessor, Harrison, has largely contributed to our garden literature, and that even in a more influential way. His treatise on the "Improved Pruning and Training of Fruit Trees" shows that he is not a blind follower of "rule of thumb" practice, but one who aims at lifting gardening above the empirical condition in which it has so long been held. Both theory and practice have been subjected to strict scrutiny at Wortley, the result of which cannot fail in course of time to throw light upon many obscure or hitherto ill-understood operations.

But these and other matters must be left to some future chapter, as they cannot be done justice to in a few hurried notes like these. The crops were nearly over indoors, except in the long house of late Grapes, coloured and finished on the "cool" system to perfection. Here Mr. Simpson has his long unpruned Vines—one which grew 60 feet in two years, and has been fruited every year since. To accommodate the long rod it is led first to the top of the rafter, then along the top of the house to the right and left some distance, and down again to the front. It furnishes three rafters a considerable horizontal space, and is evenly furnished from end to end.

Pruning of Orchid bulbs is a subject to which Mr. Simpson has devoted some attention, in order to ascertain whether the practice is beneficial or not. Generally speaking, no one thinks of cutting away leafless pseudo-bulbs simply because no one has raised the question as to whether such a practice is injurious or otherwise. Mr. Simpson contends that the pseudo-bulbs of such Orchids as *Cattleyas*, *Lælias*, *Dendrobiums*, for example, that are leafless, are of no use whatever to the plant; on the contrary, they are as much an encumbrance as a paralysed limb would be to an animal. The theory is that the juices of the plant, which go to keep the leafless bulbs in a plump condition, would, if the nude bulbs were removed, be diverted to the leaf-bearing bulbs, and thereby materially assist their development. This, no doubt, is the correct physiological reasoning as regards the matter, and in order to prove the theory, Mr. Simpson has carried on numerous experiments in his Orchid collection, amongst the results of which I need only cite a few of the most remarkable in order to show that the practice is tenable. Among *Dendrobiums* subjected to such experiments are several plants each of *D. Wardianum*, *Bensoniæ*, noble, *chrysotoxum*, and *formosum*. The leafless bulbs of these have been cut entirely away after they had flowered in spring in the same way as a *Phlox* is cut over in autumn. Some plants of *D. Wardianum* had every bulb cut away even before the new growths had commenced to push, and on these plants I measured the growths in September that had been produced since the spring. One bulb was 3 feet 10½ inches long, and another just 4 feet and as thick as a man's thumb. I was not a little astonished to see such growths, which are much beyond the average length. The plants carrying

these fine bulbs had three and four each respectively, all about equal in length, and the strong plant of *D. Wardianum* eight stems. Such results seem conclusive that the plan of pruning away old bulbs is beneficial; at least, if not actually so, it does not impair the health of the plant, and adds something to its appearance, for there are few uglier plants when out of flower than *Dendrobiums* with their long naked shoots. The other *Dendrobiums* which had been pruned were equally remarkable for their unusually fine plump bulbs, particularly those of *D. primulinum*, *Bensoniæ*, and *chrysotoxum*. The plants of *Lælia*, *Odontoglossum*, and other genera that had been proved were alike remarkable for the large size, plumpness, and solidity of their bulbs, though in the case of these the results are not so patent, except that their appearance is much improved by the removal of their ugly naked bulbs. I noticed particularly some plants of *Cologyne cristata* which had been subjected to the pruning and thinning process. Instead of the bulbs being piled one above the other and often shrivelled, as is generally seen in large plants, the bulbs were pretty much on a level, and each had room to swell and develop its long raceme of blossoms without crowding. I was much interested in this collection of Orchids, which numbers some five or six hundred plants, including some fine specimens. Every plant appears to be in sound health, yet there does not seem to be much fuss made about them as regards placing certain sections in different temperatures, but all, with the exception of the cool house kinds, are grown in an ordinary stove. The chief points Mr. Simpson keeps in view are cleanliness, sweet soil, without which there can be no healthy roots, and ample moisture during the growing season.

Lapagerias.—A span-roofed house, 25 feet long, has lately been devoted to these, the white variety principally. The roof is covered with flowering shoots, and the bed of peaty compost below bristles with the half-buried leaves of the largest shoots, from which strong suckers, resembling young *Asparagus*, spring up in great numbers. This seems an easy and rapid way of growing and increasing this plant.

Hardy plants.—By Lady Wharcliffe's desire, at least one half of the "bedding out" has been abolished at Wortley. Two broad borders, each 300 feet long, the greater portion of them formerly planted every year with bedding plants, are now filled with the best hardy plants alone, and some thousands more have been put out on the Grass and in the shrubberies where there were none before. At the time of our visit another bedded-out small garden near the house was in course of being obliterated and planted informally with hardy plants (that bloom in spring and in autumn only) on Miss Jekyll's plan, the object being to have a display before and after the London season, when the Earl and Countess are at home. W. GOLDRING.

Sudden appearance of certain plants.

—Whilst perusing an old volume of "Science Gossip" I was glad to find the following paragraphs which, to some extent, are in accordance with my own observations regarding the sudden appearance of certain plants: "On this curious occasional circumstance I wish to note that about seven years ago, visiting a Kentish wood, about a mile from Greenhithe, in a space which had just been cleared of the underwood, I found an abundant growth of *Digitalis purpurea*, though it had not been visible there when I had been at the same place a year or two before. This year, examining the spot, I find no trace of the plant, which has seemingly died off as rapidly as it sprang up." In the report of the "Botanical Locality Record Club" the following regarding *Cypripedium Calceolus* is also given: "In 1873 this rare plant was discovered by the clergyman of the parish in some plenty in one of the many rocky, well-wooded, magnesian limestone denes of Durham. I myself saw it in 1872; trees and underwood were being extensively cut down, and this fact furnishes the reason of its sudden appearance. Like *Epipactis*,

it seems to be dormant in shade, and only springs up when the sun gets to the ground, and I feel satisfied that it is really native." A rather thick plantation along the London and Great Western Railway here was thinned a few years ago, and during last summer I was surprised to find, in quantity, the Butterfly Orchis (*Habenaria bifolia*). Having had occasion to pass through the same wood almost weekly, previous to being thinned, I never noticed even a single specimen of this Orchis, and, being an ardent admirer of our native Orchids, I feel certain that had even a few plants been present they could not have escaped my notice.—A. D. WEBSTER, *Llandegai, Bangor.*

COLOUR IN THE GARDEN.

It is not "in consonance with the traditions of our country" that I should desert my convictions, more especially when the instances quoted in opposition to the inferences to be drawn from my statements go to support them, and prove that they are founded on truth. In attacking the Chevreul theory, "J. D." has set up a "bogey," and then carefully examined him for his vulnerable points, and finding one (which we may designate the "Pears' soap optical illusion") has brought his whole strength to bear, with a view of upsetting the said bogey. Neither M. Chevreul nor his theory has been named nor hinted at in my articles on this subject, nor was he thought of when they were written. I gave a few easy arrangements of harmony in colour based upon laws which were in existence and were practised even the letters of M. Chevreul's name were invented, and which will be in operation when the letters of the English language have dissolved out of all form. I quoted instances in my last to show that the very cases used to upset the Chevreul bogey supported the complementary code I am advocating, and I now proceed to quote to the same effect from "J. D.'s" last article. He says, "In all colour combinations in which many bright colours are introduced, one colour should rule and the others be subordinate. If red rules, for instance, blue, yellow, green, and purple should be introduced in much smaller proportions as foils to the red." Why, certainly! So, if yellow rules, blue and red must be introduced, and if blue, then red and yellow; but the complementary colours must be present, if not as pure colour, still present in a secondary or tertiary combination. He says also, "A great mass of primrose, yellow, and orange have a beautiful effect if mixed with white, and some heavy crimson and maroon near, shading into purple and blue." Here is the complementary code introduced again. Further on we find "faint pink and lilac shading into white contrast well with all yellow shades if plenty of white is used." The use of white, I may remark, was strongly urged in my first article. Now, if you analyse any of these compositions, they will be found to combine the three primaries. In a recent work on colour the author says, "I submit that the new theory of colour owes its existence to the misunderstanding or misapplication of the word complementary." So I think it is in this case. I must apologise for making so many verbatim quotations, my excuse being that I wish to show plainly how the new rules only support the old ones. We may blend by intermediate tones of neutrals for quiet harmonies; may produce contrasts by sudden changes from one colour to another; may make combinations of any single colour in its various shades, just as a number of various instruments may produce one note in perfect tune; but if we wish to produce harmony other chording tones must be brought in. I never argued the use of equal proportions, but only insisted upon the presence of red, blue, and yellow, as stated in my first article, in varied proportions or combinations. I trust that the amateur, in whose cause I again say I am writing, may not get so confused as to be unable to draw practical good from the correspondence. I hope we may not ramificate into the causes of colours in flowers by the presence or otherwise of pigments in the cells of the floral envelopes. I am averse to

making the question one of a vexed scientific nature, just as I am averse to the despised colour printer being branded as beneath contempt in his posters (since we have A. R. A.'s lending their aid to give artistic beauty to our advertisements on the walls), for when I compare his productions with those of thirty years ago, I find them indeed works of art, if only by comparison. On p. 544 we are told that "white is not a mixture of colours," yet the spectrum shows to the contrary. It also shows that a mixture of colours produces white. We are further informed that "red and yellow do not form orange;" yet a hundred yards or so from your office the other day, on an "execrable" street poster, I noticed yellow lines crossed by red ones in a diagonal direction, and producing various shades of orange by the varied thickness of the red lines. We are now dealing with the arrangements of pigments before the eye in such fashion as shall be artistic and pleasing to every eye capable of appreciating beauty at all. We are not analysing the solar spectrum or studying the repeated and reflected colours in the rainbow, not "giving to an airy nothing a local habitation and a name," but dealing with flowers which bear divers colours "in winter and summer, in sunshine or rain." Let anyone draw three circles, one within another, thus:



and with these simple transparent primary colours only, paint the sections purely in the central circle trisectments, two colours over each other in the second circle, thus producing the secondaries, repeating them in the outer circle in the various degrees which are obvious. Let the lines of division be a narrow strip of white, and he can with three simple pure primaries produce every colour and every gradation. We have thus direct harmonious contrast in the first circle; a single harmonious combination in the second; in the third and *tout ensemble* are harmonious combinations of all colours and shades. There are three principal points to be particularised in colour management, viz., contrast, combination, and harmony, none of which can be agreeable without the complementary theory being called upon to assist in its formation, and I now finally appeal to any reader to look at the productions of any great artist and see for himself which theory is to be his guide in gardening. Let him observe if each picture does or does not contain the elements of colour harmony, red, yellow, and blue in various degrees of intensity or combination, but yet ever present. "J. D." says, "good combinations of colour may form the subject of another article." We may, therefore, set ourselves to watch carefully for these, and if they do not teach us the harmony of the three primaries, three secondaries, and three tertiaries, in other words, if the new theory does not come forth built upon the complementary theory, I for one shall think the time has arrived when the disciples of Richard Wagner have gone beyond their master and landed us in a musical quagmire, just as we should surely be landed into an "olla podrida" of colour discords by other disciples. I have reiterated in the above remarks these particular combinations, and if I add to them the self-evident fact that one colour cannot quarrel or be

at discord with itself, consequently various shades of the same colour—primary, secondary, or tertiary—must harmonise. I put upon a definite record all that I have said from the first, viz., perfect harmony consists of the primaries in varied combination. I also wish to put upon record "J. D.'s dictum on p. 544, that "red, blue, and yellow are enough to produce lunacy; orange, green, and purple are nearly as bad. Quite as bad are combinations of red and green, orange and blue, yellow and violet, the latter the least bad." When the new combinations are offered to us, I do not doubt we shall find that "our clothes have been abstracted 'whilst bathing;'" that the new idol before whom we must fall down is replaced by another, formed of the same primary head and body, the same secondary arms and legs, the same tertiary fingers and toes. We shall find a "Sartor Resartus" in colour, bedecked with the rags of his predecessor. The Djin which will appear to overawe and frighten us, who have unwittingly broken the seal of his earthen prison-house, will, however, collapse again into the narrow space occupied by so many Djins, which have from time to time been let loose in years gone by, and I do not doubt will remain, bottled as heretofore for time indefinite. R. A. H. G.

Horsforth, near Leeds.

ROSE GARDEN.

THE ROSE IN THE GARDEN.

In the present transition state of floral and ornamental gardening it is opportune to look into our methods of dealing with the Rose in the flower garden, where it has always occupied a special place and had special culture. Up till the present time the Rose has almost always been confined to what is called the "rosery," and has been but sparingly used for furnishing borders and shrubberies in connection with other plants, the curious and erroneous idea prevailing with some that Roses do not associate well with other forms of vegetation. In the "Gardener's Assistant," published only a few years ago, we find the writer on Roses stating that the trees should be confined to a rosery, because "the stems of standards, &c., contrast unfavourably with shrubs, and indeed all other vegetation which is not of a dwarf character;" a strange assertion when one remembers the unnatural and stilted appearance standards present, arranged as they generally are in roseries in the methodical dotting system. This is ten times worse than the mixing or dotting system in herbaceous borders, which has been so freely condemned. When the varieties of the Rose were few and poor, there was less objection to the rosery; but it was not always planned quite in the same way as modern roseries, many of which are of the most formal pattern it is possible to conceive. One, for example, we were acquainted with consisted of a parallelogram-shaped piece of ground, nearly half an acre in extent, and intersected at right angles by walks, the plots being filled up on the general mixture principle—standards, half standards, and dwarfs alternating in rows set in parallel lines with the walks. There was nothing beautiful nor artistic in such an arrangement. Another example, designed by a modern landscape gardener, consisted of concentric rings laid out on grass, with a fence of iron pillars at the outside, from which climbing Roses were trained as festoons. This looked better than the straight bed mentioned, but had an artificial and inartistic look also, as all such designs must have.

Rose planting and arrangement, indeed, is conducted on much the same lines as it was some sixty or eighty years ago; but Loudon did so far anticipate modern taste in flower gardening that he recommended some of the more distinct species or varieties to be massed by themselves, which was a step in the right direction had it only been more generally adhered to. The simple truth is, that these formal roseries are just as objectionable as the formal "bedding-out system" of flower gardening in its barest and poorest aspect, if not more so; and it is no excuse for

their existence that they enable the cultivator to give the bushes special culture, for this can be given equally well in various and more natural situations. We are not speaking of growing Roses for exhibition purposes, but of their culture for the general decoration of the garden. Hitherto this general decorative purpose has been almost quite neglected, because the "rosery" has always absorbed the main supply of plants; and one of the saddest facts connected with our Roses and their culture now is the mortality amongst them annually. Whether due to the severe pruning the plants are subjected to, or their poor constitutions, we do not want to determine at present; but it is certain that the mortality among the plants annually has become greater since varieties have been so much increased. There are undoubtedly far more weak growers now than there used to be; but we think the main cause is in grafting instead of growing plants on their own roots.

Places for Roses.—These should be found everywhere in the garden where Roses will grow. We cannot have too many of them, or Roses in too many places, more than other popular flowers which we are now trying to increase so much; but, in order to extend Rose plantations, especially where the cost of procuring and keeping up a stock is a consideration, we must abolish the rosery, and send its contents to places where they are more wanted. We never saw a garden yet where either places or positions needed to be invented for Roses. The walls, fences, and shrubberies, &c., will always absorb as many of the climbing or trailing varieties as can be spared and cultivated to good purposes, and numberless aspects and positions can always be found for Rose bushes. These may be in beds, borders, or in shrubberies; and if it be true that the best and most pleasing effects with garden flowers is produced by planting them in good, visible, striking groups or masses, then that is assuredly the way the Rose wants to be displayed, and no plant we know is likely to be found more accommodating and useful in that way. At present we mix summer and autumn flowering sorts and their varieties indiscriminately together; but, on the grouping principle, we should have to divide these, or, as occasion required, mix them, with a view to a succession of bloom, as far as possible keeping the colours to themselves. If this system were generally adopted, it would tend to reduce our encumbered Rose lists sooner than any other plan one can think of, for gardeners would soon discern what varieties suited their purpose best, and they are strongly conservative in making changes. Thus we should have bold masses of General Jacqueminot and its kind, Gloire de Dijon, John Hopper, La France, Souvenir de la Malmaison, Victor Verdier, Moss Roses, Maréchal Niel, and all the best and most striking kinds, which are comparatively few in number. For the ramblers, where they could be grown unrestrictedly, many suitable positions could be found where, Brier like, they could grow at their own sweet will, and produce masses of bloom to be estimated by square yards, as we not unfrequently see on older varieties which have by chance established themselves and made headway, aided by a good soil and favourable position. It would be just as easy to cultivate Roses in this way as a formal rosery, and it would enable us to choose the most favourable positions for the more tender and select kinds. The plants could be matured, pruned, and tended just as readily as under any other system, and they would look in their natural and proper place, and afford more pleasure and satisfaction to the owner than they could possibly do if all were planted in one place in the formal and often inconveniently-situated rosery. This system of planting would, some may think, unduly restrict the number of varieties in a collection, which it would do, if only one sort were planted in each place, and which would be desirable under certain circumstances; but by planting several varieties of the best reds in one place, crimsons in another, and so on, the number could be extended as much as desired, and the plan would soon show which were the best in their respective classes, and weeding out would follow as natural consequence.

Certain varieties of Roses could also be mixed with other suitable flowering subjects in the same way that we plant the Gloire de Dijon Rose among the purple Clematis now. Roses would do well among Rhododendrons and Azaleas, and be benefited by their shelter, and would flower when the former's season of bloom was over, as well as with many other things that will suggest themselves to the reader. The Rose patches, wherever they happened to be, could also be carpeted over to better purpose than beds of most other things. They might be literally crammed with spring and summer flowers of dwarf low habit, including many kinds of bulbs, Hepaticas, and the like, which would just suit the Roses, and afford protection to their roots in winter, for no cultivator doubts that one of the principal causes of mortality among Roses is the absence of a covering to the soil. Even the Brier dies under such circumstances, while in the hedgerow or the copse it braves our hardest winters, and so do many old and good Roses under similar circumstances.

Thick planting.—Another fault to be mentioned is thin planting. The desire to fill up much ground has been the cause of this, and Roses are generally planted as far apart as Gooseberry bushes, a great mistake in the case of plants pruned to stumps every winter, as Roses are. Both for effect and for shelter, Roses should be planted thickly, according to their vigour, and "standards" should only be used to fill up backgrounds of clumps of Roses. Standards have been condemned as in bad taste; and certainly it cannot be said that a mere addition of bare stems can in any way add to the beauty of such a stiffly habited plant as the Rose. But when standards are planted in the formal manner which has been so long the fashion, either as single objects on lawns, or in regular rows in the rosery—heads all on the same level—their objectionable appearance is forced prominently upon the sight. Standards would be useful in clumps placed against shrubs and other objects, where they could be used, according to their size, to fill up the background, the front being occupied by dwarf plants. Standard Roses are not, however, a necessity any way, and they are both dear and troublesome to grow.

Large bushes of Roses and pruning.—It is a pertinent question to ask whether Rose pruning is not carried a trifle too far in general culture. There is no bush in the garden so closely cut in annually as the Rose, and it is to be feared the advantages of the practice are more apparent than real. Close pruning is advocated to induce vigorous growth, and the weaker varieties are pruned most severely for that reason. Under good management and protection this system answers well enough, and is the best plan for the nurseryman, who has to keep his plants within bounds for commercial reasons; but in private gardens, where a show of Roses is desired, and desired soon, such severe pruning is best avoided. It may be different in the case of Roses grown for exhibition. One fact is pretty well ascertained in regard to pruning, which is, that the most severely pruned plants suffer worst in severe winters, and are shorter lived than plants grown as unpruned bushes. It is quite an error to suppose that Hybrid Perpetuals, Bourbons, or Teas, &c., grow weakly and poorly by being left to develop their tops as largely as they will. All the ordinarily vigorous kinds will make quite large bushes if allowed, and will continue to grow and do well for many years. Climbers excepted, the plants never grow above a certain height, but they spread out in circumference, and throw up strong shoots annually, which produce vast quantities of flowers season after season. The cottagers' Roses are seldom pruned, and they are sometimes of remarkable age and size. Ten years since we split up and planted a large number of Hybrid Perpetuals, Teas, and other Roses as a hedge, and ceased pruning them, and they are now all fine, large bushes, 4 feet and 5 feet high. The vigour and length of the annual shoots produced is surprising. These are often over 5 feet long, and an inch in diameter near the base—just like Brier shoots, in fact. None of them have died, and the plants must now be twenty

years of age, some of them probably a good deal older; while in the Rose borders, among the pruned and select Roses, our losses have been great. During the severe winters we have had these last seven years, these old bushes have stood unscathed, and are at present as vigorous as ever. The quantity of Roses they produce is surprising, and drives the productions of the highly cultivated, much-pruned plants quite into the shade. A man has frequently filled several large vegetable baskets with Rose leaves for drying from them in the course of an hour without making much difference to the show of flowers. The way the unpruned Rose blooms is this: The plant, as soon as fairly established in a good soil, throws up strong shoots, and plenty of them; and the following year these shoots break their buds freely along the stem, and each branch produces a mass of bloom, which, after a shower, is so heavy as to weigh the branch down almost to the ground. The older branches flower equally well, but any pruning such bushes need consists principally in thinning the older branches out and leaving the younger ones. What takes place in the case of dwarf bush Roses happens just the same in climbers, only the mass of bloom is ten times greater. It is the climbing or scrambling Roses that show what the Rose is capable of when cultivated in this natural and free manner. Referring to our past notes on this subject, we find the following: One of the most attractive specimens on the place is an old double white Ayrshire Rose growing in a group of common Laurel in the shrubberies. We cannot tell how old the plant may be, but it has probably been in its present situation for thirty years, struggling the best way it could to keep its place among the tall-growing Laurels, sometimes sending out a shoot of white flowers on this side and sometimes on that side of the clump of bushes, and sometimes scrambling up to the tops of the tallest limbs, and draping them with its blossoms throughout June and July. Nearly three years ago we had the Laurels headed down to within 6 feet of the ground, leaving the straggling limbs of the Rose which were found amongst them; and since then it has grown and thriven amazingly, and now fairly threatens to gain the mastery. We had the curiosity to measure the plant the other day, and found it rather over 70 feet in circumference. Within this space the plant forms an irregular undulating mound, in all parts so densely covered with Roses that not so much as a hand's breadth is left vacant anywhere, and the Laurel branches are quite hidden, and, in fact, are now dying, smothered by the Rose. A finer example of luxurious development we never saw. The plant has been a perfect sheet of bloom for a month or more, and there are thousands of buds yet to expand, and hundreds of bunches of buds have been cut just at the opening stage, when they are neater and whiter than a Gardenia, to send away. The tree has never received the least attention or assistance, with the exception of the removal of the Laurel tops before mentioned, to let the light into it. It is growing in a tolerably deep and strong dry loam, and this, together with head room, seems to be all it requires. There are far too few examples of this kind in our gardens, for our efforts in Rose culture have not been in the direction of showing what could be done with the Rose as a tree or bush. No wonder our artificial-shaped plants have been described as not associating well with other forms of vegetation; but it must be obvious how ridiculous this idea must be in the case of Rose bushes like the above. The common Brier teaches us a good lesson in Rose pruning. No one has ever ventured to say the wild Rose was out of place in the hedgerow; and how does it behave there? It forms a mighty mound of branches, the older stems dying down as the young ones accumulate, till a large bush is formed, and covered with flowers in their season. By the roads and lanes here there are wild Roses which old people say have been there ever since they remember; and I have taken note of Briers in the woods that, to all appearance, may be more than fifty years of age; and yet our strongest-growing Roses on rier stocks in gardens are short-lived. From

these facts, the Rose grower may learn that, in order to have Rose bushes and plenty of Roses in his shrubberies, beds, or borders, his plan is to plant good kinds of known repute for hardiness and vigour, and confine his use of the knife to thinning out the shoots principally. Most gardeners, as a rule, believe in severe pruning, never having been taught any other system; but they should not always have their own way in such matters.

Roses on lawns.—Climbing and strong-growing Roses make very ornamental objects in a few years. As we have already said, climbers want something to support them at first; and for this purpose nothing is better or more convenient than four or five thin flat iron rods bent over each other at right angles, with their ends in the ground, so as to form a circular mound about 4 feet high and 6 feet through. The Rose tree is planted under the hoops, in the centre of the circle, and as it grows a limb is trained each way to form the foundation of the future plant, and after the first or second year it is left entirely to itself. The supports are soon covered, and a large and natural looking mound of Roses is the result. We have seen specimens of this kind twenty years old in which the wood had accumulated about 2 feet or more deep all over the trellis, and yet nowhere was there any dead wood to be seen, owing to the plants throwing out fresh limbs annually, which covered the old ones. The plants, in fact, grow exactly in the same manner as the wild Brier, which keeps sending up long shoots from the centre of the plant, increasing its size every year. Those who desire very large mounds may have them just as easily as small ones, and in about as little time, by increasing the size of the iron framework and planting the Roses—as many as they choose—round the sides. This would leave the space inside vacant, and, by keeping the internal surfaces clipped with a pair of shears, they would have a veritable bower of Roses. Except against walls and in similar situations, there is no occasion to prune climbing Roses. Left to themselves, they make by far the grandest display, and to insure this it is only necessary to provide them with a good, deep, strong soil at the beginning, and to let them have a fair amount of light on all sides. Whether planting be carried out with the object above described, or for the purpose of covering naked tree stumps or limbs, or for draping any unsightly object whatever, liberal treatment in the first instance is the main thing. A good soil makes all the difference in time and in the permanent vigour of the tree, and were we desirous of having a great Rose tree (whether it be a common Ayrshire or a Gloire de Dijon, that we expected to produce thousands of blooms in a few years), we should, if the soil were not naturally strong and deep, provide a well-drained pit, and fill it with two or three good cartloads of sound loam and manure; thus treated the result is certain, provided an unrestricted growth be permitted. Amongst the best for such purposes are

The Ayrshire Roses. Here, too, we may briefly recur to our former remarks: These Roses are all double, or semi-double, and the best of them are white or of a pinkish colour. There are hardly a dozen varieties altogether, and most of them are worth growing for the sake of variety. About equally hardy and useful for the same purpose is the Evergreen Rose, so called on account of the length of time it retains its leaves in winter. There are several good varieties, and they are vigorous and rapid growers, and need little or no attention, except thinning when they are trained to pillars or walls. In rustic situations they need not be meddled with at all. To these may be added the Boursault varieties, a few of the Bourbon kinds, of which Souvenir de la Malmaison is the best example, and Gloire de Dijon and Maréchal Niel among the Tea-scented class. The last two are worthy of all the attention that can be bestowed upon them. Gloire de Dijon comes in early and goes out late, the second growth often producing flowers in abundance late in the season, and in the south the Maréchal Niel does well either on the wall or as a climber

in the open ground. As far north as the Tweed it occasionally grows and flowers freely on a roof or wall in a favourable exposure. Both are harder than some people imagine, and, as with most Roses, unpruned plants stand severe winters best. Both, too, are great ramblers, and, where the situation suits them, there is nothing to prevent anyone from having single plants of either quite as large as the one we have given an account of at the beginning of these remarks.

Aspects for Roses.—To sum this matter up, aspects for Roses should be warm ones. The Rose's powers of endurance in an English climate depend, next to protection, upon the thorough maturation of their growth each year, and this maturity depends upon the amount of heat the plants experience during the summer, and the amount of heat depends upon the position the plants occupy. Roses on sunny sites grow best and live longest, and *vice versa*, and the farther north we go this fact becomes the more apparent. The best Roses, like the best Peach trees, are grown in the south, and this is better known to the trade than to private growers. All nurserymen supply Roses, but all do not grow them equally well, and many northern nurserymen have to make up their stock annually from the south, or supply their customers on commission—a very common plan. Roses love shelter and warmth, and the choice of a situation should always be grounded by these considerations, although, at the same time, they will endure severe exposure, and no one need hesitate to plant when the circumstances in this respect are not as favourable as they could desire. In some of the northern and midland nurseries acres of Roses are grown in the open, quite exposed in every direction; but we know that the losses, these few winters back, in such nurseries have been enormous, and both stocks and buds have been at a premium; for the private grower such facts are sufficiently instructive, and point to the importance of shelter, both for roots and tops, in all situations where the vicissitudes of temperature are uncertain.

Soil for Roses.—Any good garden soil will do for Roses, but the nearer it approaches to a good fresh loam, the better for the plants. They do not object to a rather tenacious loam, approaching a clayey texture, provided the drainage is good; and in some nurseries, where Roses are successfully propagated by thousands and well grown, it would surprise fastidious growers to see what the soil was like—a stiff clayey loam, which in summer lies in lumps, like baked bricks, upon the surface. Yet in this soil the plants make fine growth and flowers—on the Brier stock especially. But the best soil for a general plantation of Roses is one neither too light nor too heavy, for Roses in their great variety differ in their rooting power, more particularly when grown on their own roots, the tenderer Teas and such like doing best in moderately light and rich composts, and the strong Briery climbers in deep strong loams, in which they grow fast and live longest. The habit of the variety itself indicates the nature of the compost most likely to suit it. Strong growers are most likely to succeed in strong soils, and weak growers in soils that are light and open; and in planting, it is not a difficult matter to give each kind the soil it likes best, at least in starting at the beginning.—*Field.*

SHORT NOTES.—ROSES

Rose Niphetos.—The flowers of this Rose with me come badly shaped. It is growing in a greenhouse. Will some Rose grower tell me if it is customary for them to do so at this time of the year?—E. M., *Dorking.*

Budded Roses.—Would Mr. Fish say how such Roses as have small or flat buds are best managed in budding? Anna de Diesbach and Baronne de Rothschild, for instance, and indeed all the less free growing kinds I rarely succeed with; they lie dormant for a year and never push.—R. H.

Scotch Roses.—Are these worth growing? I have been told they are pretty, especially when in a cut state; but are their blooms not too small to be effective? Will some Rose grower kindly give me his opinion respecting this class of Roses?—M. H.

FERNS.

ADIANTUMS.

(Continued from p. 563.)

A. cuneatum.—This very old favourite from Brazil is perhaps better known and more generally cultivated than any other Maiden-hair Fern, probably because it is the most graceful and useful; indeed, nothing can surpass the elegance of its beautiful foliage for bouquets, and this excellent quality is so fully appreciated by growers in general, that millions of it pass through our flower markets every year, besides the enormous quantities grown in private places where it is always in demand for the same object. The fact of its being evergreen and of free habit, and consequently very useful in winter, renders it more valuable still. It is of easy culture, growing in almost any soil, and not very particular as to temperature, and, provided that regular moisture at the root is kept up, it will produce all through the year from a tufted rhizome an immense quantity of its lovely quadripinnate fronds from 10 in. to 15 in. in length, and broad in proportion, with their stalks and rachis of a beautiful shining black, and densely clothed with their delicate wedge-shaped pinnules. This species has produced more forms or variations (some call them monstrosities) than any other exotic Fern. Indeed, they have been brought out in such numbers, that one might almost make a collection of these Ferns exclusively. But although most of them are very deserving, they are so numerous that to be of any help to the reader we must confine ourselves to a selection of the best and most distinct forms only, such as—

A. cuneatum var. gracillimum.—Of garden origin, and one of the first really distinct variations of the species. It is a most elegant Fern, with light and graceful fronds; the multiplicity of numberless and minute pinnules and almost invisible ramifications of the rachis give to the plant a particularly charming appearance. The fronds, which are produced in profusion from a tufted rhizome, reach about 12 inches in length and 9 inches across, and are thin and fragile in spite of their massive appearance; their colour is a very pale yellowish-tinted olive green. Stove.

A. cuneatum var. grandiceps.—One of the most distinct, and by far the most attractive of all the garden forms of the popular Adiantum of Brazilian origin, from which species it differs in several striking particulars. It is more robust in habit, the fronds are more elongated, produced in immense numbers from a tufted crown, and terminate in a dense tassel of finger-like growths; the pinnæ also terminate in similar, but smaller branches, which, by their weight, give the fronds a very elegant, arching habit, rendering the plant one of the most suitable Ferns for suspended baskets, where it grows wonderfully well, and soon makes a very handsome object. Stove.

A. cuneatum var. Lawsonianum.—This very handsome variety, which is also of garden origin, is very distinct, inasmuch as its fronds, although coming from a tufted rhizome, as in the species, are not produced in such quantities. They are also much more rigid, yet none too much to prevent it being a very elegant plant; they often attain the height of 18 inches and are loaded with deep dark green pinnules of a peculiarly narrow wedge shape, and these being set rather further apart than in the species give the whole of the plant a charming and very decorative appearance. Stove.

A. cuneatum var. Legrandi.—A remarkably neat and pretty dwarf Maiden-hair Fern of garden origin, forming dense green tufts of erect fronds with numerous ramifications thickly set with small rounded pinnules of a beautiful rosy colour in their young state, and of a dark green when matured, giving the plant the appearance of a mass of little pink globules nearly all the year round, as it is an evergreen of very good constitution. It is found very useful for edging, as this little gem rarely exceeds 10 inches in height. Stove.

A. cuneatum var. Luddemannianum.—A curious variety of garden origin, and quite unlike any other Maiden-hair Fern in cultivation. The peculiarity which distinguishes this *Adiantum* from all others consists in the pinnules being crested or agglomerated at the extremities of the fronds which are produced from an underground crown. They are erect and with stipes slender, smooth, at first deep crimson, changing to ebony black when mature, and branched either near the base or higher up; the pinnules, which are much curled, and borne on short petioles, are generally fan-shaped, and deep green in colour. It is a lovely variety of small dimensions, rarely exceeding 12 inches in height. Stove.

A. cuneatum var. mundulum (Pacotti).—This charmingly pretty and compact-growing garden variety may be termed a perfect miniature, and quite a little gem among *Adiantums*. It is a very distinct and very elegant plant of about 6 inches to 8 inches high. The fronds, which are produced from a tufted crown, are tripinnate, with numerous small crowded pinnules, which are narrowly wedge-shaped with a few of the larger of them three-lobed. They are very stiff, of good substance, and particularly well adapted for mixing with small flowers. Stove.

A. cuneatum var. Tabarum.—This very peculiar garden variety seems quite an intermediate form between the *A. Legrandi* and *A. Luddemannianum*, and partakes of the characters of both. The general appearance of the plant is that of the former as regards the formation and the production of its numerous fronds with rounded pinnules, but it is more robust in all its parts; the pinnules, however, are much larger, and the fronds attain the height of 12 inches. Stove.

P. ELLER.

PROPAGATING.

HYDRANGEA PANICULATA.

THIS can be propagated by either of the following methods: If shoots are plentiful, cuttings of the ripened wood may be inserted during the autumn months in a cold frame. The frame may be set upon the ground and the cuttings put in in the ordinary soil, but if very heavy a liberal admixture of sand and sifted leaf-mould should be worked into it to lighten it; if light and sandy, no such precaution need be taken. Select such shoots as can be spared and cut them into pieces of about 6 inches in length, then dibble them thickly into the frame, putting each cutting down far enough to leave about 2 inches above the surface. If put in rows, the cuttings may be 1 inch apart, leaving 2 inches between each row. Insert them firmly and give them a good watering, leaving the lights off till the superabundant moisture has dried up, when they should be replaced. The lights may be kept close or nearly so during winter, when the cuttings will callus and form roots in the spring. It is not absolutely necessary that this operation should be carried out in the autumn, as it may be done even now, and moreover the cuttings may be placed in the open ground without the shelter of a frame, but in that case they should be 2 inches or more longer, such additional length to be buried in the ground in order to enable them the better to resist drying winds. If put in the open ground, choose as sheltered a spot as possible.

Another way is to select the cuttings in summer when the shoots are young and growing. Take some 6-inch pots and half fill them with broken crocks, then fill them up with sandy soil, pressed moderately firm; the soil should be sifted through a sieve with a quarter of an inch mesh. The cuttings should be young and succulent shoots cut off at a length of from 4 inches to 6 inches, just removing the bottom leaves for the purpose of insertion. In order to prevent flagging, a small quantity only should be cut off at a time, or if it be necessary to gather a large number, keep the bulk of them covered up till wanted. Do not crowd them too much, otherwise they will damp off, and when finished give a thorough watering enough to

settle the soil well around them. Afterwards place them in a close frame till rooted, and see that it is really a close frame, otherwise the cuttings will flag, and when that takes place they take much longer to root. The lights may be taken off for a short time each morning in order to allow the cuttings to be examined and watered if necessary, but they must be replaced before the sun gets powerful, [when a mat should be thrown over them, or even two if necessary. Thus treated they will soon root, when, if potted off at once, they will get nicely established in their pots before winter, and in the following spring may be planted out.

Yet another plan remains, and that is one by which it is often possible to get several plants with but little trouble. When an established specimen is dug up, especially if it has been planted rather deeply, several of the side branches may often be removed with roots attached to them; indeed, if not too large one may at times divide the whole plant in this way, but even where such a proceeding is not possible side branches or suckers may be taken off with sufficient roots attached to them to form good plants at once.

T.

TREES AND SHRUBS.

KEEPING FOREST TREE SEEDS.

IT is pleasant to note that each autumn brings an increasing number of inquiries as to the preservation of the seeds of forest trees, as it indicates a growing interest in tree planting. The seeds of our native trees are not likely to be injured by cold. Heat, on the other hand, and consequent dryness, soon destroys their vitality, and after a few days' exposure to a dry atmosphere they could not be made to germinate. When a nut or other seed drops in the woods, it falls upon dead foliage, by which it is soon covered, and it remains in a bed of damp leaves throughout the winter. In preserving seeds we have only to imitate as closely as may be the natural method. Where the quantity is not large, the seeds may be mixed with an equal bulk of sand, and kept cool. It is better for those with hard shells to be exposed to the alternations of freezing and thawing, hence the box or keg containing them may be completely exposed to the weather. Where large quantities of Walnuts, Hickory nuts, Chestnuts, or other large seeds are to be kept, a less troublesome and expensive method is followed. The nuts are placed in heaps of five or six bushels and then completely covered with turf. The sods should be neatly matched and no opening left. If these sods are not readily procured, the heaps may be first covered with hay, straw, or leaves, and then a few inches of earth is to be put on and neatly finished in order to shed rain. Some seeds, the various Thorns for example, cannot be made to germinate the first year, but the plants will come up freely in the spring of the following year. Instead of sowing such seeds and allowing the ground to lie idle, or, what is worse, grow a crop of weeds, the end may be readily accomplished by what is called "stratification." This consists in making alternate strata of seeds and earth, thus forming a square heap with steep sides. The seeds are left in the heap until the time for sowing in the second spring, when they are sifted out and sown at once. In our climate, such a heap might become too dry and thus spoil the seeds; a better method is to mix soil and seeds in a box or other receptacle, and bury the whole in a convenient place. Small quantities of seed may be treated in the same manner by using a flower-pot.—*American Agriculturist*.

Chimonanthus fragrans.—Although we have had a fortnight of severe weather in this part of the country, this favourite old-fashioned shrub has, as usual, expanded its sweet-scented blooms. The aspect on which it is growing is full south; it is also somewhat sheltered by a range of vineries; and a flue runs about 8 yards distant from it in the

wall; still we have of late registered 15°, 18°, 20°, and 22° of frost, which for our winters is rather severe. Vegetation generally is very much cut up here, although the snow had served in some measure as a protection, and I fear our kitchen gardens will soon assume a blighted aspect.—J. CLARKE, *Dryknialt*.

SHRUBS, &c., FOR WINTER BEDDING.

THE furnishing of flower beds in winter is not so generally practised as might be expected, seeing that now there is such an abundance of suitable shrubs to be had at very cheap rates, and the free use of these, arranged somewhat after the fashion of bedding plants as regards harmony of colour, is just as effective, and, considering the season, as pleasing as are the most tastefully arranged summer bedding plants. Perhaps, for isolated beds or series of beds in distant parts of pleasure grounds that are not much frequented in winter, it may not pay to go to the labour and expense of thus planting them; but for gardens immediately under the windows of a mansion, as most bedded-out gardens are, the winter filling of the beds is of the utmost importance if permanent enjoyment is desired. There can certainly be none in looking out upon bare beds, and that at a time of year that is usually gloomy enough, without having this spectre of barrenness directly under one's eyes. The fact of naked beds in winter is, no doubt, the strongest point against the bedding-out system. We should supplement that by shrub-planting for the winter, though not necessarily of shrubs alone, but intermixing other hardy evergreen plants, particularly the dense-growing Sedums and Saxifrages, as well as other similar plants, many of which are now used with excellent effect in combination with ordinary bedding plants in summer arrangements. Of course, the more plants of this type that it is possible to work in with the summer bedders, that much is the amount of labour lessened when the time arrives for the winter planting. For some years we have thus striven to combine these two opposite types of plants, and with what success may be inferred when it is said that, to fully equip the parterre in winter dress, we do not now require to move more than half the plants that have done duty in summer. The following may be quoted as a fair example: A large circular bed edged with *Sedum glaucum*; raised intersecting lines to form pattern 9 inches wide of *Veronica incana*; in the centre a pyramidal-shaped plant of *Retinospora pisifera aurea* in a circle or groundwork of *Saxifraga hirta*; all these have done duty during the summer, the smaller panels being filled either with *Alternantheras*, *Mesembryanthemums*, *Lobelias*, or tricolor *Pelargoniums*. These have now given place to, in the small circles, a small *Cupressus erecta viridis*, carpeted with *Sedum Lydium*, which is grown in a reserve garden for the purpose, and taken off in flakes with a spade, and simply pressed on the ground, and thus is effective at once; in the oblongs are central plants of variegated *Aucuba*, the undergrowth here being *Sedum glaucum*, grown and placed in position in the same way as the one just named. This example will suffice to illustrate what is meant by a combination of the two sets of plants, and to indicate the direction in which to obtain flower garden cheerfulness in winter. It now only remains to give a list of the best kinds of shrubs for the purpose, the list being strictly composed of kinds that bear removal well, do not grow fast, or change colour after planting. It is as follows: *Aucuba variegata*, green and variegated Box, *Cotoneaster microphylla*, *Cupressus Lawsoniana*, *C. Lawsoniana erecta viridis*, *Erica herbacea carnea*, *E. mediterranea alba*, *Euonymus aureo-variegatus*, *E. radicans variegatus*, *Hollies*—variegated kinds, *Juniperus macrocarpa*, *J. tamariscifolia*, *J. chinensis*, *J. occidentalis*, *Laurustinus*, *Berberis Aquifolium*, *Osmanthus aureus*, *O. variegatus nanus*, *Pernettya mucronata*, *Portugal Laurels*, *Retinospora obtusa aurea*, *R. pisifera*, *R. pisifera aurea*, *R. plumosa*, *Rhododendrons*, *Thujopsis torealis*, *Vinca elegantissima variegata*, *Yucca recurva*, *Yews*—green and variegated. W. W.

PLANTS IN FLOWER.

VIOLA MRS. GRAY.—I send you blooms of this Viola, gathered outdoors to-day, 21st inst. I have over 4000 planted out, and every plant is as fresh as in summer, and blooming freely. We have had two weeks' frost ranging from 9° to 19°. I think such a test should prove its hardiness.—J. G., *Ayrshire*. [A beautiful Viola, with moderately large white flowers, with yellow centre, and pencilled with purple.]

BOUVARDIA PRIORY BEAUTY is, we believe, the latest addition to single-flowered Bouvardias and a lovely variety it is. It is of compact, sturdy growth, quickly making a dense, bushy specimen. It is an abundant bloomer, the clusters being large compared with those of other varieties, and the colour, a delicate soft rose-pink, is one that makes the plant so desirable for cutting from, as this tint associates charmingly with almost every other colour, and shows itself off to great advantage under artificial light. It is now in great beauty in the Royal Exotic Nursery, Chelsea, from whence we believe it is being distributed.

NEW VIOLA.—Messrs. Carter send us from the open air at their Perry Vale Nurseries, Forest Hill, a bunch of a neat little Viola which they call their new Perpetual Flowering Sweet-scented Viola. The flower is of medium size, of a soft pleasing lilac-blue tint, the lower petals being overlaid with a bronzy metallic tinge. The centre is bright orange, and from this radiate some deep pencillings of rich purple. In short, it is a pretty variety, and particularly welcome at this season. Messrs. Carter say that it is a perpetual flowerer; in fact it blooms throughout the year even on the stiff cold clay at their nursery, which is frequently under water in winter.

BILLBERGIA NUTANS.—This graceful and beautiful Bromeliad is now in bloom in the Royal Exotic Nursery, Chelsea, where it has been in perfection for some time past. The leaves, which are arranged in a pitcher or vase-like form, are slender and gracefully arching. The flower-spikes spring from the middle of the tufts of foliage. They are from 6 inches to 9 inches in length, and, being slender, droop in an elegant manner. The outer petals of the blossoms are rose coloured, with greenish blue margins, while the inner or recurved petals are pea-green, margined with deep blue—a singular combination. It flourishes in a warm greenhouse, and continues to flower for a long time in succession.

LASIANDBA FLORIBUNDA.—One would think that this plant would be more grown than it is, seeing that its flowers, which are so beautiful, are produced in midwinter. There is a plant here bearing a profusion of blossoms, some 3 inches across, of the richest violet-purple. It continues in perfection a long time, and I find it to be useful for various purposes in the way of decoration.—C. G., *Ely Grange, Frant*.

AZALEA ROSEFLORA.—Amongst the hundreds of varieties of greenhouse Azaleas in cultivation this charming kind stands out conspicuously from all the rest on account of its very distinct colour and general appearance. It is bushy in growth, never attaining a great size, and is extremely floriferous, every twig being furnished with flowers. These are double like a garden Rose, or perhaps more like a double-flowered Balsam, and about 2 inches across. In the half-expanded bud state they much resemble miniature Rosebuds, hence make charming button-hole bouquets. In colour it is a soft salmon-pink, the petals being prettily mottled with a deeper hue. In Mr. B. S. Williams' nursery, Upper Holloway, it is still in flower, having been so for a very long time. It is also known as *A. Rollissoni* and *A. balsamiflora*.

Stephanotis floribunda in fruit.—We have here a fine plant of the *Stephanotis* bearing fruit. I should like to know whether it is not an unusual occurrence. It is a fine, handsome looking fruit, about the size of a hen's egg, and bright green in colour.—JAMES HOUGH, *Wilmslow, Harefield, Cheshire*. [The fruiting of the *Stephanotis* is by no means a rare occurrence.]

FLOWER GARDEN.

THE GLADIOLUS FAILURE.

CALL it by what name we may, whether, like Mr. Kelway, we consider it to be exhaustion, or, with Mr. Douglas, think it to be degeneration, or with Mr. Berkeley, Mr. W. G. Smith, and others who have scientifically considered the subject, purely and simply a disease, there can be no doubt that the serious losses which every grower who has attempted the culture of the *Gladiolus* as a florist's flower has experienced have led to their abandonment by nearly everyone who, smitten by the grand beauty of the flower, has been induced, to his own grievous disappointment and serious loss, to attempt it, and the worst of it is that no remedy seems attainable. All kinds of propositions are made, and there are some of us who have wearied themselves out trying them all by turns, and in the end been brought to the humiliating position of having to confess failure. I myself have grown them some five and twenty years. I have watched their advancement in beauty, size and form, advance which has been so great that the flowers of a dozen years ago are, with some few exceptions, completely distanced. I have seen how one person after another, struck with the marvellous beauty of the stands set up by Mr. Kelway and others, and assured that there was no difficulty in their culture, have tried them, and how one after another has fallen out of the race, until of those who commenced their culture during my time I hardly know of one who now grows them, and to say, as interested persons do, that it is all ignorance is just simply nonsense. Some of the best gardeners in the kingdom, amateur and professional, have tried them. They have studied their wants, tried everything that has been suggested, and ultimately have succumbed to the inevitable. As to myself, were it not for the kindness of my friend, Monsieur Souchet, of Fontainebleau, and for the fact that I am able by taking care of the spawn to keep many varieties that I should otherwise have lost, I should long since have given them up.

I went during the autumn to visit the garden of my friend, Mr. Banks, of Sheldon Lodge, near Deal. Here where there used to be the largest collection of the flower grown by any amateur in England—indeed, as many as were grown by all the amateurs put together—where their culture had been followed out with great perseverance and under the most disheartening results, I saw a couple of beds which I was told the owner had hardly looked at this season; this I could well understand, for he offered his collection this year as a present to any amateur who would grow them, "for," said he, "when I have lost in two years nearly 50,000 bulbs, it is time to give them up." He had been a very extensive raiser of seedlings, but in these he was disappointed also. If he got a good seedling he could not keep it, and therefore the recommendation to grow seedlings is worth very little; you have to wait two or three years before your seed blooms, and then when it does and you think you have gained something, off it goes.

It so happens that I have at this moment before me three letters from different parts of our island which confirm the same sad tale. One is from the mild region of the county of Cork, from your well-known and valuable correspondent, "W. E. G.," in which he says, while shrewdly answering some questions I put to him about Lemoine's new hybrids, "I have long since given up the ever-disappointing hybrids of *gandavensis*." Another comes from a lady, in whose garden everything is well done, in Shropshire, in which she says, "We have tried very frequently the *Gladiolus* in our garden, but have not been able to succeed in growing it." The third is from a very successful grower in the north of Scotland. He gives instances of some places where they are at present well done, but he adds, "Mr. B.—'s collection has been consigned to the borders, a few when I called were standing neglected in frames. This is another case of 'soorin.'" In the other places in which he mentions them being well

done, the saving of the spawn seems to have been the "saving clause." We shall be anxious to see what your correspondent "W. J. M.," from Clonmel, has to say as to his success this year.

Of course all this is very discouraging, and I have been repeatedly told I had better keep these things to myself. This I cannot see. Surely it is not right to hide from those who may be contemplating what seems to them a pleasant and easy voyage that there are rocks and dangers of many kinds in the way, nor for those who endeavour to instruct the flower-loving world to keep back that which may occasion them grievous disappointment and loss. In all that I have written I have alluded only to what are called the *gandavensis* hybrids; these have sprung from species whose habitat is the south of Africa. They are not perfectly hardy, and as they have been very highly bred, I have no doubt their tendency to decay and die has been increased thereby, and one is therefore glad to think that there is a prospect of our getting a hardier race through other species. At the same time I do not think we ought to give up the *gandavensis* seedlings. The task of rearing them from spawn is difficult and tiresome, but these are matters which a true lover of flowers will try to get over, and I am persuaded it is the only way in which we can hope to continue their culture.

I was particularly struck with some very fine spikes—spikes, indeed, which I had rarely ever seen equalled—grown by Messrs. Thompson & Son, of Newcastle, and exhibited by them at the great Manchester show in 1881. On inquiry I found from them that these had been first planted in pots and then transferred to the open ground in May. Having some fresh bulbs from France, as well as some of my own, I potted them in good fresh fibrous loam. They all started well; they were then transferred to the beds in May, grew well, but, alas! as the flowering time came on the same sad story had to be told. Some flowered finely and then died, and this was quite as much amongst the French as the home-raised bulbs. I shall not, therefore, go to the trouble of trying this method again, but shall plant in my usual way, in the open ground at once, when the ground is fit in the months of March and April.

It has been sometimes suggested, that as the finest varieties are so highly bred, that it would be better to go back to some of the older kinds and try to hybridise with them, such as *Fanny*, *Rougnet*, *branchleyensis*, &c., but I cannot see that this would answer any good purpose; you would at first get inferior flowers, and then as you used the pollen of better varieties you would fall into the same rut again; moreover, I have found *branchleyensis* go off in the same way. There is one consolation. Owing to the better climate of Fontainebleau, and the care exercised by Mons. Souchet's successors there, fine varieties have now become very cheap; such sorts as *Meyerbeer* and *Norma*, which in their respective colours have never yet been beaten, can be had for a few pence. We must be content to get them, grow them on the chance of their succeeding; as many bulbs of good varieties can be got now for a pound as a few years ago could not have been purchased for five times the amount, and as we can with equanimity see the loss of our *Lilium auratum* now that they can be had for a few pence (I see them advertised at about 4d. a-piece), so we may be satisfied even if our *Gladiolus*, like it, should have to be treated almost as an annual. There is this advantage, however, in the *Gladiolus*, that you can be sure of getting them good; whereas all purchasers of *L. auratum* know how very indifferent are many of the varieties which have come over, and how little of certainty there is in getting the finer broad-petalled varieties which at first so attracted the wondering admiration of all lovers of the beautiful. DELTA.

Sunflowers.—When is the proper time for sowing these, and which are the best varieties? Do spring-sown plants blossom the same year? For any information on these points I shall be very grateful.—B. C. M.

NEW FRENCH MARIGOLD.

AMONG the more valuable additions to tender annuals that have recently been made, there are few more remarkable than the strain of dwarf French Marigold which Messrs. Carter, of High Holborn, have recently brought into notice. It is called the Compact French Gold-striped, and is the result of many years' careful selection from the acres of dwarf French Marigolds which this firm grows for seeding. This new variety only attains about 6 inches in height; it forms dense tufts a foot or more across, and, as shown in the illustration, is a very profuse bloomer. It is said to be very uniform and constant in growth. The flowers are large in proportion to the size of the plant, and form compact, bright yellow rosettes, regularly and beautifully striped with chestnut. Its chief use will be for massing in beds or as an edging plant.

HERBACEOUS PLANTS AND THEIR CULTURE.

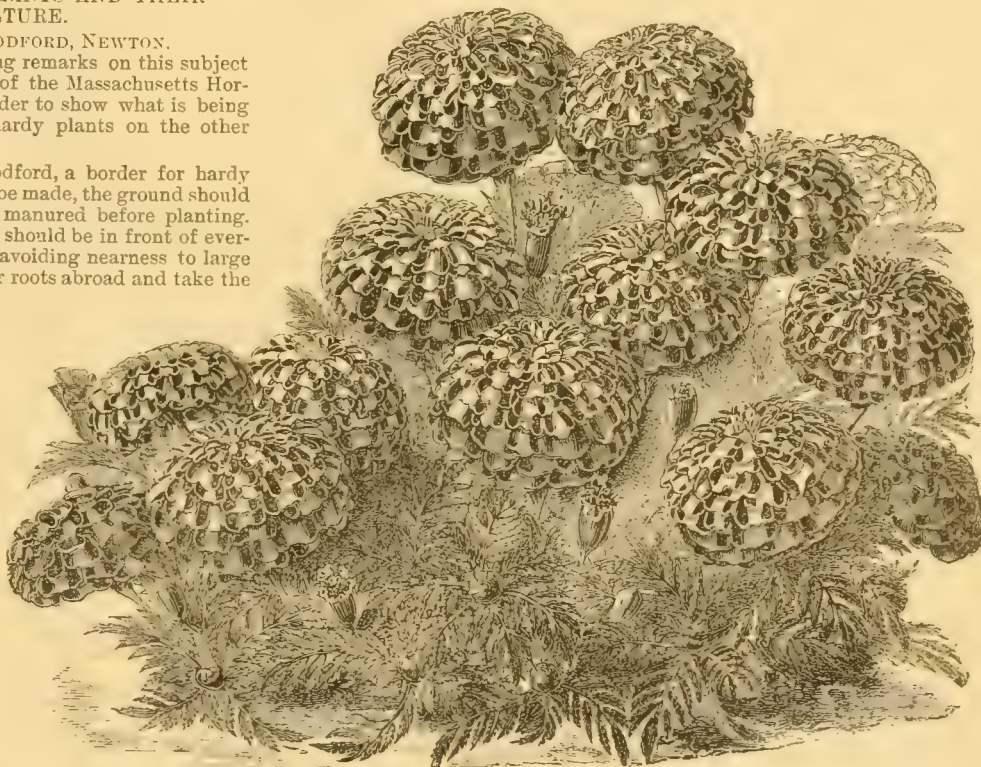
By MR. H. WOODFORD, NEWTON.

WE extract the following remarks on this subject from the Transactions of the Massachusetts Horticultural Society, in order to show what is being done in the matter of hardy plants on the other side of the Atlantic:—

When, says Mr. Woodford, a border for hardy herbaceous plants is to be made, the ground should be deeply dug and well manured before planting. The border, if possible, should be in front of evergreens and shrubbery, avoiding nearness to large trees, as they send their roots abroad and take the goodness out of the border. In selecting plants, one must carefully study their habits and know the colour of their blossoms, and then by judicious planting the desired effect can be attained immediately. Select only good kinds of plants, because there is no scarcity of such, and reject poor and weedy kinds. The best time to plant the border is in the fall, as the flowering plants will bloom better the next season than if set out in the

spring; but I would not discourage anyone from spring planting, because it is better to do it then than not at all. There is an endless variety of plants to select from, so that one can produce any effect desired, and among the most beautiful are the Larkspurs. These grow from 2 feet to 8 feet high, with colours of every shade of blue, and they succeed in any good garden soil, but are improved by liberal manuring. They can be increased by division of their roots or by seed. Their style of growth is bold and striking, and a succession of bloom can be kept up by removing the centre spike of flowers, when new flowering shoots will break from the main stalk. The next class of plants I would recommend is the Phloxes. These vary in colour from pure white to all shades of crimson, red, and purple, and they are very beautiful. The soil and culture required are the same as for Larkspurs, and they can be had in bloom till frost by taking out the centre of each spike. They form beautiful clumps from 18 inches to 4 feet high. *Anemone japonica* is another splendid plant for mixed borders, growing about 3 feet high and blooming in the fall; colours of bloom, white, red, and pink. *Lobelia cardinalis* has a spike of very brilliant scarlet flowers, growing to the height

of from 2 feet to 3 feet. This, also, can be prolonged in bloom till late in the season by cutting out the centre spike of flowers. The Plantain Lily (*Funkia*) is beautiful for its bold foliage and spikes of pure white, trumpet-shaped, sweet flowers. The beautiful variegated foliage of the *Funkia japonica* is most desirable for edging. *Dielytra spectabilis* is a very graceful plant, and the Peonies are very desirable. *Spiraea palmata* is a good plant. The Aquilegias, or Columbines, are another desirable genus, because of their endless variety of bloom. The Foxglove shows a beautiful variety of colours, and the habit of the plant is good. The *Astilbe japonica* is very chaste, both in flower and Fern-like foliage. *Asclepias tuberosa* is very desirable; so are *Lychnis* and *Campanula* in groups; also *Trillium grandiflorum*, and *Statice*, and *Iris* in variety. Solomon's Seal is very graceful. *Eulalia japonica* and the variety *zebrina* are two



New French compact gold striped Marigold (half natural size).

Grasses from Japan, and are of beautiful habit and make handsome specimens. The Lily of the Valley we all know about, and I would advise growing it in light, sandy soil, and fully exposed to the sun, and then a profusion of bloom is the result. The great family of Lilies, nearly all of them magnificent, must not be overlooked, as they belong to the class of plants under discussion; also the Tulip, Hyacinth, Crocus, and Narcissus. What is more beautiful than *Narcissus poeticus* and the Jonquils and Daffodils in the early spring-time? In fact, I might enumerate hundreds of others equally desirable for the herbaceous border; but I will close my remarks by saying, that only those who have a love for floriculture, and the time to devote to it, can succeed in the cultivation of plants, and justly appreciate the beauties which a beneficent Providence has given us so freely.

Discussion.—Mr. C. M. Hovey said: Tulips and Hyacinths, to give satisfaction, should have prepared beds by themselves. One reason why bulbs are not cultivated is, that they are apt to be destroyed when planted in a mixed border. He agreed with Mr. Woodford that a deep soil without manure would be preferable to a shallow soil with

manure, but would rather have both a reasonable depth and the manure. Herbaceous plants should be set away from trees and hedges. Arbor-vitæ do not do much harm, but Privet and Buckthorn exhaust the soil for 10 feet around, and when the ground is dug in the spring you can take out masses of roots. Herbaceous plants require plenty of water to produce the finest flowers, and should be removed as often as once in five years, as they exhaust the soil around them. Mr. Moore thought Mr. Woodford's advice to dig deep correct. He said that he would dig deep, and manure also. 2 feet is pretty deep digging. If soil is moist it need not be dug so deep. He would not dig more than 15 inches or 18 inches deep for Roses. The surface of the soil should be kept constantly stirred; this prevents evaporation. There is no doubt that removing the centre stalk of flowers from a plant will continue the bloom later. He had had flowers cut down by a hailstorm, and they gave

a fine crop of late blooms. The principle is, prevent early bloom, and you will get late. In dry weather herbaceous plants should get plenty of water. The object of deep digging is to give room for roots and to provide moisture. Herbaceous plants must have plenty of water, like Roses. The subject under discussion is not the alternative of deep digging without manure, or shallow digging with manure, but the best method of culture. Anyone who can afford to plant a border of perennials should afford to feed them. Plants are like animals; they cannot be expected to grow without.

Mr. P. B. Hovey said that deep digging is the foundation of all good culture. He would rather

have the ground trenched 2 feet deep without manure than to have it dug shallow with manure. In England, gardeners trench the ground every year for almost every crop.

Mr. J. G. Barker said that at Pine Grove Cemetery, in Lynn, of which he is superintendent, he had been compelled to give attention to something more enduring than bedding plants. A place was selected for a border of perennials where they did not want to put bedding plants; the soil was a loam of fair quality, about 20 inches in depth. This was trenched and mixed with well decomposed manure, and covered with loam. In the back part, *Josika* Lilacs, *Deutzias*, and other shrubs were planted, and in front of them *Hydrangea paniculata grandiflora* in groups. The spaces between these were still more enriched, and Castor-oil Beans planted, which gave the bed a sub-tropical appearance. In front of these were Phloxes, Japan and Tiger Lilies, *Lilium superbum*, &c., and still further in front *Aquilegias* and plants of similar growth. The soil was naturally moist, and care was taken to give plenty of water, especially to the Phloxes, and it was one of the most satisfactory beds on the place. Other beds prepared in the same way, but where no

water could be given, showed a vast difference. When the bed described was in its beauty, the Hon. E. R. Mudge called to confer with Mr. Barker in regard to arranging the grounds around a church, and said that he had no idea so much beauty could be produced with herbaceous plants. Mr. Barker said he meant to extend this bed and make it more attractive, and he thought the time would soon come when herbaceous plants would receive more attention generally, and we should see fewer bedding, and more hardy plants, or combinations of both. Much may be done with herbaceous plants in parks and cemeteries; if named collections should take the place of a part, at least, of the bedding plants in the public garden, they would be more attractive and interesting. The speaker alluded to the beautiful beds and great variety of herbaceous plants in the grounds of the president of the society.

Mr. Barker read from an article by William C. Barry in the *American Rural Home* as follows: "For nearly a month our garden borders have been enlivened with the beautiful and showy blooms of the herbaceous Peony. Planted among Conifers, flowering shrubs, and ornamental trees, their gay-coloured flowers produce a charming effect. On our ground we have a border 200 feet in length and 15 feet in width, which contains a choice collection of ornamental trees, Conifers, shrubs, Roses, Peonies, and hardy border plants. The tall-growing trees form the background; the shrubs and trees of medium size come next, with the Peonies, Roses, and border plants in the foreground. The assortment of Peonies, when in flower, is undoubtedly the most interesting feature of the collection. On our nursery grounds a large circular bed, about 20 feet in diameter, planted with the most showy and distinct varieties, has during these beautiful June days attracted great attention. It is surprising that so noble a flower, almost rivaling the Rose in brilliancy of colouring and perfection of bloom and the Rhododendron in stately growth, should be so neglected. . . . The foliage is rich and glossy and of a beautiful green colour, thus rendering the plants very ornamental, even when out of flower."

Herbaceous plants are interesting from early spring until the frosts of autumn, and, unlike bedding plants, always afford flowers for cutting. If this subject were properly placed before the people by the Society and by local horticultural and village improvement societies, it would inform the owners of small places how to permanently beautify them. The speaker had read of pegging down the shoots of Phloxes, and of flowering shoots breaking from the whole length like Roses. He recommended as among the most desirable herbaceous plants for beginners, *Aquilegia chrysantha* and *A. coerulea*; the *Alstroemerias*, which are grand plants; and *Anemone sylvestris*, very desirable for spring, and *A. japonica* for autumn flowering. The native Asters are very beautiful under cultivation. *Bocconia japonica* is well suited to the back of a border. The Campanulas, Delphiniums (Larkspurs), *Dielytra spectabilis*, *Gailardia grandiflora*, Hollyhocks and Phloxes, the double Pyrethrums, and *Spiræa palmata*, are all excellent. The Funkias are very desirable. The Fraxinellas are old, but desirable. The markings of some of the Irises are as rich as many of the Orchids. *Iris iberica* is particularly beautiful. A bed of Irises and Lilies edged with *Hepaticas* looks well, or Moss and Hybrid Perpetual Roses edged with *Myosotis dissitiflora*, and with these spring flowering bulbs may be planted, which bloom before the Roses, and would not injure the other plants.

Mr. C. M. Hovey said it is important that herbaceous plants should have rest. Corn is grown for seed, but the plants under consideration for their flowers. They need good culture and a soil that will hold moisture, and particularly a moderately deep soil. If the soil is too rich the buds at the base of the stalks, which are to produce the next year's growth, will be immature. Mr. Hovey said that he was glad to know that Mr. Barker's estimation of the Peony agreed with his own, and also to hear Mr. Barry's opinion. It is only since

the introduction of the *Coleus*, *Alternanthera*, and variegated *Pelargoniums* that ribbon gardening has grown up, but we must rely on herbaceous plants as much as ever if we want flowers early in the season. He had endeavoured to impress on the public the importance of planting them, and he hoped the public would appreciate them. They are especially adapted for cemeteries. He would not do away with bedding plants altogether, but would have them in a place by themselves. There is no time when you cannot cut a bouquet from a perennial border. Herbaceous plants can be raised with little expense; two dollars' worth of seeds will give a mass of bloom in two years. Some are so hardy as not to need protection, but for others a little covering, such as leaves or strawy manure, is necessary, especially for those newly planted, which might otherwise be thrown out of the ground by the frost. Among native plants the *Trillium* and *Sanguinaria* are particularly desirable.

Mr. Barker said that he protects his borders with compost in autumn, and forks it in in the spring. He spoke of the fine effect on a wall about 16 feet high covered with *Ampelopsis quinquefolia* and *A. Veitchii*, and of the contrast of the deep blue flowers of *Clematis Jackmani* with the foliage of the *Ampelopsis*. It has been objected to herbaceous plants that they are not as easily arranged as some others; but if thought is given to the matter, good effects can be produced.

Mr. J. C. Hovey said that the vitality of herbaceous plants is so great that people think when they are once planted they need no further care; but he had found, and Mr. Parkman's experience had been the same, that they must be constantly divided. He had taken up *Delphiniums*, and, after dividing them, had replanted them in the same soil, and they had done well.

A gentleman, whose name was not ascertained, spoke of the different treatment required by soils of different character. The great point is to provide a supply of water, which is the life-blood of plants. Water comes both ways, by rain from above and by capillary attraction from below; and, if we understand this principle, we can judge whether a soil will be benefited by trenching. If the natural supply of water is small, and the sub-soil is clayey or hard, so that it is difficult to draw water from it, then it needs to be deeply pulverised; but if it is loose and gravelly, it should not be. If the surface is kept loose in dry weather, it not only acts as a mulch to the portion below, and prevents the escape of moisture, but, if stirred towards night, the light and porous portion absorbs air, which gives off its moisture to that below. All soils should be kept porous on the surface. When plants get plenty of water, it is easy to supply everything else, but without water you can get nothing.

STATELY GRASSES.

Arundo conspicua.—The chief value of this Grass I consider to be its early flowering, as it commences to bloom fully two months before the Pampas Grass, and continues in good condition for three or four months. In growth it is not unlike the Pampas, but the gracefully-arching flower-spikes form one of its distinctive features, and this, coupled with the fact that it flowers about midsummer, makes it valuable for the sake of variety. This Grass suits any position where the Pampas is admissible, and in selecting a place for it, it should be remembered that it is quite as stately in character as the Pampas. I am not sure, however, that it would thrive in a swamp or near the water's edge of a pond or lake. We have grown it here in a rather sandy well-drained soil, and it has grown in the most luxuriant manner, its flower-spikes frequently reaching a height of 10 feet. I consider it to be quite as hardy as the Pampas Grass, and no doubt it will thrive in any moderately light soil. It should not be crowded. The best place for it is an isolated position on Grass, where it will at all times maintain a presentable appearance. According to my experience, when small plants of it are planted they take six or seven years to form specimens in the proper sense of the

word. If I could obtain plants five or six years old, I would prefer them to younger stock.

Arundo Donax variegata.—This is somewhat distinct in character from the preceding, and better adapted for massing than for isolated specimens. Opinions will differ as to its merits, but notwithstanding that it well deserves attention, although its variegation may not be so clear and well defined as one could wish, it is nevertheless a stately plant when old, and under suitable conditions to give it character. In the deep, rich soil of Mr. John Scott's nursery at Merriott I once saw it growing in the most luxuriant manner, but, strange to say, it had not then flowered, and although I have seen it thriving in some gardens in Devonshire, I do not remember ever seeing it in flower. From what I have seen of its behaviour, it is a plant that is not very particular as to soil or position. In the nursery just named it was growing on a rather elevated position, and in Devonshire I saw it thriving in a shady dell, and not many yards from a stream of water. I am making preparations to grow this plant rather largely, as from what I have seen of it, I am sure it will be most valuable for what is called furnishing its stately growth being just what is wanted for the decoration of large gipsy vases and similar receptacles for indoor ornaments. This is, perhaps, its greatest merit, because a reasonable amount of cutting will not do a strong plant any harm, as it possesses the advantage of being able to produce fresh crowns from the roots, and thus maintains its vigour.

Pampas Grass.—This is so well known that any lengthy account of it is unnecessary. I may, however, remark that it has not proved so hardy as it was at one time supposed to be, and although this is to be regretted, the only way of providing against possible contingencies is to select somewhat sheltered positions for it. Past experience proves that the cold east and north winds do it more injury than actual frost. This shows that shelter from these quarters is desirable, and as it is the largest plants that suffer most, care should be taken that they are not thoughtlessly exposed by the removal of any shelter they may have had. The best time in the whole year for planting this Grass is at the latter end of April or in the beginning of May. Plants are very easily raised from seed, which may be sown in a pan of fine soil in March, and carefully nursed on and hardened off in June. Early in July the plants should be transplanted into a piece of rich soil in the open ground, and allowed to remain there until they are large enough to put out where they are wanted to flower. If a few plants only are required they may be grown the first year in pots in a cold pit or frame, a plan by which they will make larger plants than those planted earlier in the open. In all cases a thoroughly deep soil is necessary in order to have this Grass in perfection. At the same time it may be expected to do fairly well in an ordinary soil.

Eulalia japonica.—This has been lately referred to in THE GARDEN, but there is a diversity of opinions as to its merits. I need not repeat what I have already said in its favour, but I feel bound to say that your correspondent, who said it was no better than the old Cock's-foot Grass, could not have formed his opinion from well grown specimens. We are just now cutting from the open ground, after having experienced 16° of frost, some fairly good spikes of it for Christmas decorations. They are 4 feet high, while those of the Cock's-foot Grass, which is growing in the same border, are hardly to be seen, so keenly has it felt the effects of the late wintry weather.

J. C. C.

Red Japan Anemone.—When well grown this is one of the most striking of all hardy flowers, but to see it to advantage it should be planted in masses consisting of from ten to twenty plants; then the effect produced late in autumn is excellent. This red kind, however, needs more cultural care than the white variety, which is of such

a vigorous habit as to thrive almost anywhere. It will even, indeed, yield a rich harvest of blooms under rather adverse circumstances as regards soil. Where the natural staple is a sound or even rather light loam, the red Japan Anemone is sure to thrive vigorously; otherwise it is apt to become stunted. A careful preparation of the soil is, therefore, necessary in order to ensure success. In any case it likes plenty of good food, which should be in the form of decomposed manure worked in with the soil, to be followed up by annual top-dressings. —J. C. B.

BARTONIA AUREA.

A FEW weeks ago attention was directed in THE GARDEN to the beauty of some of the cultivated Loasas, or South American Stinging Nettles. This *Bartonia* also belongs to the Loasa family, and is nearly allied to *Loasa* itself. It is such a showy, half-hardy annual, that it ought not to be omitted



Bartonia aurea.

from the seed list of annuals for the ensuing season. It grows from 1 foot to 2 feet high under good culture, and bears numerous showy blossoms from 2 inches to 3 inches across, of a lustrous golden yellow, which expand best in bright sunny weather. It should be sown in groups or patches where it is to remain in light soil, sandy loam being the best, choosing a warm situation, where it can be fully exposed, as the plant is very impatient of excessive moisture to the sun. The seed should be sown in the open border in April, and the seedlings should be thinned out a foot or more apart, so as to allow the plants to develop themselves. As the seeds are very small, care should be taken not to bury them too deeply. This *Bartonia* is seldom used in any way but as a patch in a border, but well grown it is one of the best of annuals for a bold mass or bed, relieved by tall, slender plants through it here and there.

Pelargonium Guillon Mangilli.—This plant possesses exceptional merit both as a winter bloomer and for open-air culture, a purpose for which I do not think it is so much used as it should be. It is neat and compact in habit, much resembling in this respect the once highly valued Tom Thumb. The trusses, which are freely produced,

are of medium size, and are so brilliant in colour as to throw *Vesuvius* into the shade. They are also thrown up well above the foliage. I do not think, however, that this *Pelargonium* is capable of producing much effect when grown in the ordinary way from autumn-struck cuttings; it is only when the plants have reached their second year that one can appreciate their value; then they flower with wonderful profusion. The individual blooms being semi-double and the trusses not too large, they are very suitable for button-hole bouquets, lasting, as they do, a long time in a cut state. I would strongly advise those who may not have grown this *Pelargonium* to give it a trial both indoors and in the open air.—J. C. B.

CULTIVATION OF SHOW AURICULAS.

THE great difficulty that confronts a beginner is that of obtaining practical information in sufficient detail as to the cultural needs of this plant. In *Gardening* of the 10th and 17th of June last there appeared two articles on the Auricula by the Rev. F. D. Horner, which "Greenock" and everyone interested in the flower ought to read. They formed an excellent introduction to the subject, but it must be said an introduction and little more. After raising our expectations to the highest pitch, the author in the end cuts us off as it were with a shilling as far as cultural information is concerned. In his simple injunction to "keep their feet warm and their clothes dry," doubtless it contained the main outline of Auricula growing, but it wants a good deal of filling up for us beginners. Mr. Rivers, in the preface to his "Rose Amateur's Guide," has a remark on the difficulty the practical cultivator has to keep in mind the need of full instruction to the uninitiated on what to him are everyday operations—the necessity, in fact, of ample detail. Mr. Douglas's remarks in reply to "Greenock's" inquiry fairly recognises this, and is a welcome and valuable sequel to Mr. Horner's fascinating "Story of a Florist's Flower." If "Greenock" would like to see the matter compressed into a few rules for ready reference, he may find it in Glenny's "Handy Book of Gardening." The subject is also treated very elaborately, as I have quite lately found, in Johnson's "Gardener's Dictionary." The list given by Mr. Douglas of the

Best varieties for exhibition is very interesting, though remembering it is intended for a beginner, one is surprised to find so many sorts set down that are either costly in price, difficult to procure, or not of the best repute as to constitution. Out of this list a great number could not be obtained, according to the growers' catalogues, under a guinea and half a guinea each plant, while others, such as Col. Taylor and Page's Champion, it seems difficult to get at all. I have not met either of these in the few growers' lists I have seen, but have heard two guineas named as the probable price of the first named. Now, General Neill and Lovely Ann are fine exhibition sorts in the same class, and may be had for half-a-crown each, while they possess the further great advantage for a beginner of being strong growers, which it is said Colonel Taylor is not. Alexander Meiklejohn, too, I find quoted in one list at 21s., in another 10s. 6d.; but Robert Traill and Colonel Champneys, which are among the finest of the grey edges, may each be had at a third of the latter price. Indeed, one of the early lessons which the beginner in Auricula growing will learn is that difference in price among the sorts does not necessarily imply corresponding difference in quality. What it does indicate is the quantity of stock in the hands of the seller. Thus of three growers' lists before me I find in one 15s. and 7s. 6d. marked for sorts which in the other two are priced at 5s. and 3s. 6d., the lower prices being those of the more reputed growers. One objection to beginning with expensive sorts is that one is apt to take too much care of them—spoil them, in fact, by coddling. I think the best plan is to try our prentice hands only on varieties which unite high quality with strong habit of growth, and these are sure to be moderate priced, leaving our triumphs with the Page's Champions, Colonel

Taylor, and Booth's Freedoms to a later development of our cultural skill. M. R.

LEAVES FROM THE SOUTHERN ALPS.

Daffodils

That come before the swallow dares, and take
The winds of March with beauty.—*Winter's Tale*.

SHAKESPEARE, with the poet's eye that has a vision of its own into the secret sympathies of Nature, saw in the Daffodil the grace that "takes the winds of March" much in the same way that the beauty of *Una* captivated the lion. (By the way, what an admirable use of the word "take" this is, and how well it serves the purpose without the plethoric addition of "captive.") No doubt Warwickshire, at any rate in the neighbourhood of Stratford, is a very Daffodilly county, and I daresay Shakespeare has many a time and oft looked with delight and the glad feeling induced by approaching spring at the great golden nuggets of the pseudo-Narcissi and the gay embossed disc of the peerless Daffodil waving in the March winds in the cottage gardens of Stratford or on the banks of the Avon; and, seeing the woods yellow with flowers, he would naturally look up to the March sky for the skimming swallow, and would recollect that it was yet too early for these fair-weather friends—too early even to expect the one swallow that does not make summer. Unfortunately, we in this *ultima thule* are never visited by the swallow. Every time I read Gilbert White (which I do regularly every spring) the desire which rises strongest within me is for a grilling hot summer's day and myriads of swallows, dipping, and swimming, and wheeling overhead. By the way, what a perennial freshness there is about those old last century letters from Selborne. It is not the amount of scientific information to be gleaned from them that makes one return again and again to these charming letters. Although White was a most careful and intelligent observer, I am afraid that a true blue scientist of the present day will not betake himself to Gilbert White for lessons on natural history. His speculations, for instance, on the wintering of the swallows are very amusing to the superior wisdom of later times. Speaking of certain bank martins which a "sober hind" assured him he saw on April 9 on Wishanger Common, Gilbert White goes on to say that "it is easy to suppose that they may, like bats and flies, have been awakened by the influence of the sun amidst their secret latebrae, where they have spent the uncomfortable foodless months in a torpid state and the profoundest of slumbers." "Amidst their secret latebrae" is inimitable. The peculiar charm of White's letters is owing to the simple and unaffected character of the writer, which is reflected in his style, and to that reverence for Nature in her very humblest manifestations which is evident in every page. He does not merely describe those country delights which charmed himself, but he makes you see the sights, and hear the sounds, and smell the very smells of Selborne.

But let me return from this unwarrantable digression to my sheep of the golden fleece—in other words, to my Daffodillies. And if we have no swallows for them to anticipate, and though they do not exactly take the winds of March with beauty, but only the winds of September, I defy the woods of Warwickshire to produce grander masses of Daffodils single and Daffodils double, of *Narcissus* large-crowned, *Narcissus* small-crowned, and *Narcissus* medium-crowned than our own gardens, where the *Narcissus* is not native to the soil, but a colonist, like the rest of us. My garden has been yellow with large and frequent clumps of the heavy-headed double pseudo-*Narcissus*; and though I cannot, with Herrick, quite go the length of "weeping to see them haste away so soon," I have no hesitation in saying that, figuratively speaking, my tears for the expiring Daffodil are as salt and heavy as for any other flower, although it is of the jaundice colour. I suppose this is the flower which *Thyrsis* calls the "gaudy" Daffodil. By "gaudy" here, however, I take it that Milton does not mean to depreciate the flower; he does not mean to say

that it is a flaunting flower, but that it is cheerful and sprightly—the gaud or joy of the garden and the woods. Elsewhere he gives it a place of high honour, for he uses it

To strew the laurel hearse where Lycid lies.

Next to the double pseudo-Narcissus, my most abundant variety is the *Narcissus biflorus*, with lemon-white flowers, generally, as the name indicates, in heads of two, but often with single pips and sometimes with three. The fragrance of this variety is delightful, and so strong that a few flowers will scent a room. This *Narcissus* increases at a very great rate, but I observe that the blooms are very few in comparison with the amount of Grass. This prevents it being a very conspicuous object in the garden borders, like its bastard cousin-german. I believe it wants thin planting, so that the bulbs do not crowd upon each other; if they had room each bulb would probably send up its flower. Next to the pseudo-Narcissus, and possessing a beauty of a chaste and more graceful character, the most showy is the incomparabilis, or peerless Daffodil. From the time that this Daffodil pushes its blades above ground in early spring until it opens its yellow, star-like flower, it is interesting or beautiful. One of the first indications that Nature is beginning to stretch herself after her long sleep is the sight of the blade-tips of the Daffodil, sometimes raising on their shoulders an astonishing mass of earth; then the long green spathe shoots out from between every two blades and rises above the Grass and waves about with every breeze in all its lissom beauty. There is one stage of this flower—lasting only for a short time; the more is the pity—in which it is particularly graceful. This is when it is just bursting the sheath and when the yellow divisions of the perianth are all gathered together into a long, somewhat cylindrical beak, beautifully set on the long stem, and reminding one in its motions of a swan's head. I think I admire this stage of the flower even more than its full-blown beauty; but the Daffodil is seen in perfection when you have a large clump in which some are expanded and others in the cygnet state. It is remarkable what differences of foliage exist in the peerless section. One clump with a yellow perianth and an orange crown has long rich Grass of a dull olive-green colour; whilst another, with flowers not to be distinguished from the first, has the brighter green blades characteristic of this section covered with a sort of glaucous or mealy bloom which may be rubbed off with the hand. Intermediate between the peerless and the little Rush-leaved Jonquil there is in my garden a strong-growing and rich flowering variety, which I identify with the odorus by the description given in books. The flowers are of a bright yellow, the cup being nearly of the same colour as the divisions of the perianth, somewhat deep and cleft into six blunt lobes. The Grass is long and coarse—just the vigorous Grass that those who love the *Narcissus* like to see—distinctly Rush-like, with a well marked groove running the entire length. My only reason for doubting its being the odorus is that it has only a very faint scent, if it may be said to have any at all, so that if it is the odorus it is a misnomer. In any case, whatever be its name, it is a most valuable variety—pretty, early, and lasting; but, unfortunately, it does not readily increase. The bijou of my *Narcissi*, however, is

The little Jonquil. To use a French alliteration which I have seen somewhere, it is *petite, piquante, pétillante*, and if its big brother has little scent, this miniature *Narcissus* has perhaps just a "leetle" too much; but why, as Dogberry says, make "odorous" comparisons? My Jonquils are so very small that I am sometimes inclined to think they cannot be the ordinary Jonquil, but some other variety, possibly juncifolius.

The Poet's Narcissus.—This, my favourite of all the *Narcissi*, is unhappily a very shy bloomer with me. The variety I have is probably the recurvus, for the petals turn back almost like a Cyclamen or an American Primrose. Out of a tolerably large clump I confess (with shame

and confusion) that I have been able to coax only a solitary bloom. On my matutinal ramble today (owing to cutting winds which have been burning frore for the last few weeks off and on, whose cold has literally performed the effect of fire, such rambles have been few of late) I found this one bloom of the Pheasant's-eye expanded and sunning itself in the genial morning sun. I could not help marking and admiring the exquisite symmetry and frosty whiteness of the flower, its greenish lemon crown frilled with the narrowest edge of orange-scarlet, and finished off in the centre by a triangle of stamens. On paying the flower a visit in the evening I had the satisfaction of finding that its beauty had meanwhile been appreciated by others, and that in order that it might not waste its charms unseen, it had received the honour of a specimen glass and was blooming amidst the other glories of the drawing-room. As if Nature was determined to stint nothing at the birth of this *Narcissus*, she has added to its lovely purity the most delightful scent of all the *Narcissi*. The scent of the Poet's *Narcissus* has that admirable quality which Sam Weller thought essential to a valentine—there is not too much of it. It is just strong enough to make you "wish there was more." The double-flowered *Narcissus poeticus*—the poor man's Gardenia—is just bursting its sheath. Strange to say it blooms somewhat profusely with me, and is by no means so shy as the single form. Sometimes, however, the flower fails to burst the sheath, and so withers off without coming to perfection, this being due, no doubt, either to poverty or drought in the soil.

PAKEHA.

GARDEN FLORA.

PLATE CCCLXIX.

OCHNA MULTIFLORA.*

SOME three or four years ago Mr. B. S. Williams exhibited, among a miscellaneous group of plants at the great summer show at South Kensington, a shrub, which from its beautiful flowers and fruits, elegance of growth, and altogether uncommon aspect, stood out prominently from all the rest, and on that account attracted a great deal of attention. This shrub is the subject of our present plate. The plant shown was about 5 feet high, and had a clean straight stem, surmounted by a bushy, umbrella-like head 3 feet or more across. Every branch and twig was wreathed with fruits and flowers, the fruits being in various stages of ripening, the receptacles varied in colour from green to a brilliant scarlet, while the fruits proper ranged from pea-green to the deepest and richest shade of violet-purple, even deeper than that shown in the plate. These, contrasted with the clear yellow blossoms expanded at the same time, made a beautiful contrast as regards colour, and seldom seen among plants. Indeed, there are few cultivated plants in which the fruits are so peculiarly formed and exhibit so much diversity of colour. The most familiar example is in the Spindle tree (*Euonymus*). This *Ochna* seems to flower throughout the year more or less profusely, and consequently it has a perennial show of fruit. It is, however, during spring and early summer that it is in its greatest beauty, for then it is copiously furnished with flowers and fruits and delicate green foliage. This plant appears to have

* Drawn from a plant in the Victoria and Paradise Nurseries, Upper Holloway, in May last.

Growers or introducers of new plants will oblige us much by early intimation of the flowering of new or rare species, with a view to their representation in our "Garden Flora," the aim of which is the illustration in colour, and in all cases where possible life size, of distinct plants of high value for our gardens.

been cultivated in botanical gardens years ago, but eventually lost; it must, therefore, be considered to be a most valuable re-introduction.

Being a native of Tropical Africa, this species consequently requires a stove temperature and a moist atmosphere, and under these conditions it thrives admirably in Mr. Williams' nursery at Upper Holloway. It is, however, exceedingly difficult to propagate, hence no doubt the cause of its having become lost to cultivation. When, however, the young plants are well established they seem to thrive under very ordinary treatment, and we were surprised lately to see such a thrifty stock of it as now exists in the Upper Holloway Nursery, all the produce of the large plant exhibited a few years ago. It is naturally inclined to be rather a straggling grower, but with a little care with regard to pinching and cutting, it may be made to grow into a shapely and elegant bush.

There seems to be some misapprehension with regard to the specific name of this plant. Mr. Williams obtained for it the name of *O. multiflora*, but Mr. Hemsley, to whom we submitted the plate, considers it to be identical with *O. atropurpurea*, but as Mr. Williams intends to distribute it in the spring under the name of *O. multiflora*, we have adhered to the latter name.

Respecting *O. atropurpurea*, Mr. Hemsley writes as follows:—

"The genus numbers altogether about twenty-five species. They inhabit Tropical Asia and Tropical and S. Africa. *O. atropurpurea* is widely spread throughout South Africa, and varies in stature in the different regions where it is found from a bush 2 ft. or 3 ft. high to a tree of 30 ft. to 40 ft. It is a striking object not only when in flower, but also when in fruit. Like all the other members of the genus, it has yellow petals, and after these and the stamens fall away the sepals grow out and change to a deep glowing red, as well as the fleshy receptacle, on which are seated the purple drupelets. The latter vary in number from one to five, and sometimes not even one grows out. This depends upon the ovules being fertilised; so it is worth while taking the trouble to ensure this being effected by artificial means. Another property that makes this shrub a favourite is the agreeable fragrance of its flowers. Every traveller mentions it, and Burchell says they have the smell of Wallflowers. On the other hand, it does not seem to be a pleasing object when unadorned with its flowers or fruits, being rather scrubby and naked-looking. Still there is no doubt that a skilful gardener could improve its appearance as to leafage whilst losing nothing of its floral beauty. A dry and rather warm climate is what it enjoys in its native country; therefore, like most really hard-wooded plants, care in watering will be one of the conditions attending successful cultivation. This is not its first appearance in this country, though it is doubtful whether it ever passed out of Kew Gardens, whither it was sent in 1823. A figure of it, in young flower only, was given in the *Botanical Magazine* in 1850. As appears from the text accompanying the plate, the plant from which the drawing was made ripened fruit afterwards, though none of the fruits bore more than one drupelet. In a note on its culture, Mr. John Smith, ex-curator of Kew Gardens, says that it had not produced flowers until that season. This he attributed to its having been kept in a cold greenhouse until the



previous autumn, when it was removed to the Palm house, as it was thought greater warmth during winter might benefit it. The result was, he says, that in April they were agreeably surprised to see it profusely covered with its pretty sweet-scented flowers. Other slow-growing plants produced flowers for the first time under a similar change in treatment. In South Africa, in the districts at least where it attains the dimensions of a small tree, *Ochna atropurpurea*, or rather the form that Burchell called *O. arborea*, bears the name of *roode hout*, that is, red wood, the wood being of a handsome red colour and in great request for certain purposes. Several other species of *Ochna* were introduced between 1790 and 1832, though none seems to have made its way. One of the best is *O. squarrosa*, an Indian species sometimes cultivated in that country, and, on the authority of Sweet, it was introduced into England in 1790. It has larger flowers than *O. atropurpurea*, and Roxburgh describes them as being sweetly fragrant.

"The genus *Gomphia* is closely allied to *Ochna*, differing mainly in having only ten instead of an indefinite number of stamens in each flower, and most of the species also differ in having the flowers in terminal panicles. There are about eighty species, nearly all of them inhabiting tropical America, and all having yellow flowers. *G. Theophrasta* is a fine ornamental species having large leaves not unlike those of a *Theophrasta* and large panicles of flowers. It was introduced by M. Linden's collectors about 15 years ago, and there is a figure of it in the *Botanical Magazine*, plate 5642. *G. olivæformis*, represented in plate 5262 of the same publication, is also an ornamental species. It is sometimes cultivated under the name of *G. decorans*."

GARDEN IN THE HOUSE.

WINDOW PLANTS IN WINTER.

SEVERAL cases of failure in regard to these have lately been brought under my notice by amateur window gardeners, whose plants looked sickly, had lost their leaves, or were in a drooping condition. In the majority of cases I found them to be dusty—even semi-aquatic plants, such as Arums, Musks, and other *Mimuluses*, that naturally select a cool, moist root-run. To these may be added hard-wooded plants, such as Heaths, Epacris, Azaleas, &c., the lovely-scented *Daphne indica* (sold in large quantities for room and window decoration at this period of the year), and also moisture-loving Ferns and Lycopods suited for winter decoration. Hard-wooded plants like Heaths and Azaleas I need not say are irretrievably ruined by drought. Now, blazing Christmas fires and cosy looks are all very well, but the poor plants that would be happy in a temperature of 45° are half-roasted when the thermometer registers from 60° to 70°. No wonder, therefore, that only such plants as *Pelargoniums*, succulents, and Fuchsias are able to withstand such treatment. By way of remedy, I would recommend that plants be classed in windows as in ordinary plant houses. The least experienced in plant culture would, I imagine, hardly expect in winter a house in which *Pelargoniums* would flourish to suit Heaths or the majority of Ferns. Plants kept in dwelling rooms, too, should be well supplied with water at the root in order to counteract the drying effect of fire heat. One thing I may mention, and that is, that plants injured by excess of fire heat can generally be accommodated in a cool entrance hall or in rooms but little heated, while those that are natives of warmer climes, or that have been forced prematurely into bloom, will be benefited by increased warmth if due precautions be taken to

supply moisture at the root. I never found fixed rules as to either watering or other routine work to answer in practice; the safest plan is to avoid all extremes, keep the soil moist, but not saturated, and if saucers or any receptacles for catching excess water are used, empty them after watering the plants, as stagnant water at the roots is the next greatest evil to drought. JAMES GROOM.

Scapfield, Gosport.

FRUIT GARDEN.

ORCHARD HOUSE CULTURE.

ALLOW me to furnish a little of my own experience in regard to orchard house culture obtained during the last seventeen or eighteen years. I need not say that to this, as to most questions, there are two sides. All the Peaches and Nectarines we have ever had here have been obtained from pot trees, and we have always had plenty of fruit, and of as good quality as that gathered from trees planted out in the ordinary Peach houses. I have not exhibited it publicly very often, but when it has been exhibited it has obtained first prizes both at South Kensington and at the Crystal Palace. Our system of Peach culture I may say has done wonders. I purchased a number of trees (maidens) one year from the bud. They were potted in 10-inch pots, and grown on for one season in the orchard house; next year nearly the whole of them bore good crops of fruit; to two of them I would specially allude. A Peach tree named *Exquisite*, a rather shy fruiting American variety, with golden flesh, bore six fruits, which gained a first prize at the Crystal Palace against fifty-six dishes; and anyone who has seen an exhibition of fruit at the Crystal Palace in autumn will know the quality of the fruit with which they had to compete. From another tree, a Nectarine named *Pine-apple*, I gathered six fruits which gained a first prize. Anyone with a very slight knowledge of gardening can grow such trees in pots if they are sufficiently interested in them to attend to them during the growing season. At that time they require daily attention as regards watering and syringing, airing the house, &c. If daily attention can be afforded them during summer, there are few gardening operations that will so well repay those who take a delight in such labour. Our orchard house is constantly occupied with trees or plants, and is one of the most useful and interesting glass structures we have. I cannot, therefore, do better than give

A year's routine of orchard house work as it is carried out here in a few words as possible. In the first week of January all the trees are brought into the house and arranged on the borders; each pot stands on two bricks, in such a way that a free circulation of air is permitted under the pots. We do not allow any roots to grow through the holes in the bottom of the pots. The trees do not require any water for about three weeks after they have been placed in the house. At this time there is also about 500 or 600 pots of fruiting Strawberry plants on the shelves, and on the borders unoccupied by the trees (which are placed thicker than they will be allowed to stand later on) are a lot of *Chrysanthemum* pots, from which we expect to take cuttings very speedily. Large specimens of Myrtles, Agapanthus, *Phormiums*, Aloes, Yuccas, &c., which occupy positions on the lawn during the summer, also find a home here for the winter. In February the blossom buds will be prominent and swelling rapidly; the trees will require water at the roots, but not much. In March more water will be required, and it must be applied with some caution. The reason is this: we repot half the trees one season, and top-dress the other half. Those that are repotted it is not difficult to see when they are dry, but the top-dressed portion requires a little attention owing to the rich surface material holding much moisture and containing few roots, while the part underneath is full of roots which rapidly exhaust the moisture in it. I have seen the added surface compost quite moist, while the

tree would actually be suffering from lack of water. In March and April the trees will also be in full bloom; it is necessary to go over them once a day to shake them gently in order to distribute the pollen. The shy-fruited sorts may be set with the pollen from such varieties that are more free in setting. Up to the time the fruit is set no water has been applied by the syringe or garden engine. Now the trees are syringed every morning, and after a little while both night and morning. If there is any of the Peach aphid on the leaves, the house must be fumigated until it is killed; the fumigation with Tobacco smoke will also kill thrips, another very troublesome pest. Red spider is killed or kept in check by the syringe or garden engine. About the end of April or early in May we turn out all plants or bushes, leaving only the Strawberry plants on the shelves, and the fruit trees, which are now distributed more widely over the borders. Nothing can be gained, but much lost, by placing the trees too closely together. If the leaves are kept free from insect pests, and the roots receive plenty of water, surface dress two or three times in June or July. Malt or kiln dust, loam and stable-manure mixed together in equal proportions is the best.

Surface dressing I have ever tried, and we have tried not a few. Clay's fertiliser gave great vigour to them last season. We keep the temperature highest when the fruit is swelling, and syringe very freely until it has nearly approached the ripening stage, when it is discontinued. When the fruit is ripening keep a dry atmosphere, and do not water the roots too freely, else the fruit will be wanting in flavour. As soon as the fruit is gathered, preparation must be made for repotting the trees. At one time I used rather large pots, now we do not use any larger than 15 inches diameter, and sometimes trees are turned out of these pots and repotted in clean ones the same size, first cutting off an inch or more of the ball all round with a chopper. This may seem a rough and ready way to deal with the roots, but by keeping the house rather close and moist, and dewing the leaves of the repotted trees with a syringe, they become established in a week, as the repotting is done when they are in full leaf. The trees remain in the house until the early days of October, when they are all turned out of doors and plunged in Cocoa-nut fibre refuse until they are again placed indoors in January. During that period we are able to enjoy a whole houseful of *Chrysanthemums*.

J. DOUGLAS.

PEARS FOR PROFIT.

THOUGH I am probably far behind "W. W. H." as regards general experience, I have taken a lively interest in hardy fruits for some years, and therefore I venture to say a few words on the subject. Our soil is light and early, resting on gravel. Pears are very productive, but trees on the Quince stock will not exist; consequently we have no cordons, as they are not generally very satisfactory on the Pear stock. Although cordons succeed on the stiff soils of Herefordshire, I very much doubt whether half-a-dozen men in this county who depend on fruit crops for a living have adopted them. My own opinion is simply an echo of that expressed some years ago by Mr. Scott, of Merriott—"They are very pretty toys, but will never do much towards filling Covent Garden or the Borough Market." Of the nine sorts of Pears enumerated by "W. W. H." I am familiar with all except *Beurré de Jonghe*, and consider them an excellent selection where late Pears are wanted for succession, but I would plant none of them for profit except perhaps *Beurré Bachelier*. In an article in THE GARDEN the other day on Apple and Pear culture in America there occurs the following passage: "Pears are a perishable fruit, and, moreover, the general demand for them ceases with the coming of cool weather," a statement which applies with equal force on this side of the Atlantic. If "S. S." will plant such sorts as Williams' Bon Chrétien, *Beurré Diel*, *Beurré Clairgeau*, and Pitmaston Duchess on Pear stocks, and give each about three

times the wall space he describes, I fancy on such a soil as his they would prove far more profitable than later kinds, owing to their freer cropping properties and ready sale. Out of a collection of about thirty-five varieties here, the most profitable from a market point of view would (taking an average of ten years) undoubtedly have been Doyenné d'Ete, which ripens in July.

Thames Bank, Marlow. A. G. BRIDGEMAN.

MEALY BUG ON VINES.

"COBHAM" must exercise caution in the use of paraffin oil to kill mealy bug on his Vines. I have practically tested that a solution of a quarter of a pint to two gallons of water is the extreme strength at which it can be used with safety not only for Vines, but for all other fruit trees. Happily, I have had no occasion to apply it for the destruction of mealy bug, nor would I do so if troubled with that pest, but would take far more effectual steps, viz., the uprooting of the Vines, making new borders, and painting the house, for by no other means is it possible to make a clean sweep of this most troublesome of all gardeners' plagues.—W. W. H.

— In order to destroy mealy bug on Vines take an old knife (it must not be sharp) and scrape off all the old bark, taking care to clean the rods well round the eyes, but be careful not to damage the buds or new bark. Then give the vinery a good scrubbing with strong soap and water, and whitewash the walls with new lime. If you have any plants standing about in the vinery see that they are not infested, and burn all the old bark scraped off. Then give the Vines a good scrubbing with a mixture consisting of a quarter of a pint of Fir-tree oil and a gallon of water, and then let them dry. After that put eight ounces of Gishurst compound into a gallon of water, a quarter of a pound of soft soap, and half a pound of sulphur; mix these well together and then add enough clay and soot. To make the mixture into a paint and apply it to the Vines rubbing it well in round the eyes without injuring the buds, and a sure cure will be the result.—GEO. KETTERINGHAM.

—"Cobham" (p. 525) asks advice as to using paraffin on Vines for the destruction of this troublesome pest. I have had no experience with paraffin, but in my own practice I have found nothing to equal a mixture of coal tar and clay. But first I would impress upon all anxious to get rid of mealy bug that half measures are of little use. In the first place, all loose bark should be removed, paying particular attention to the old spurs. Then thoroughly cleanse the wood and ironwork inside the house with hot water and soft soap, then paint with either paraffin or turpentine, taking care to rub it well into the eyes through which the wires are strained. The walls should be whitewashed with hot lime, and if the borders are inside, take off about an inch of the old soil and substitute fresh material. Now proceed to dress the Vine with a mixture of tar and clay, in the proportion of one of the former to three of the latter, using sufficient water to bring it to the consistency of thick paint. This mixture should be applied with a stiff paint-brush, well rubbing it into the bark and stopping up all crevices, especially round old spurs. If anyone who is troubled with mealy bug on Vines will give this plan a trial, they will find their labour well rewarded. I am not prepared to say that by the first dressing it will be got rid of, for when once mealy bug gets established on Vines it is most difficult to eradicate; but by keeping a sharp look-out during the summer, and killing any that make their appearance, with a second dressing the following winter it will be completely cleared out.—T. W., *Farnley*.

— The best time to clean Vines and vineries is as soon as pruning is completed. Scrape off all outside bark till the Vines are quite smooth and of a light brown colour, but take care not to injure the wood. When done take a stiff paint-brush, one that has been worn pretty well, and some soft soap and hot water. In this mixture dip the

brush and lather the Vines well, taking care that every crevice is thoroughly washed from bottom to top. When done lay them on the floor; then take a 4-gallon can, put into it a pint of paraffin oil, and fill the can up with water. Take a syringe and with this paraffin mixture saturate every available surface in the house, and see that the crevices or hiding-places also get their share. In applying it, draw the syringe full and return the contents with a good force into the can, refilling the syringe while the water is in commotion, otherwise the paraffin will all float on the surface. When every part has been saturated follow up the work of cleaning with a good stiff brush and plenty of clean water applied with force by means of a syringe, or, better still, a garden engine. If the old broom scrubbers are properly handled they will not leave much behind them. When the cleaning is completed, get a few stones of lime fresh from the kiln; put them into a tub, with sufficient water to thoroughly boil. When the boiling ceases take a white-wash brush that has been steeped in water for twelve hours previously, otherwise the lime will burn the brush and render it useless. Give the wall a good coating while the lime is hot, working the brush in all directions to make sure no crevices are missed. When breeding time comes in spring, keep a regular look out for any chance brood that may have been missed, and prevent them from spreading. In fact, a good coating of hot lime on the walls of bothouses two or three times in a year not only destroys insects, but is beneficial to the inmates of the house, at least as far as keeping the atmosphere sweet and comfortable is concerned.—JAMES SMITH, *Waterdale*.

— Mealy bug has always been regarded as one of the most undesirable of pests on Vines, and, unfortunately, of late years it appears to have become much more common than it used to be. Many years ago Vines were far more syringed than they are now-a-days. They were not only dewed over to soften the buds and assist the shoots to grow until the bunches were visible or came into bloom, but they were frequently well washed by means of the syringe or garden engine while the fruit was green and swelling on up to the time when it had arrived at maturity, and under such circumstances mealy bug had a hard time of it. Nothing is so much against it as frequent syringing, and, in my opinion, it is in a great measure through giving up this practice that it is now so plentiful and destructive. Few Vines are syringed now after the fruit is formed, as it is thought syringing blemishes the bloom on the Grapes, and there is no doubt it does to a small extent, but I would prefer Grapes without bloom to fruit overrun with mealy bug. As a great check to the increase and spread of this pest, I therefore recommend frequent syringing up to the time when the fruit is ripe. I will venture to say anyone who will try this in a vinery where bug has been rampant will be astonished at the result. In a house here, a combination of vinery and plant house, we have always a few mealy bugs by the end of the season, but we rarely notice one so long as we syringe; as soon, however, as that is stopped bug is almost sure to appear, but after this we will have less regard for bloom, and will syringe onwards throughout the season until the enemy is fairly beaten. As a further proof of the benefit arising from syringing, I have seen vineries started into growth in January and the fruit all cut in July. Previous to this, however, syringing was discontinued, and mealy bug soon appeared and multiplied, but immediately the fruit was cut and heavy syringings were given to clean the leaves of red spider, the mealy bug also gave way, and before the leaves were ripened and down not a bug could be seen. Besides this careful winter cleaning is a safe practice against this and other insects; washing all glass and woodwork and afterwards painting are operations in the right direction. It is useless trying to clean the Vines properly unless they can be scrubbed. To do this it is necessary to strip off all loose bark, but in doing this care should be taken not to injure the wood. This done, the house should be thoroughly cleaned, the Vines

should then be brushed or sponged down with a mixture of water and Gishurst compound, using one ounce of the latter to every gallon of water. Then comes the application of the most efficient of all remedies, viz., the tar one. When this was first recommended by Mr. Hunter, of Lambton, attempts were made to cry it down, but since then many have tried it and now speak of it in the highest terms of praise. It is at this season when the Vines are being pruned and cleaned that it can be applied with the greatest advantage, and respecting its composition and use Mr. Hunter in a letter before me writes thus: "Put one quart of tar and four quarts of water into a bucket, add sufficient garden soil to make it of the consistency of paint. Mix all well together and put in 1 quart of hot lime to give the Vines a natural looking colour when dry. Apply the mixture as you would paint, brushing it well into every crevice and going over every eye. In bad cases this may be done twice in one winter; the Vines will be quite safe under the operation. As an experiment one Vine here was painted with pure tar and no injury was the result, but this I only mention to show that the plan is a safe one, and so it undoubtedly is. Mr. Hunter's Grapes, with which we were all delighted at the late Edinburgh International Show, were produced by Vines which had been cleared of mealy bug in the manner just indicated.—CAMBRIAN.

STANDARD GOOSEBERRIES AND CURRANTS.

I SEE that these are advocated, but in my opinion there are several objections to them; chief among which is their liability to injury from wind unless staked, and everyone who has anything to do with a garden knows how expensive stakes are, owing to the very short time they last, unless iron ones are made use of, and these are very costly, although doubtless the cheapest by far in the end. Instead of standards being more easy to protect, I consider them the most difficult, but they have the advantage in having their tops farther removed from the soil, and consequently the fruit does not get splashed and spoiled by the wet to so great an extent as that on dwarfs. As to preserving Gooseberries and Currants from birds, the best way is to plant the bushes in rows, or to make regular plantations, when, during the summer, they can have fine-meshed rabbit wire run round and over the top ordinary fishing net; by adopting this plan of covering, anyone can go under it and pick the fruit without any trouble, and the same with Strawberries, which may be protected in a similar manner. The rabbit wire should be at least 3 feet high, and to support the fishing net it is necessary to have a few stakes with rods or wire running from one to the other, on which the net can rest. This is how we always manage ours, and we had plenty of Gooseberries and Currants hanging till very late in the autumn; indeed, we have some of the latter now, but they are a little shrivelled and spoiled by the frost. The sort of Gooseberry we grow for keeping is the Warrington, a fine, large red and excellent in flavour, which improves by hanging so long as the weather remains dry and warm. If it were not for the rabbit wire we should have much bother with the net, as when pegged to the ground it rots, and, being in contact with the bushes, it becomes entangled with the spines, and it is almost impossible to move it on and off without tearing or breaking the meshes, and birds soon find out the holes, and work their way through them. With the wire the fruit is quite safe, as birds run round and round looking for an opening, and give up in despair. Not only is the wire more secure, but it soon pays for itself, as, unlike net, it is not perishable, but lasts a lifetime if ordinary care is taken in rolling it up when done with and putting it by. S. D.

Air roots on Vines.—In almost every instance in which I have found air roots on Vines I have found that the roots were in cold and imperfectly drained outside borders, and

where there was no inside one. It is in no way strange, therefore, especially when we consider the influence of bottom heat and surface temperatures acting upon vegetable tissue at the same time, that air roots should appear upon Vines. There is, indeed, not the slightest doubt that cold ill-drained, and damp outside borders are the main cause of air roots appearing. That air roots at one time assist the growth of the foliage there is no doubt, I think; but if, at the same time, they injure the Vine, their absence is preferable to their presence. The generality of Vine growers rub them off when young, but if we would remedy the evil, we must look to the border.—G. DRUMMOND, *Witton Park*.

KITCHEN GARDEN.

SCALLIONS.

IN many gardens a practice exists of planting out Onions in early spring for the sake of the young growths which they afford, and which are ready to use long ere spring sown Onions are large enough. Being, moreover, more tender and delicate



Bunch of Scallions.

in flavour, Scallions find favour with many who object to Onions generally. Any roots which may be at hand in March will do, but small ones such as are used for pickling are best, as they produce nice growths of just the right size for salads. A warm border under a south wall is a good position for them, as the object is to induce them to make a free early growth. J. C. B.

BRUSSELS SPROUTS.

THIS is one of our very hardiest winter greens, withstanding with impunity our severest winters. Well cultivated, it will be found to be a profitable crop, suitable for any garden, large or small. Amongst the several sorts, some are very vigorous, and these should be planted on strong heavy land; whereas dwarfier sorts are most suitable for light ground.

The soil best suited for producing fine crops is a heavy loam, which requires to be well enriched with manure. Trench deeply, averaging from 2 feet to 3 feet, and as early in the winter as possible, working the manure deeply into the ground as the trenching proceeds. Under this treatment the roots of the plants will run deep in search of food, and thus the plants will be better able to withstand dry weather. When trenching, if procurable, use half decayed manure, which, during winter and spring, will get well rotted and be ready for the plants to feed upon when required. Sow as early in spring as possible, for the success of the crop will depend a good deal upon having the plants strong before planting-out time, which should be as early in summer as possible, as they require a long season of growth to bring them to perfection. When a pit or frame is at hand sow a few seeds in pots or boxes, using light sandy

soil for the purpose. In that case the seeds may be sown early in March thinly and covering lightly with the soil. Water through a fine rosed pot and place them in the pit or frame. When the young plants are large enough to handle, prick them out singly into boxes filled with light soil and place them under glass for a time until they get well established; they may then be planted out upon a prepared piece of a warm border.

The main crop should be sown from the middle to the end of March, choosing a dry warm border with a south or west aspect for the seed beds. The latter should be 4 feet wide with 12-inch alleys between them. Before sowing give the ground a good dressing with soot and lime, which will be found beneficial to the young seedlings, and a preventive of club—often troublesome while the plants are young. Sow thinly, raking the seeds in with an iron rake and leaving the surface fine. Another way is to sow in drills 1 inch deep and 4 inches asunder, covering the seeds in, when the ground may be raked level. Protection from small birds until the seeds germinate is often necessary. The best means of doing this is to cover the beds with old fish nets or some other open material, such as thin open tiffany. When the plants have become large enough to handle, prick them off into nursery beds 4 inches apart upon an open piece of ground, dressing them with lime soon after being planted. Plants from the earliest sowing will be ready to be planted out about the middle of May, and these will produce an early crop of Sprouts. The main crop may be planted from the middle to the end of June, but much will depend upon the locality, *i.e.*, whether late or early. The width at which the plants should stand apart depends a good deal upon the quality and richness of the soil. For the largest growing sorts 2½ feet between the rows and 2 feet plant from plant will be sufficient space. Dwarf-growing sorts may be planted from 2 feet to 18 inches row from row, and 18 inches plant from plant. Hoe frequently to keep down weeds and the surface of the ground open, a condition beneficial to the growth of the plants. Where extra fine Sprouts are desired, sow some artificial manure between the rows, hoeing it into the ground deeply, or liquid manure may be applied once a week. As soon as the plants are large enough draw some soil round their stems to keep them firm at the roots. They will then need little more attention till autumn, when they may be stripped of their lower leaves, so as to admit light and air to the plants, the result being fine large plump Sprouts. Early in spring cut the tops off the plants, treatment which induces them to make a second growth and to yield plenty of fresh Sprouts till late in the season.

Varieties.—Strymger's Giant, which grows to a medium height, is one of the best for a general crop. Rosebery is a very prolific sort, producing fine large Sprouts, and excellent in flavour. Albert Sprouts is a hybrid between the Savoy and Brussels Sprout, and a desirable sort. Aigburth is one of the best of the large sprouted kinds, and very prolific. Carter's Perfection is also a good useful variety, and one which produces fine large firm Sprouts.

Bromley Common.

WM. CHRISTISON.

A new crop for Irish bogs.—While Mr. Mitchell-Henry is, with laudable energy, showing that it is practicable to reclaim Irish bogs, and, by dint of drainage and careful culture, to transform them into fertile areas, capable of producing Potatoes and corn in abundance, it may be well to show how the same object—that of increasing the value of bog land—may be achieved without altering its natural character. One crop at least which promises successful results in this direction may be found in the purple Molinia (*M. cœrulea*), or Melic Grass, which grows naturally in every part of Ireland in which there is a superabundance of moisture, flowering in July and August, and producing seed early in September. The Grass contains, when fresh, one-third of its weight of

woody fibre, which has been proved by experiment to be an excellent material for paper-making. Since the demand for paper increases every day, and the supply of material for the purpose does not by any means keep pace with the demand, this Grass would no doubt prove a valuable product, if only it were grown in sufficient abundance and harvested with sufficient regularity to make it worth the while of the paper manufacturers to avail themselves of it. Esparto Grass is becoming more and more scarce, or, at least, since the action of France in Tunis, both dearer and more and more difficult to procure in this country, and Melic Grass would make a by no means unworthy substitute. The proposal is not altogether a new one, having, we believe, been made some two or three years ago in the *Times*, but the present is a favourable opportunity for reviving the idea. The million odd acres of bog in Ireland, to say nothing of other areas almost equally suitable for the purpose, could be made to produce a crop of enormous value. An experimental trial made some months ago in Galway gave very excellent results, but we are not aware that the matter was pursued beyond the experimental stage. Such a mode of dealing with the Irish bogs has advantages over any other system of reclamation, since it not only affords the opportunity of introducing an entirely new industry, but would not interfere with the supply of peat, which will always have a certain value in the country.—*Colonies and India*.

OUR SLUGS AND SNAILS.

IN spite of the crazy maunderings of sentimental anti-vivisectionists, gardeners will probably continue to regard slugs and snails as their mortal foes, and to wage war to the death upon them accordingly "to the end of the chapter." We have been watching a tender nursing for a week, when, lo, in a single night it is gone. We seek the marauder, and martial law is at once enforced. To the true gardener, however, every living thing in his domain, from the overshadowing Elms with their colony of garrulous rooks to the tiniest mite that lives in the damp moss and decaying wood of the Fern house, is, or should be, of interest. Each may be potent either for good or evil to his plant charges. If, then, our gardener ask a man of science the simple query, "What is a snail?" he may be met with the reply that it belongs to the class Gastropoda of the sub-kingdom Mollusca, and be referred for further information to a specialist who is styled a "malacologist." Probably these three sesquipedalian words will have been enough for him, and he will return to his place a sadder, but a no whit wiser man. Without flinging unnecessary technicalities about, we propose to discuss, first, briefly what a snail is, and, secondly, what are the common slugs and snails that appear in our gardens.

Zoologists divide all animals into some six or seven sub-kingdoms or major groups, based, as are all their classifications, upon structure. The lowest animals are almost without structure, mere particles of animated jelly, generally microscopic in size, and known as the "first animals," or Protozoa. Above these are the jelly fishes, polypes, and sea anemones, which consist mainly of stomach, and are hence termed by another Greek word *Cœlentera*. Higher still is the group with long soft bodies made up of rings, with mere bristles in lieu of legs, or with star-shaped bodies and horny and spiny shells; the star-fish, sea-urchins, and worms, both of land and of water, that are all classed together under the comprehensive Latin name *Vermes*, or in plain English, worms. If our own vanity makes us rank at the head of the animal world, those beings which possess a backbone like ourselves, the fishes, frogs, reptiles, birds, and beasts, or vertebrata, justice compels us to admit that in mental development we are closely rivalled by that other sub-kingdom with tough skins and jointed limbs that includes crabs, lobsters, scorpions, spiders, centipedes, and insects, the Arthropoda, or jointed-footed ones, a group related by its lowest forms to the worms, but including the butterfly, the bee,

and the ant. There yet remains a sub-kingdom including animals with soft bodies, often, but not always, enclosed in hard shells, their bodies not divided into rings or segments like worms, leeches, or centipedes, nor furnished with bristle-like feet—a group including the oyster, the scallop, the mussel, the limpet, the cattle-fish, the octopus, the beautiful pearly nautilus, and last, but not least, the slugs and snails. This sub-kingdom is the

Mollusca—the soft animals. Besides minor sub-divisions it embraces four chief classes. The first of these rejoices in the appellation of Lamelli-branchiata, the plate-gilled, and anyone who will take a river mussel and cut it deftly open will see the reason why in the large, brown, two-layered gills that lie within. The members of this class have two shells, which are generally alike, but are each unsymmetrical. Here belong the oysters, cockles, scallops, and mussels, animals having no very distinct head. Next in rank are the Pteropoda, or winged-footed ones, minute animals with glassy shells and two spreading wing-like appendages that float on the surface of the open ocean and furnish food for the whale. Then follow the Gastropoda, of which more anon, the highest class being the Cephalopoda, large animals with a circle of eight, ten, or more arms, furnished with suckers, placed round the mouth—the squids, cuttles, devil-fish, and nautilus of to-day, and the ammonites and belemnites of past geological epochs. In these three higher classes there is a distinct head, and a remarkable organ sometimes called a tongue, or lingual ribbon, but more correctly the odontophore, as it is studded with rows of hundreds of flint teeth, which when drawn, as they are, by a sort of pulley, backward and forward over a cushion-like body, work sad havoc in the plant world. Whilst all molluscs are characterised by their soft bodies, enveloped in a muscular skin or mantle, which usually secretes a shell composed mainly of carbonate of lime, the gastropods have this mantle in a sack-like form with an opening in front from which the head and so-called foot are projected, and the shell, though sometimes altogether absent, is never composed of more than one piece or valve. It is true some snails have a little shelly lid on the end of their fleshy foot which acts like an undergraduate's "sported oak" when they are indoors and would be "not at home," but this is not secreted by the mantle, and does not count as shell.

The gastropods take their name (meaning belly-footed) from the broad, flattened muscle of the lower part of the body by the successive expansions and contractions of which the animal crawls, as may be well seen in the wave-like motion of a snail on a piece of glass. This is called the foot. Slow and awkward as are its movements, a snail is by no means deficient in organisation. It has a distinct stomach and a liver, so that a gardener may sometimes piously invoke upon its head an attack of dyspepsia. It has a heart with veins and arteries, though its blood is colourless; a nervous system with special organs for seeing, hearing, and probably for smelling; and a breathing apparatus, adapted in some for aquatic, in others for terrestrial life. The nervous system consists chiefly of a nerve ring round the throat, sending off branches to the tentacles and eyes, to the mouth, and to the other parts of the body. The eyes in our slugs and snails are two in number, as in ourselves, and though of such simple structure that it is doubtful if they can do more than tell light from darkness, they have the advantage of us in carrying them on the ends of two flexible and extremely sensitive stalks or tentacles, which they can draw outside like the finger of a glove. Near the base of each tentacle is an ear, a round vesicle containing a minute vibrating lump of calcareous matter called an otolith. Though not yet detected by anatomy, when we watch snails attracted by strong-smelling fungi and marine gastropods by animal matter, we cannot doubt that organs of smell also exist. Snails certainly soon express their disapproval of salt or lime-water, and the copious greenish saliva they pour from the salivary glands of the mouth would make us accredit

them with a sense of taste if every gardener had



Fine specimen of the Pillar Slug (*Limax cinereus*).

not already been too well convinced of their discriminative palates.

The food is obtained by the action of the odontophore, which Professor Huxley thus describes: "It consists essentially of a cartilaginous strap which bears a long series of transversely disposed teeth. The ends of the strap are connected with muscles attached to the upper and lower surface of the hinder extremities of the cartilaginous cushions, and these muscles, by their alternate contractions, cause the toothed strap to work backwards and forwards over the end of the pulley formed by its anterior end. The strap consequently acts after the fashion of a chain saw (or rather of a rasp) upon any substance to which it is applied, and the resulting wear and tear of its anterior teeth are made good by the incessant development of new teeth in the secreting sac in which the hinder end of the strap is lodged." These teeth are amber coloured, translucent and insoluble in acid, being composed of siliceous or flint. The ribbon on which they are may be as long as the animal itself. The Roman snail has 21,000 teeth, and the great slug 26,800 in 180 rows of 160 each! Their breathing apparatus is of great importance in the study of gastropods, for it is taken as the basis of their classification. As "there be land rats and water rats," so there be land snails and water snails, sea slugs and land slugs, and the vast majority of the 22,000 species of known gastropods are marine and breathe by gills. About 6500 inhabit the land or fresh water, and breathe by means of a lung or air chamber, formed by a little fold in the mantle, which has an opening to the air on the right side of the animal. These form the order Pulmonifera, or lung-bearers, and to this order belong all the slugs and snails with which we are concerned. The shells of these animals are closely related to their breathing organs, being also formed from the mantle. In the land snails the shell originates as calcareous granules within the substance of the mantle, and all living shells are covered with an insensitive epidermis or scarf-skin. When the animal dies this skin becomes bleached and the shell loses those colours which often serve during life to protect it from its enemies by their resemblance to surrounding objects—leaves, stones, or soil. Some few gastropods have the shell evenly developed in the adult, as in the embryo, as a conical cap or tube; as, for example, the limpet and the tooth-shell (*Dentalium*). Some slugs have no shell whatever, but more often it is rudimentary, and covered by a thick layer of the mantle. The vast majority of gastropods, however, are developed in a one-sided manner, that gives the familiar spiral form to their shells. The shells of land snails have not to withstand the dashing of breakers on the rocks, nor have the animals always access to such an unfailing supply of carbonate of lime as sea water. They are, therefore, thinner and less pearly, and contain more animal matter than those of marine forms. For a similar reason they do not require to produce eggs by the hundred thousand, but only by the score. Slugs bury their eggs in the ground, each egg being separate and enclosed in a shell. They are hatched in summer or autumn, hibernate during the winter, and reach their full size during the next year. Though in confinement, land snails live for as many as six or eight years; in their natural state they generally die during their second winter. A specimen of *Helix lactea* from the south of Europe proved itself to be alive after two years in a cabinet by producing twenty young ones, whilst one of the *Helix desertorum* in the British Museum, brought from Egypt, revived after four years' quiescence.

The Pulmonifera are sub-divided into two sections—the Operculata, which have a calcareous operculum or lid on the end of the foot to close the shell, a group of some 500 species, and the Inoperculata, twelve times as numerous, which have no such lid. In many of these latter, however, a layer of hardened parchment-like mucus, sometimes strengthened by carbonate of lime, is formed over the mouth of the shell during hibernation. This is called an epiphragm, and is always perforated opposite the respiratory orifice. Mr. Darwin found that the Roman snail (*Helix pomatia*), which has such an epiphragm, lived after twenty days' immersion in sea water, a fact that

partly explains the world-wide distribution of some genera of land shells.

The chief British species among the Operculata is a pretty little spiral shell known as *Cyclostoma elegans*. It is spirally striated, and takes its name from its round mouth. The animal has the eyes at the base of the tentacles, and an elongated proboscis. It occurs on chalky soils, as at Boxhill and Mickleham, Dartford, and Berkhamsted, in the London district, and may occasionally stray into gardens in such localities. By far the greater number, however, of our hundred British Pulmonifera (of which we are concerned, not with the fresh water species, but only with the land ones) belong to the two Inoperculate families—the Limacidae, or slugs, and the Helicidae, or snails. In the former the shell is small and usually internal, and the body is not distinct from the foot; in the latter the body is distinct, and is generally capable of being entirely withdrawn within the spiral external shell.

Of true slugs, or Limacidae, we have in England about a dozen species, two interesting forms, however, not being indigenous, though now naturalised. These are seven belonging to the genus *Limax*, three to *Arion*, and two (the two in question) to Testacella. These genera are easily distinguished. *Limax*, the true slug, has generally a slight ridge or keel down the back, the body pointed behind, a distinct, though small, shell under the back part of the mantle, and the breathing orifice near the hind edge of the mantle. *Arion*, the land sole, has the body rounded behind and provided at its extremity with a slime gland; the shell is generally only represented by loose grains of calcareous matter under the mantle, and the breathing hole is near the front of the right side of the mantle. *Geomalacus*, the ground slug, is a genus represented by one species found only in Co. Kerry, which differs from *Arion* only in a minor detail of structure; whilst *Testacella*, the shell slug, represented in England by two introduced species, has two furrows down the back of a body, tapering towards the head and the respiratory opening at the back of a sub-spiral external shell which is situated almost at the end of the body. There are six or seven species of *Limax* in Europe, all of which occur in England, and may occasionally be found in our gardens, though most damage is done by one small kind (*L. agrestis*). The species are perhaps best known as the jet slug (*L. gagates*), Sowerby's slug (*L. Sowerbyi*) the yellow slug (*L. flavus*), the field slug (*L. agrestis*), the smooth slug (*L. lævis*), the tree slug (*L. arborum*), and the great slug (*L. maximus*), but their identification is obscured by numerous synonymous names, by their variability in colour, and by the confusion of young specimens of the larger kinds with adult small ones.

The jet slug (*L. gagates*) is a dingy leaden-grey slug about 2½ inches long with a darker oblong shield, which is granulated and ridged, the ridge being continued to the tapering tail. The breathing pore is near the centre of the right margin of the shield, and beneath the mantle is a small oval shell having an iridescent appearance. This slug has been recorded in Scotland, Guernsey, the Isle of Wight, Portland, Torquay, and the Isle of Man, and is tolerably common in Ireland in gardens and hedgerows, in Grass, or on Cabbages. It varies a good deal in colour, from black to slate colour, and from brown to red or a mottled yellow, but nearly always having the head, tentacles, and neck slate colour, and the under surface paler than the upper.

Sowerby's slug (*L. Sowerbyi*), sometimes known as the bordered slug (*L. marginatus*), is a larger and commoner kind. It is of a tawny yellow, reddish brown, or grey colour, tessellated with a darker hue, and marked with one or two longitudinal stripes of a light tint. It is 2½ inches to 3 inches long, thick, but tapering to a pointed tail. The shield is oblong, and granulated with a dark line down either side, and having the breathing hole nearer to the tail end of its right margin. The shell is elliptical and almost symmetrical, being marked by well-defined lines of growth. It secretes a thick, colourless slime, and is tolerably

common throughout the British Isles among dead leaves, under stones, and in gardens. It has eighty rows of teeth, each consisting of 101, and does considerable execution with them, not only on plants, but on earth worms, and even on young individuals of its own kind.

The yellow slug (*L. flavus*) is a large species, sometimes 4 inches long, of a dull yellow colour, variegated on the back with ash grey. There is a ridge to the tail end of the back, the tail is pointed, the shield concentrically wrinkled, and the shell, which is over half an inch long, of an oblong form. The tentacles are slate colour and the under surface white, and the animal secretes a yellow slime. It has over 20,000 teeth, and though it lives principally in caves, wells, cellars, and moist woods, sometimes comes at night into gardens, and is practically omnivorous. G. S. BOULGER.

[The subject of the annexed illustration, a fine example of the cellar slug, was sent to our office in July last by Mr. Albert Killick. It measured fully 8½ inches in length, and is altogether a very remarkable specimen of the variety of slug in question.]

SEASONABLE WORK.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Ipomæas.—The distinct-flowered *I. Horsfalliæ* is a plant that deserves a place in every warm stove. The limited amount of growth which it makes in many cases renders it preferable to many stronger growing climbers. It is seen to the best advantage where allowed to twine round strings or wires placed longitudinally over a path. Its season of blooming varies considerably with the amount of heat kept up. Where a high temperature is maintained and the flowering is now over a portion of the strongest shoots should be well cut back towards the collar of the plant. If the strongest are not treated in this way annually the plant is liable to get naked at the bottom, and it is much better to effect this shortening in as soon as the flowering is over than to defer it until some growth is made. *I. Leari* is suitable for a large house where there is much roof to furnish. Under a high temperature this kind begins to grow early, and to keep it in bounds it should be well cut in or headed back completely each winter. Where there is enough heat to start it early into growth and it is thus headed in at once, it will bloom considerably sooner in the season than if the shortening back was deferred until later.

Passifloras and Tacsonias.—The strong growing kinds of these, such as *P. quadrangularis* and others of the like warm section, should have their heads well reduced each season, otherwise there is no proportion between the amount of shoot growth they make and the quantity of flowers produced. With a view to keeping the old plants from their base upwards continually furnished with healthy leaves, it is well to sever the shoots at different points; the strongest may be reduced to as near the base of the plant as it will permit, cutting in the others at various lengths, which is far better than shortening all back to one point, as it keeps the entire plant annually renewed. As a matter of course the shoot reduction now necessary with almost all the family depends upon their season of blooming, still further regulated by the heat they are subjected to, as on this their late or early flowering very much depends. All the late summer or autumn blooming kinds should at once receive all the cutting in they require, as if allowed to make growths before their heads are so reduced it is manifestly a double loss both in wasting time and the energies of the plants. In houses where there is plenty of room *T. manicata*, *T. mollissima*, *T. pubescens*, and *T. sanguinea* are all worthy of a place.

Thunbergias.—Autumn bloomers, such as *T. Harrisii* and *T. laurifolia*, which are strong, vigorous growers, should have a great portion of their tops removed as soon as the flowering is over. If these are not cut in closer than plants

that make less annual growth, they get into a wild, straggling, bare-stemmed condition, unsightly in appearance, with a disposition to encroach upon and overgrow other things, and not in themselves giving a corresponding return of flowers for the head-room they occupy.

Hexacentris.—Although *H. mysorensis* and *H. lutea* (the former the handsomer) are sometimes grown in a hot stove, still, like a good many other climbers that come under the head of warm stove plants, they do better in an intermediate temperature, as when so treated the flowers they produce are greater in proportion to the shoot growth. The time of these plants blooming is in a great measure regulated by the treatment they receive; when not kept so warm they flower much later and freer. At this season they are better much drier at the roots than many things; no more water should be given than will just keep the foliage from drooping.

Aristolochias.—Strong growing species like *A. ornithocephala* and *A. gigas* make a large amount of shoot growth when the plants have liberal pot room. If not yearly headed back to within 5 feet or 6 feet of the base they will have a great length of flowerless wood. If not already shortened in they should be so treated at once, as they will very soon commence growth where there is a brisk heat kept up, and without this the flowering is proportionately less.

Cissus and Dioscoreas.—Plants of this class, which are especially useful for clothing walls where anything of a flowering character would not have a chance of blooming much, should be cut close in, especially the best of the *Cissus*, *C. discolor*, which ought to have its head in a great measure renewed each season, the old leaves having a faded, dull appearance. All the climbers above named, if in the least affected with insects, should be taken off the wires and dipped in a strong solution of insecticide, repeating the operation two or three times in the course of ten days. They will bear it much stronger now than when soft young growth is present, and the advantage of having the plants clean to commence the season with will be apparent later on not only in the diminution of labour, but in their better condition.

Anthuriums.—Although large specimens of *A. Scherzerianum* have always an imposing appearance when well furnished with their bright flowers, yet a moderate number of medium sized examples consisting of may be two or three crowns each is more useful dispersed about the house they are grown in. As I have before urged, this plant does much better in an intermediate temperature than where kept with *Ixoras*, *Dipladenias*, *Gardenias*, *Allamandas*, and others of a like character, the full flowering abilities of which can never be brought out without a high temperature. One result of keeping *A. Scherzerianum* too warm is that it begins to bloom sooner in the spring than most people require it; if to be used for warm conservatory decoration, for which it is well adapted, it should not be brought on too early, for if taken out of a hot stove and transferred to cooler quarters before the beginning of summer, the plants are almost sure to suffer. Treated to medium heat, the autumn formed leaves will now be about completed, and the plants will show little disposition to push more. Under such conditions, if they are kept for the next two months in a night temperature of 50° at the most, it will be of much benefit to them. Keep the roots moderately moist, but not so wet as when more active growth was going on. The white variety of *A. Scherzerianum* has been a somewhat disappointing plant; nevertheless when well managed it forms a pleasing contrast to the other. With it, as with the red variety, for some years after its introduction it was grown much too hot. Much might be done in the way of crossing these two plants by using the red kind, which is so much stronger a grower than the other, as the seed parent, an interesting race, would belikely result. Where the soil is at all out of condition, as it is very liable to get through the quantity of water they require, these plants may be potted at any time

when there are not a number of partially developed leaves in existence. When repotting is to be effected, the work should be done thoroughly, so as to get all the old soil away, replacing it with the best fibrous peat and chopped Sphagnum in equal proportions, to which add enough sand and broken crocks to keep it quite open.

Perpetual flowering Carnations.—These plants are not nearly so well managed generally as they might be, the hard, sticky old specimens several feet in height, resulting from the mistaken treatment in not cutting each shoot back right to the bottom immediately its flowers are over, give only a limited number of indifferent blooms as compared with examples that have been kept renewed with young growth by shortening back as here indicated, or vigorous young plants struck early in the year, and afterwards made the most of. Where a good stock is at hand that has been well cared for, and the earliest portion were some two months back put in a nice growing temperature of about 50° in the night, they will now be giving a regular supply of their sweet-scented, enduring blossoms. Like many other popular flowers, there is accumulating many more varieties than have any real use. A vigorous constitution, and ability to mature a large number of full sized blooms with distinct, well-defined colours, are all the qualities necessary. White is indispensable. L'Hermine (Alegatière) is an excellent kind; Lucifer, the brightest scarlet, and A. Alegatière are fine scarlets; Rose Perfection (Turner), bright rose, and Miss Jolliffe, pale pink, are alike distinct and good growers. Yellows are highly prized, but the worst matter connected with them is that, as a rule, they are weak growers, and difficult to get a sufficient stock of. Ascot Yellow is a very pretty flower, of a pleasing soft shade of yellow.

FLORAL DECORATIONS.

J. HUDSON, GUNNERSBURY HOUSE.

At this festive season a somewhat heavy strain will be put upon the cut flower supply, especially in gardens where the conveniences for bringing plants into flower are not nearly equal to the demand. It is therefore essential to economise to the utmost in such cases, and those who have the arrangement of the decorations can greatly aid in this direction in more ways than one. In the first place a judicious use must be made of the material at command (both flowers and foliage), bearing in mind that an artistic effect is not produced by excessive crowding, nor by indiscriminate mixing of various varieties of flowers or colours. I have often seen arrangements which would have looked much better when finished if half, and in some cases two-thirds, of the flowers had been removed and a trifle more foliage used instead. In the second place it frequently happens that large parties are held in quick succession, and where only a day or two intervenes, some at least of the flowers used can be kept over from one to the other by removing them to a cooler place, and where possible immersing the stems deeper in water. This should be seen to as quickly as possible after the festivities are brought to a close, for if left for a few hours longer than is necessary in a heated room some will be past recovery, especially if they have been arranged without either water, wet Moss, or sand. The fashion prevailing in some places of laying or grouping them on the table cloths for dinner parties is, to say the least, most wasteful and unnatural. Foliage, too, of fair persistency may be kept in good condition for future uses, and where a large quantity is in request I would recommend the dwarf and compact growing Davallias to be cultivated in quantity as one would the Maiden-hair Fern. In the third place, if any considerable space intervenes between the time when the flowers are cut and when arranged, caused either by having to be packed for transit or other unforeseen occurrences, they should all have the ends of the stems cut afresh. This is frequently overlooked, but is of more importance than many imagine. Lastly, but certainly not least, is the fact that those who have charge of decorations

should also have a knowledge of the natural growth of the flowers which they are called upon to arrange. Work of this kind is often performed by persons who have no knowledge of or taste for arrangement. Gardeners have to produce the material, but I know that when this has been done in many cases to the utmost possible extent, an utter disregard has been paid to the quantity used and the decorations have been carried out without taste or skill. The producer, in short, often gets blamed when he least deserves to be. Where gardeners are allowed to perform such work themselves, they are able to do it with much less waste of material than when it is entrusted to others.

ORCHIDS.

J. DOUGLAS, LOXFORD HALL.

East India house.—Since writing on this department I have seen the Orchid houses of Messrs. Veitch, of Chelsea, and Messrs. Low, of Clapton, where Phalenopsis are grown so well and in such large quantities, and the destruction of flowers as well as buds is complete through the fogs. Calanthes have also suffered very considerably, and *Angræcum sesquipedale* has also suffered. The evil is probably not unmixed with good, as the plants do not suffer apparently, and the loss of the flowers will promote vigour in the plants. Many Orchids of this class are allowed to carry too many flowers, to the after detriment of the plant. Referring again to the deciduous Calanthes, many of them will be out of bloom, and when that is the case the plants should be kept quite dry at the roots until February or March, when it will be time to start them again. I do not hear of anyone being successful in flowering *Calanthe sylvatica*, which was imported in quantity early this year or late in 1881. Our plants grew freely in good turfy yellow loam, and they went to rest in November, after forming good underground bulbs. We will allow them to remain quite dry for a month longer, when they will be shaken out and be repotted. *Phajus tuberosus*, one of the most charming of recently introduced Orchids, has not done well with us. It was tried in various ways. The plants were laid out on Sphagnum; they were tied to Teak rods, and the root end inserted in Sphagnum and peat. Some were potted in the usual way, but none have done well. Can any correspondent say how this fine Orchid can be successfully grown? *Angræcums* of various species are now in flower, and showing their flower-spikes. *A. Ellisii* is now pushing its spikes from the stem of the plants downwards over the sides of the pots. In such a position they are liable to be injured. *A. citratum*, also showy, requires to be suspended near the glass, where it seems to do well. *A. Chailluanum* in flower is a worthy representative of the genus; its creamy white flowers, with long pointed sepals and petals, are very striking. The queen of the whole genus, *A. sesquipedale*, is now in flower in all good collections. These *Angræcums* seem to be easy enough to grow if they receive plenty of heat and moisture, and if they are kept free from thrips.

Cattleya house.—Besides the winter-flowering Cattleyas, a few other distinct and good Orchids help to make the houses gay at this season; not the least important of these is the *Zygopetalums*. The old-established and well known *Z. Mackayi*, with its substantial spikes of large sweet-scented flowers, is always much esteemed. Most of the species are of large growth, and to do them well they require considerable space to develop their broad leaves. These plants succeed well arranged amongst ordinary stove plants in a temperature of 55°. *Z. crinitum* *coræuleum* is a very beautiful species, too, now in flower; the most beautiful part of the flower is the creamy white lip, which is streaked with bright blue. They do not require much attention, merely to wash the leaves occasionally with soft-soapy water. *Pilumnus nobilis* and *P. fragrans* with their pure white flowers, relieved with an orange blotch at the base of the lips, should be grown in every collection. These plants like

plenty of light and air, when they will produce their flower-spikes very freely. The well-known *Cælogyne cristata* and its varieties *alba* and *citrina* will soon be producing their much valued flowers; as the spikes develop themselves, the plants should be placed near the light to add substance to the flowers. *C. barbata* is much admired by some, although I do not belong to the number. Our plants had formed their spikes in the Cattleya house, but they have now been removed to the warm house to develop the flowers. This species likes plenty of water during the growing season, and even now, although the pseudo-bulbs are formed, we water freely. One of the most striking objects here at present is *Vanda tricolor* in its numerous varieties. To see these plants as they are grown in the nurseries of Messrs. Veitch and Mr. B. S. Williams, of Holloway, no one can fail to admire them. There are now numerous fine varieties in flower at Chelsea; an especially fine variety had eleven well-formed flowers on one spike. If the temperature for all this section of Vandas ranges from 50° to 55°, they seem to do remarkably well in span-roofed houses running north and south; at present they should not have very much water, just enough to keep the Sphagnum from drying up. It is now time to make preparations for potting them, an operation which ought to be performed in January. They ought to be repotted into clean, well-drained pots in dried Sphagnum, mixed with plenty of broken potsherds and charcoal, finishing off the surface with live Sphagnum and finer drainage material. After the potting the house must be kept closer and rather more moist.

Cool house.—The amount of attention required by the occupants of this house at present is of the simplest kind, especially in those houses where they have a north aspect. It requires but little artificial heat to keep up a temperature of 45° or 50°, and the atmosphere in such a house is kept sufficiently moist with a sprinkling of water about once in a day, the morning being the best time. The flowers of most species of *Odontoglossum* last a long time in full beauty if they have the right atmosphere and temperature. Some varieties of *O. crispum* will last for two months and even more. On the other hand, it is not wise to allow the spikes to remain too long; as soon as it is seen the bulbs are beginning to shrivel the spikes should be cut off. Many a fine variety has been sadly crippled by the plants producing flowers too freely, and their being allowed to remain on the plants too long. The cultivator will be interested in watching the development of the many species and varieties just throwing up their flower-spikes. *Ada aurantiaca*, with its spikes of bright orange-red coloured flowers just showing with the young growths, is a distinct and desirable Orchid to grow with others for its colour. Its bulbs do not seem to be quite so hardy as those of the New Granadian *Odontoglossums*. The splendid *Oncidium macranthum*, now showing its spikes as the growths are finishing up, requires to be watched every night. I find that even if we get our houses quite free from slugs and snails as soon as we commence potting again, minute specimens of various species are to be seen feeding voraciously on the unusual diet of succulent Orchid spikes just pushing out of their sheaths. These troublesome pests seem to lurk in the Sphagnum, and are introduced in the potting. For this reason it is best to do all the potting and surface dressing at one time, and to be extra vigilant for a month or so afterwards, and if it is necessary to repot isolated specimens during the season, the plants should be well watched at night afterwards. We will, most likely, be having cold drying winds between now and April, and in that case some care is necessary to prevent their withering effects on the tender growths of the Orchids. I have heard of cool Orchids doing well placed close to ventilators constantly open; but if the whole truth was known, it would, I doubt not, be found that they were shut, in all cases to exclude frost, winds, or cold winds without frost. There ought always to be some means of airing the houses without exposing the plants to the direct effects of winds.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Strawberries in pots.—When the earliest batch of plants begin to throw up their flower-stems place them in the lightest and most airy part of the house where they can have a free circulation of air to prevent the leaf-stalks from becoming drawn, and to favour fertilisation of the flowers when they begin to open. Give them sufficient water to keep the soil in a healthy growing state. Let forcing be carried on by day, followed by complete rest at night, when the temperature may be allowed to fall to 40° in severe weather, and 45° or more when these figures can be maintained without having recourse to fire-heat. Syringe with warm water when the day temperature begins to rise and again when gleams of sunshine favour, shutting up with a rise, but re-open the ventilators in time to prevent condensation of moisture on the glass, and damp the walls and other surfaces in lieu of overhead syringing when the flowers begin to open. From the 1st of the month onwards two kinds may be drawn into the forcing pit fortnightly for keeping up the supply of ripe fruit, the number of plants being regulated by the stock in reserve, and, if at command, a light shallow pit in which there is some latent heat may also be filled with such mid-season kinds as Sir Charles Napier, President, and Paxton for drawing from as plants are wanted. In a pit of this kind, although artificial warmth is hardly perceptible, an excitable plant like the Strawberry will make good progress through the early stage, as it will have time to emit fresh surface roots into the top-dressing and to perfect every organ before it is taken into the forcing house. Late kinds from which fruit is to be gathered in April and May must have full exposure to the elements unless the weather is very wet, when the lights can be tilted, or very severe, when a few Fern fronds may be spread over the crowns in preference to covering the glass with mats. If well plunged in leaves or old tan water will hardly be needed, but drought must be regarded as the worst enemy that can overtake the Strawberry from the day it is potted until it ripens off its fruit.

Pines.—By this time the pit in which the first Queens are to be fruited will have been cleansed and filled with new tan or leaves for giving the requisite bottom heat, and as some time will elapse before it will be safe to plunge the pots, now full of healthy roots, let it be turned occasionally and defer moving the plants until the thermometer denotes a declining heat of 90°. Then place each pot in a shallow basin and defer filling it with the tan until the heat caused by the disturbance has subsided. Meantime give the plants a little water at short intervals to bring the soil into a growing state, but carefully guard against a too free use of this element until the roots are fairly on the move. With a strong bottom heat in the house the day temperature may range from 80° to 85°, with atmospheric moisture in accordance with the state of the weather, and it may descend to 70° at night, when some slight external covering will economise and reduce the necessity for fire heat. When the early starters have been drawn, rearrange the pits, but avoid adding fresh fermenting material to the general stock of fruited, as they will require another month's rest, and disturbance of the oldest material generally causes a slight revival which will do no harm. Examine the different stocks of successions particularly when the pots are small, full of roots, and in near proximity to the bottom-heat pipes. Give water if necessary to prevent the soil from parting from the sides, and moisten the surface of the bed to prevent a check, which might lead to premature starting when more heat is applied in the spring.

Cucumbers.—Where provision has not been made for economising fire heat by the use of good fermenting material and covering at night, it is more than probable that spider, and possibly mildew, will have attacked the plants. For the destruction of the first the best remedy is light cropping, good feeding, and regular syringing with a weak solution of soft soap and Gishurst compound or clear sulphur water. The second, unless

the ventilation is imperfect, may be kept in check by the use of dry sulphur applied to the foliage with a fine dredger, and syringed off again with warm water after an interval of twenty-four hours. If these troublesome pests do not quickly give way to the above treatment, the skilful cultivator will seek deeper for the cause, as a low root temperature, insufficient water, or an impure, stagnant atmosphere may be leading to the certain destruction of the plants by fostering the enemies. In some places canker is very troublesome, and it frequently happens that the sudden collapse of the plant is the first intimation that anything is going wrong; the usual remedy is quicklime and sulphur, which may be well rubbed into the parts affected, but prevention being better than cure, a liberal admixture of old lime rubble, charcoal, and rough fibrous turf should be used in the formation of the compost; the stems of the plants should not be buried in the hills or pots, and last, but not least, the admission of fresh air near the level of the bed will have a beneficial effect in purifying the atmosphere. The temperature of the fruiting house must be regulated by external conditions, as it is of no use trying to force the plants beyond their strength; a minimum of 68° with a rise of 10° to 15° from sun and internal heat by day, will therefore be sufficient for the present, and a slight increase upon these figures may be made as days increase in length and brightness. Let the bottom heat range from 80° to 85°; add fresh, well worked Oak leaves and short stable manure to the beds as the heat shows signs of declining, and supply atmospheric moisture by filling the evaporating pans with diluted liquid, and damping all available spaces at short intervals in preference to direct syringing.

Keep succession plants steadily progressing by the maintenance of heat and moisture. Avoid close stopping until the trellis is well covered with foliage, and keep them regularly divested of male and female blossoms until the time arrives for allowing them to carry fruit.

Plums and Cherries.—Where a full descent has to be provided early in the season, these easily forced fruits form a valuable acquisition. They cannot, however, be hurried through any of the stages of their growth, as anything approaching a high temperature would soon prove fatal to the crop. To obviate this danger the earliest permanently planted house may now be closed and kept at a minimum temperature of 40°, and 10° higher by day, with plenty of root and atmospheric moisture to favour the swelling of the buds. Always force with air, particularly when fire heat is applied, and let the temperature by night fall lower than the figures I have indicated in preference to overheating the pipes when the weather is very severe. If not more than one house is devoted to Plums and Cherries, it is a good plan to obtain the first crop from pot trees, which should be thoroughly established before forcing is attempted, and as these are benefited by exposure to the elements from the day the fruit is gathered until the time comes round for forcing, the house, which should be light and airy, may be turned to other purposes for several months in the autumn. For this kind of work early kinds only should be potted, and duplicates of those most in favour will be found more satisfactory than an endless variety, which neither ripen together nor look well when dished up in mixture.

Christmas decorations.—Mr. Fish speaks (p. 543) of Lilacs being better suited for Christmas decorations than Chrysanthemums; but how could he manage to keep Lilac flowers fresh at this season of the year without water for twelve hours? The prodigal use of Chrysanthemums, he says, spoils decorations. In this I disagree with him, for I think few flowers possess greater beauty at this season than the Chrysanthemum, and certainly none are more useful. Mr. Fish speaks of the dead and sere leaf, but Eva, white; Abd-el-Kader, nearly crimson; Meg Merrilies, sulphur; and Grandiflorum, yellow, are just now in full beauty, and there are no doubt others. I am a lover of

Chrysanthemums, and dislike to see disparaging remarks made with regard to such lovely and welcome flowers, especially so soon after so much has been written in their praise. Mr. Fish also speaks of Maréchal Niel and Niphetos Roses. Can he tell me where either of these Roses are to be seen in quantity? and, if to be found, how long will they last in water at this season after being cut? Even in March, my experience tells me, they are forced too early to last long in a cut state. Again, Mr. Fish says Christmas Roses are too wintery for his taste; well, he is the only person I ever heard say a word against this, the first flower of the year, in the open ground.—OLD GARDENER.

INDOOR GARDEN.

NURSERYMEN'S AND GARDENERS' CAMELIAS.

CAMELIAS succeed best when treated as conservatory plants—that is, when planted in an open border under glass, and freely exposed to light and air. Eleven years ago I helped to plant some fine healthy Camellias in Messrs. Downie and Laird's winter garden at Edinburgh, and now they form large bushes covered with dense foliage and flower-buds. Opinions differ as to the preparation of the soil for Camellias. That used by nurserymen is not the same as that used by gardeners; but then nurserymen are looking to size of plant and increase of young wood, while gardeners are looking to profusion of bloom. The soil most suitable for growing the Camellia and producing flowers is two parts good loam from a pasture, two parts fibrous peat, and one part silver sand, materials which should be in the compost yard twelve months previous to their being used, during which time they should be exposed to the action of the atmosphere. The materials in question ought to be mixed and broken with the spade, never sifted, which abstracts the decomposing fibrous matter on which the plants feed when cultivated in pots. The soil used by nurserymen should be one part loam, one part peat, one part leaf-mould, one part silver sand, with a small portion of well-decomposed cow manure. These well mixed will produce plenty of young wood, which is their object. In potting Camellias great attention should be paid to securing free drainage, on which much depends, and without which no plants will thrive long. Opinions differ as to what season of the year is best for repotting Camellias; but this should be considered under two heads: the one with a view to increase the amount of young wood, the other that of bloom. It is the opinion of some of our most practical men that potting should be performed as soon as growth commences, but this, in my opinion, applies to the nurserymen's treatment. The best season to repot them in order to obtain a profusion of bloom is as soon as the young wood is ripe and the flower buds are formed; it is a good plan never to set in action a new series of fibrous roots until the flower buds are formed. If the roots are matted, be particular in spreading them out at the bottom with the hand; apply the knife as seldom as possible; it makes them canker and decay. After potting is completed, the plants may be placed in a greenhouse, according to the season they are wanted in flower; if placed in a house, a free current of air is required. Be particular as to how water is given during the swelling of the buds; in the growing season they ought to be plentifully supplied with liquid manure, and they should be frequently syringed overhead with clean water, so as to wash all dust off their foliage; dust stops up the pores through which they are supposed to breathe, and therefore must be injurious to them.

Langton, Berwickshire.

JOHN HENRY.

Yucca filamentosa variegata.—A well-variegated plant is more handsome than this, a well-grown specimen of which forms a telling feature in a cool greenhouse or conservatory in winter. Such a plant is ornamental all the year

round, and may easily be kept in good condition. Like its congener *recurva*, so useful for vases, for cold or cool houses, or for the open air, it may be maintained in health in small pots if liberally watered with some kind of liquid manure when growing. The variegation is remarkably clear and very constant, and the growth of the plant may be accelerated by placing it in spring in a warm, but not too close a house.—J. C. B.

Achimenes coccinea for winter.—Allow me to bring under notice again at this season this brilliant, though diminutive, *Achimenes* as a useful winter-blooming plant for the stove, where, by a little management, it may be had in bloom in mid-winter. Those plants of it which flowered with me last winter were left undisturbed in the pots until the early part of July, when, after being repotted, they were started in a spent hotbed, and placed subsequently in a cool house until autumn, when on being introduced into a warmer temperature they grew on quickly, and are now (December 18) a mass of brilliant scarlet bloom, adding much to the brightness of the stove.—J. T. Poë, *Riverston*.

Blue Marguerite (*Agathæa cœlestis*).—Allow me to supplement "J. C. C.'s" cultural instructions in reference to this plant by strongly urging its claim to a prominent position amongst winter-flowering subjects. Grown as your correspondent advises, and kept during the winter in a temperature of from 50° to 55°, it will bloom uninterruptedly from November till March. During the late summer and autumn months all flowers should be picked off it—an important item in the case of summer-blooming plants grown to yield flowers in winter. This *Agathæa* has lately acquired the name of the blue *Marguerite*—a felicitous name, seeing that its flowers greatly resemble those of the Paris Daisies. Continental florists have long recognised the value of this blue flower for cutting in winter, and it is strange that we should have been so long in discovering its merits.—J. C. B.

HORTICULTURAL BUILDINGS.

At a meeting of the Architectural Association, held on the 8th inst., Mr. Fawkes read a paper on "Horticultural Buildings." He began by saying that his object was to embody such information relating to the construction of horticultural buildings as was outside the province of the gardener, and which did not usually come within the knowledge of architects. The terms hothouse, greenhouse, glasshouse, which are so frequently used indiscriminately, divided themselves into two classes—growing houses and showing houses. Growing houses, again, divided themselves into three sections—those in which plants were grown in pots on stages, or at a certain distance from the glass, comprising simple greenhouses, planthouses, houses for bringing on bedding material, some descriptions of orchard houses, and plant stoves without bottom heat; secondly, houses in which foliage was trained along the roof, such as vineries; and thirdly, houses in which root action was to be stimulated, such as Cucumber and Melon houses, Pine succession and fruiting houses, pits with forcing and propagating beds, plant stoves containing heated beds, &c. After observing that he would confine his attention to growing houses, Mr. Fawkes said that the peculiarly trying conditions under which horticultural buildings existed, such as the varying temperatures of the inside and outside, the moisture-laden air of the former, the exposed character of the structures, the uncertainty of our climate, the necessity for durability, solidity, and yet the minimum of obstruction to light, warranted every precaution being taken that the materials used should be thoroughly sound, the construction such that there should be no crevices for the retention of moisture or harbouring of insects, and that the buildings, by subsequent periodical painting and repair, should be kept in a good state of preservation. The first main point in connection with a growing house was to determine

The pitch of roof most advantageous for various purposes. When the sun's rays struck a

sheet of glass, some of those rays could not pass through; the more nearly sunlight struck a roof of glass at right angles, or within 30° of a right angle, the less obstruction to the rays of light did the glass afford. The next point was how to obtain the maximum impingement of the sun's rays at, or as near as possible to, a right angle, for the position of the sun relatively to the earth was always varying. On the shortest day with us in London the sun rose about 50° east of south, attained an altitude at twelve o'clock of about 15° above the horizon, and set about 50° west of south. On the longest day the sun rose about 50° east of north, attained an altitude of about 62° at twelve o'clock, and set about 50° west of north. If we wished to build in the latitude of London a greenhouse of which the roof should receive the sun's rays at right angles on December 21, the roof must be built at an angle of 75° with the horizon; whereas on June 21 the angle would only have to be 28°. For ripening purposes, to ensure accuracy of the highest degree on any particular day and place, it would be necessary to take the latitude of the place, and from it subtract the sun's declination between the vernal and autumnal equinoxes; or to it add the sun's declination between the autumnal and vernal equinoxes, and the required inclination of roof would be obtained. In the "Nautical Almanack" the sun's declination for every day in the year would be found. Exactly at the equinoxes, when the planes of the equator and ecliptic coincided the latitude of the place equalled the angle which the roof must make with the plane of the horizon. These principles were only necessary where heat and light were required under the most advantageous circumstances, as for ripening fruit trained along the roof at a certain date. In most cases, for plant and flower growing, and where pot plants required to be near the glass, a low pitch economised space and artificial heat, and was better than a higher pitch. He recommended, in this case, an angle of from 26° to 30°. For fruit growing along the rafters, where the maximum sun influence was required for ripening, from 36° to 44°, or a mean of 40°; for wall fruit, where the glass must be as near the wall as possible, 60° to 70°, and a specially narrow house was advisable. The most natural form was the lean-to, and the best aspect would be facing the south. Mr. Fawkes explained that as in a part of the year the sun rose and set so far north the early morning and late evening sunlight would be lost, and according as the aspect deviated from a due south aspect, the sun would strike earlier or later. Having brick protection from the north, and glass-work facing south, other things being equal, a lean-to was easier to heat than a house in which the glasswork was exposed in every direction. The span, the next form of house, was used where no high wall existed or was required, and as a sort of compromise between the lean-to and the span was the three-quarter span. This was useful when the back wall of an otherwise lean-to required to be as low as possible, that the wall might form the minimum obstruction; also to let light in at the back, or for utilising early or late sunlight, which would otherwise be lost, and where maximum length of rafter was not a *sine qua non*. It was impossible, however, to give a *résumé* of all the kinds of combinations. Where numbers of houses were required they should be planned compactly; buildings for consecutive operations should be in consecutive order, so that the boilers should be in a convenient position for their work, and that each building might suffer nothing, so to speak, from combination with the others.

Sites and levels were important considerations in the planning. The site being frequently a matter of choice, there should be no trees or other objects to obstruct the sun's rays, and the site should be that which would best suit the conditions of aspect, drainage, stokehole, furnace, chimney, potting shed, fuel shed, and other buildings, retaining a particular view, &c. If the ground were not level, the exact nature of the inequality should be ascertained; if fairly level in the direction of the length of the buildings, well and good. If the ground fell in that direction, various courses

were open for adoption. In any case it was advantageous for the boiler to be at the lowest end, when in many cases excavations for a stokehole might be avoided. Where the ground was perfectly horizontal, the question of floor levels must be considered. He had generally made the floor levels correspond with the ground levels. If there was a difficulty of drainage, or the boiler could not be sunk as low as necessary, it was often advisable to raise the floor level. On the other hand, it might be necessary to sink the floor line below the ground line, that the houses might form the minimum obstruction, in which case great care must be exercised in the drainage, or the houses would be perpetually flooded. Houses used to be sunk to retain the heat, but with existing facilities for heating that was now unnecessary. Houses comprising one range should have their floors on the same level; steps from one house to an adjoining one should be avoided, but, if necessary, parallel disconnected lines of houses might occupy different levels without inconvenience. In constructing

The roof of a glasshouse, obstruction to the sun's rays must be avoided, yet the structure must be durable and substantial. The rafters should be sufficiently deep for the purpose, but not so deep as materially to arrest the oblique rays of the sun. A roof well tied with light iron tie-rods would enable the rafters to be shallower. As to whether the roof should be of framed lights or not, from his own experience he would say a sash-bar roof with T-iron purlins between the rafters was lighter, had less material, was not so liable to get out of repair by rotting, and would, in fact, answer every purpose better than the heavier and more substantial sash roof. The advantages of a sash over a sash-bar construction were that the roof could be practically stripped, if, for cultivating purposes, the maximum amount of air were required at any season, and the house could be taken down without the necessity of taking out the glass. For clear glazing, 21-oz. English sheet was generally used. Thinner than this was not advisable, nor was Belgian glass so desirable as English. For fixing the glass he had come to the conclusion that for purely growing horticultural houses no system was more advantageous than putty-glazing, and it was far from perfect, for putty was apt to peel off, crack, and form crevices for the retention of moisture and insects, and cause the woodwork to rot. Then it was troublesome to renew putty-glazed glass, as well as put it on in the first instance. In some systems of mechanical glazing the glass was held in its place by metallic clips, in others by compressible metallic bars, in others between strips of vulcanite or other elastic material, the glass and elastic being held in position by wood or metallic capping and screws. In other systems the glass was dropped into grooves. In all these systems the glass came in contact with a metallic or an elastic substance. In the former case there must be a sufficient amount of play, or the glass would break. In the latter case the elastic substance gave far more trouble to gardeners than putty properly made and applied, chiefly on account of internal moisture, excessive variations of temperature, and atmospheric influences. If, on the other hand, the glass had any play hot air escaped, the house could not be properly fumigated; crevices for the retention of water by capillary attraction abounded; subsequent freezing of the water and breaking of the glass were likely to happen and the crevices which held the water would harbour insects. For other than growing houses mechanical glazing might frequently be employed with advantage. The most usual form of

Ventilator was a framed light, hinged at the top and opening from the bottom outwards. Sliding sashes for roof ventilation were almost out of fashion except for simple frames, low pits, and houses in which the roof required to be practically stripped at certain times. Sliding lights were cumbersome and unmechanical, the roof had to be abnormally heavy, and obstructed greatly the solar rays. Both top and bottom ventilators should

extend along the whole length of a house, except perhaps in the case of the top ventilators of a span, or three-quarter span, which might often be arranged alternately on each side of the ridge. Continuous ventilators being necessary, consecutive lights might be made to open simultaneously, or each arranged to open separately. Unless, however, there were a great number of lights to manipulate, or unless they were not easily accessible, it was generally advisable to adopt the latter course, for it might not do to have exactly the same area of ventilation along the whole length of a house; at one part there might be plants which required a more constant and copious renewal of air than at another part. If the lower vertical lights or ventilators were opened separately, then the ordinary notched hand "set-opens" might be used. If top roof-lights were opened separately, then a quadrant bar, terminating in an eye, might be fixed to each light, and actuated by a cord held by a counterbalance weight or a hook in an adjoining wall or mullion. When, however, to save time, from the large number of ventilators to open, or from inaccessibility—as, for instance, when a Vine border or a great width of staging in front of ventilators necessitated their being opened simultaneously—the best gear consisted of a pair of double-jointed arms attached to each light, and keyed to a bar held in blocks fixed to the mullions, the partial rotation of the bar and opening of the lights might be effected by a handle keyed on to the bar at any part, moving in and pinned to a quadrant or half-circle; or the motion could be conveyed by a connecting-rod to some distance. Similar apparatus might be used to actuate top-lights. Double-jointed arms were better than other forms, for they offered no obstruction to pots, plants, or foliage.

Roof-wires.—Roofs had occasionally to be wired to support foliage trained near them. In a lean-to you should take two flat bars turned edge-wise and suspend them at back and front by holdfasts, bolted at back through the wall and at front into the mullions. Then at the necessary intervals wires should be stretched by means of raiidisseurs to these two bars. Intermediate parallel bars, dependent upon the length of rafter, might serve to support these wires. The wires could thus be at short, long, or irregular intervals; or at any time and as often as required the distance apart of the wires might be altered. In this way they helped to tie on the roof, enabled painting and repairs to be more easily effected, and were more easily adapted to the wants of the gardener than fixing wires permanently and separately at right angles to rafters. He generally employed galvanised iron wire about No. 12 B. W. G., each spaced some 10 inches from the glass. With regard to the

Interior arrangement of the three classes of growing houses, to speak of the first, the points to be observed in planning the staging were: facility of drainage from pots, economy of space, accessibility, proper distance from the glass—depending on height of plants to be grown. For ordinary plant growing the usual lattice-wood stage composed of 3-inch by 1-inch laths, with three-quarter spaces between them, was suitable. When, however, pots or plants required to be plunged in damp Moss, sand, shingle, &c., then carefully drained concrete, slate, or zinc-lined wood stages might be necessary. The chief characteristics of ainery which belonged to the second class of growing houses were, training wires along the roof, a prepared border about 3 feet deep, provision for thoroughly draining this border, and for preventing roots of Vines planted in it from penetrating to the subsoil. If the subsoil were of a retentive nature, then there must be concrete or other impervious base; on this rubble; then turf, grass downwards; then the compost forming the border proper. If the subsoil were of a porous nature, the concrete base might be omitted. It was generally considered best for the border to run outside as well as inside; therefore the front wall should be built on arches, or composed of iron uprights filled in above the ground-line by slabs

of slate. The total width of a border should equal the width of the house. The chief characteristic of the third class—forcing pits, &c.—was an arrangement of hot-water pipes to heat the soil of which the bed was composed, supplementary and independent of the pipes for atmospheric heat. The pipes might be carried through the bed itself; or, better, they might be carried through an air-chamber under the bed. In this position the vapour-troughs with which they might be fitted were more accessible, and was a better arrangement than that which necessitated water passing through the bed before it could be vaporised by the pipes. In the treatment of conservatories or show houses several points were to be kept in view.

A conservatory must be treated as one of the reception-rooms of the dwelling-house, and without departing from its strictly horticultural character, there should be an endeavour to make it approximate architecturally both inside and out to the rest of the dwelling-house. The functions of growing and showing must be regarded as separate, or in case of necessity a compromise must be effected or the conditions of the one would succeed to the detriment of the other. In a conservatory the eaves had frequently to be from 9 feet to 12 feet high and interior staging dispensed with; the site was generally dependent on proximity to a drawing-room or hall, where frequently the sun did not reach it. A conservatory required heavier scantling than a growing house, and to a certain extent obstructive ornamentation. He would say they should, in designing a conservatory, construct it in harmony with the adjoining or surrounding architecture; give as much light as possible; ornament the construction. In the interior, he would say: throw away stages, hide the pots, and show natural beds and banks of foliage and flowers massed with artistic irregularity. There should be an ample paved space—not a mere path, but a space that a table and a chair or two might be placed in, and the conservatory should be regarded rather as a lounge than as a place to walk round in single file. If the size and nature of the conservatory permitted, rockwork, a fountain, or sculpture might find a place in it. Baskets of hanging foliage looked well. Bare walls as well as other parts might have creepers on them. Sometimes an awkward space in the brickwork might easily be turned into an aviary. In fact, without sacrificing the strictly horticultural *raison d'être* of the structure, a judicious combination of art with nature would intensify the enjoyment derived from a conservatory, and the beauties of plants and flowers might be absolutely enhanced by the introduction of such artistic accessories as he had mentioned.

ORCHIDS.

ORCHIDS IN NORMANDY.

SITUATED about half way between Rouen and Dieppe, in one of the most picturesque parts of Normandy, and surrounded on all sides by a verdant forest which in places has had to give way to make room for pleasure and kitchen gardens, is the seat of M. le Comte Adrien de Germiny, whose Orchids can bear comparison with the best of those grown in this country. It is a comparatively new place; four years only have elapsed since the first attempt at creating a garden with its accessories was made, and now what a wonderful change has been produced in the appearance of a spot which for centuries had been left undisturbed, except by the huntsman, as in those forests game of all kinds and sizes is very plentiful. The axe has had its full sway, under which many a stately tree has been laid down, and in their places are to be seen now splendidly built houses full to the brim of rare specimens of exotic vegetation. The site is in itself fascinating, and the happy possessor of this truly magnificent collection, unique on the Continent, combines the true knowledge and love of his plants with the wealth necessary to bear the expenses attached to such a vast establishment, for the direction of which he

has secured the services of a man of great experience. In M. Rondeau he has a careful observer who is, moreover, a master in Orchid cultivation, as all the subjects under his care can testify, and under the influences of such a happy combination of circumstances, this bids fair to become some day, quite a unique collection.

All classes of Orchids are grown in perfection at Gouville, where special houses have been erected for and are devoted to the culture of special genera. For instance, there are the Vanda and Saccolabium, the Cattleya, the Dendrobium, the Phalenopsis, and the Odontoglossum houses besides others where different genera not numerous enough to require a house to themselves are intermixed. The Orchid houses there present a very striking appearance, as they are all entirely built of wood, which is very unusual on the Continent. They have all been erected differently, according to the requirements of the plants for which they were intended, but, although built with all the ornamentation and personal comforts that a large fortune can command, great care has been taken that the health of the plants should not be held second to any consideration. The first and most imposing structure that we enter is the house devoted to

Indian Orchids. It is about 95 feet in length by 23 feet in width, and the comfort and well-being of the plants have been so well studied in its erection, that, although being essentially a decorative house, out of more than 150 Saccolabiums and quite as many Vandas of all sizes, besides numerous other plants that it contains, not one of them shows any signs of being at all dissatisfied; quite the contrary. On either side of the entrance door are two artificial tree stumps, with branches of different lengths covered with the luxuriant foliage of Nepenthes which have been planted on them. This mode of growing them is very effective; their wild appearance adds greatly to the general effect of the place, and the magnificent pitchers of the rare and beautiful *N. sanguinea*, *Hookeriana*, *Rafflesiana*, *Veitchi*, and others are by that means shown in perfection. There are also facing the entrance two splendid specimens of the still scarce *Anthurium Veitchi*, profusely furnished with gorgeous elongated leaves from 2½ feet to 3 feet long when fully developed, but of a glassy metallic hue while in their young state, and the principal nerves, being arched and deeply sunk, give them a conspicuously wavy appearance. There also one finds dotted all amongst and under the gigantic Vandas some grand pyramidal-shaped specimens of well-coloured *Crotons* and huge plants of the beautifully variegated *Phyllotanium Lindeni*. The magnificent colours of these different foliaged plants contrast strongly against the healthy dark green hue observable on all the Orchids. A very curious and beautiful *Bromeliad* also attracts the attention of the visitor on entering this house; its leaves are long, about 30 inches, splendidly channelled, dark green, striped and freely spotted with numerous pure white blotches. Its habit is perfect. It is a specimen unique in Europe of *Schlumbergeria Lindeni*. Such a

Collection of Vandas is not to be found anywhere else as regards both variety and size. They are mostly grown in baskets and kept in the central part of the house, where neither stage nor bed is provided for them; they are simply either on stands or suspended, the ground being completely covered with a compact growth of *Gymnostachyums* and *Fittonias*, making a very pretty and effective background. In this house the air and light are admitted very freely; it is subjected to little shading, the more so that there is in the centre a basin giving off a quantity of moisture. Although not wishing to make a regular catalogue of the plants contained in the houses, I must nevertheless give an idea of the best specimens, if there might be anything "best" in a place where all things are perfection itself. The best forms of *Vanda suavis* and *tricolor* are represented by numerous specimens 6 feet or 7 feet high, most of them having from three to six shoots. With such plants and in such quantities there are

always some flowers, the more so on account of the perfect system of ventilation which prevails causing the blossoms to last an extraordinarily long time. In flower also were the still rare *V. Batemani* and several *V. cœrulea*, all in strong specimens, one of the latter species bearing flowers $5\frac{1}{2}$ inches in diameter, and of the most beautiful intense blue, with very dark lip. It is the finest variety I ever saw. The gorgeous *V. Lowi* is very grand, and when all the young shoots, which are breaking out along the main stem, are developed, it will no doubt make a unique specimen. An extra strong *V. Denisoniana*, with ten pairs of leaves and in perfect health, is also a very unusual sight on the Continent. There is also a fine young specimen of *V. Parishii* and one of *V. Cathcarti* with two stems; both species are very promising and very contented with the treatment they receive at the hands of Mons. Rondeau. The *Saccolabiums* are also there in great numbers, and in capital health. Foremost among them are four magnificent *S. præmorsum*, each with several stems; they are still on their natural supports, and are, I believe, the best pieces that the Malabar forests can produce. They measure about 5 feet high, and are there seen in all their glory, with really surprising growths and leaves wonderfully broad and firm in texture. These four specimens are, I believe, unmatchable; they have been at Gouville more than two years, a time sufficiently long to enable them to appreciate the effects of good culture. The visitor is also gratified with the unusual sight of a grand specimen of *S. giganteum*, not to be equalled anywhere, in perfect trim, and bearing two magnificent flower-spikes. The glorious *S. retusum* is also found in great quantities, and *S. Blumei majus* is hanging from the roof by dozens of beautiful healthy young specimens. One of the grandest sights, when in flower, is a compact mass of *S. curvifolium* on a block 3 feet high, completely covered by the thick and luxuriant growth of some twenty-five or thirty heads. The *Angræcum sesquipedale*, of which several plants were in flower already, are well represented by numerous specimens, the best of which has five strong shoots; also by very promising young specimens of the rarer sorts, such as *Kotschyi*, *Ellisi*, and *citratum*. As to

The Aerides section, how could they be too highly prized when among them are such plants as *A. Fieldingi* with twelve splendid shoots, several *A. Veitchii* with as many as four shoots each, *A. Larpentei*, extra fine, with twenty-six leaves, a perfect specimen of *A. Schrederi* 2 feet high and without a spot on its leaves, a magnificent *A. Lobbi* with three strong breaks—in fact, all the good forms of this admirable genus are represented by faultless specimens growing apace and showing a vegetation even more luxuriant, I believe, than where they are found in their natural stations. In the same house also and hanging over the door are two wonderfully well-grown plants, making a unique pair of specimens, of the delicately-tinted *Dendrobium Pierardi* growing on their natural supports and with every successive growth stronger than the preceding one. Some of the last made bulbs measure over 2 feet in length and are produced in quantities. A truly splendid plant of *D. thyrsiflorum*, 3 feet through, is also found there in the company of unusually grand specimens of *D. chrysotoxum* and *densiflorum*, the latter in a basket 18 inches through, which is none too large for the splendid mass of healthy bulbs contained in it. Growing among the above-mentioned plants on the side stages may be seen a superb *Cattleya labiata* Warneri, 30 inches through; the very rare *C. Symei* with ten good bulbs, and showing flower; also *C. crista superba*. Of *Cattleya Mendelli* superba there is quite a unique specimen, showing well for flower; also an immense piece of *C. Trianae*. Some of the finest specimens of *Cypripediums* to be met with are also found in that same house, such as *C. Spicerianum* with sixteen flowers; *C. villosum*, 3 feet through and very robust. *C. Domini* is represented also by a very grand specimen, and *C. selligerum* by a very promising young plant with five flowers, while *C. Sedeni*, *Roezli*, and *caudatum roseum* are there in pairs of faultless plants of about

30 inches in diameter, and last, but not least, two magnificent *Phalænopsis*—one *P. Schilleriana*, with leaves measuring $18\frac{1}{2}$ inches in length, and showing an immense branched flower-spike already more than 3 feet long, and the other a *P. amabilis* with five spikes on it, and which the Count himself assured me has been in flower for these twelve months without any interruption whatever. Any one might almost think this is a complete list of the plants contained in that wonderful house, but such is not the case. These are only the most striking specimens, whereas an enormous quantity of smaller fry has been left unnoticed. Next comes

A square lofty house or pavilion connecting the Vanda, the Cattleya, the *Dendrobium*, and *Azalea* houses. In this pavilion or intermediate house is a splendid *Acineta Humboldtii* which was a few months ago ornamented with seven glorious flowering spikes; also three very grand specimens of *Sobralia macrantha*, Woolley's variety. The charming *Oncidium trilingue*, a favourite in the collection, produced this year two of its graceful flowering spikes measuring 18 feet from tip to tip. There are also two immense *Cœlogyne cristata* in tubs and one on a block 30 inches by 18 inches, all three marvellous specimens. It is not so much the size (4 feet through) of those in tubs which is surprising, but the extraordinary vigour of the plants; they are indeed a faultless and, I believe, a matchless pair of plants. The old favourite *Anguloa Clowesi* is there represented by a magnificent plant 30 inches through, and has produced this year forty-three flowers. It is growing in a tub and apparently as much at home as can be conceived by the sizes of his last growths. By its side is a grand piece of *Epidendrum vitellinum majus*, which when in flower was the admiration of everyone who saw it; the plant is on a block 20 inches high, and covers it completely with its splendid growths. The best of the many forms of *Cypripedium barbatum* grown on the Continent is also there as an enormous specimen 30 inches through, and it must be understood that this is not a made-up plant. There are also nice and promising young specimens of *Cymbidium Parishii*, *Pescatorea Dayana*, and *Cypripodium Andersoni*, all rare plants and doing remarkably well; a glorious variety of *Miltonia Clowesi* bearing seven splendid spikes of flowers, and a rare specimen of *Oncidium Marshallianum*. That same house also contains four truly grand baskets of *Cattleya Skinneri*, 30 inches through, with numerous smaller ones, all in perfect health; several extraordinarily large and fine *Cattleya speciosissima*, and two magnificent plants of a beautiful variety of *Ada aurantiaca*, producing their brilliant flowers in enormous quantities. All, or nearly all, the above-named plants are grown in pots and on the stage, whereas against the glass sides are two grand *Lælia anceps* doing remarkably well on blocks with a quantity of their slender yet strong flowering spikes, and about thirty *Cattleya citrina*, all of one size. This is certainly the most astonishing feature in the house, as they have been over three years at Gouville, and one may trace their ever increasing strength back to the time of their importation by the numerous bulbs stronger every successive year, and looking now like so many Hyacinth bulbs growing downwards. From the roof also hang four beautiful baskets of *Cœlogyne Massangeana* with their numerous flower-spikes, some of them 22 inches long, and a complete collection of the accommodating *Stanhopeas*, which are grown largely on account principally of their floriferous qualities; they are to be found in nearly all the houses, even with the *Camellias* and *Azaleas*, and there are always some in flower. Leading from that pavilion is on one side

A house for Cattleyas and on the other one devoted to *Dendrobiums*, which are also there in great variety, and promise a grand display of flowers a little later on. Some amongst them are very good specimens, especially *D. Schrederi*, *Guibertianum*, and *Brymerianum*, all of them very seldom met with on the Continent and in such trim; *Ainsworthii*, *Findleyanum*, and *Dalhousieanum* also of a very respectable size; *chrysotoxum*,

Falconeri, and the pretty coloured superbians, with many others in young and if smaller still very promising subjects, whereas the *D. Falconeri gigantea* is a magnificent specimen, and the enormous plant on a board of the rare and pretty *D. Jenkinsi*, with beautiful flowers larger than its imbricated bulbs, is quite a unique plant. But the great attraction in this house is the great mass of *Vanda teres* growing in a compost of Sphagnum and rough peat against a glass side up to the roof, a height of about 4 feet 6 inches. It is a perfect forest of magnificent, thick, and clean stems, flowering very freely, as this year the flowers were produced by the hundred. Among them are also about a dozen of the grand *V. Hookeriana*, which, although small, yet promise to do equally as well as *V. teres* under similar treatment. Then comes the *Cattleya* house. If a few years ago these were the least successfully managed of Orchids, and if it was then the rule more than the exception to find them nearly everywhere, and on the Continent especially, with more or less shrivelled bulbs and yellowish undersized leaves, mostly spotted, thripsey, and showing a deficiency of living roots, things have greatly improved in that respect at Gouville, where the collection of *Cattleyas* is only equalled by that of *Vandas* as regards rarity, size, and number of plants, and not surpassed by any other plant as far as their condition is concerned. In most cases, and speaking generally, the strength of last summer's growth and the size of the last made bulbs are quite uncommon. All the principal species are there represented by large specimens, as are also their best varieties; some are indeed quite unique plants, as *C. labiata pallida*, of which there is a grand and perfect pair, both plants being as much alike as possible, and measuring 30 inches across with wonderful growths; a splendid *C. amethystoglossa*, with bulbs in quantity, some of them 26 inches high; the very grand *C. elegans alba*, *ornithoglossa*, and *Harrisonæ*, all three in immense specimens; a perfectly unique *C. Mendelli*, and half-a-dozen more of the incomparable *C. Dowiana* in splendid pieces, while three enormous *C. maxima* were there surrounding an immense *C. Warneri*, breaking out strongly in all directions. There were also hanging from the roof and doing remarkably well a dozen or so of *C. Eldorado* and its charming variety *virginalis*, while under them the *Trianae*, *Mossie*, and the autumn flowering *C. labiata* were represented by quantities of their best forms only. In the same house the *Lælias* were also at their best, especially the very rare forms, such as *L. elegans alba*, *Turneri*, and *Schilleriana*, all in first-rate condition of growth and already very fair specimens; several large plants of the magnificent *L. purpurata*, superbians, *Perrini*, and *Lindleyana*. Then, at the end of the house is a glorious *Peristeria alata* in excellent trim, which produced this year seven grand spikes with fifteen to twenty flowers in each; also a grand specimen of the charming dwarf *Cypripedium niveum*, 24 inches across and grown in a pan; a grand plant of *Miltonia virginalis*, quite unique in size as well as in culture, measuring also 2 feet through, and regularly thronged with luxuriant growths; a couple of very large *M. Moreliana*, with a very fine *Cymbidium Lowi*, are also growing among the *Cattleyas*, and certainly seem to delight in their company. In that house also I was gratified with a very rare sight of a monster *Chysis bractescens* with ten bulbs some 18 inches long and 7 inches round, and two *Odontoglossum Phalænopsis* in shallow pans suspended from the roof. They are first-rate plants, with profuse foliage of a beautiful green, and without a blemish. Such plants are very rare. From there I was shown to

The Phalænopsis house, where a wonderful sight awaited me. In a low span-roofed house, with a path in the centre and side stages made water-tight with cement and covered with coarse gravel, are the *P. Schilleriana* by the hundred, *amabilis* and *grandiflora* also in respectable numbers, *violacea* and *Luddemanniana* in less quantity, but doing equally well. It is a most successful culture, and one which reflects great credit upon M. Rondeau. The flower-spikes, which are strong and well nourished, are produced in such quantities, that in a short time the whole house will be a mass

of flowers, the more so that in Normandy they have not to contend with the deadly fogs which play such sad havoc with all flower buds, but principally those of *Calanthe*, *Angræcum*, and *Phalænopsis* in London. Although one may hear almost everywhere on the Continent complaints made against

The fastidiousness of cool Orchids. such as *Masdevallias* and *Odontoglossums*, which people usually say will not take kindly to anybody's treatment, I have found them at Gouville doing as well as any other Orchids. There is a low span-roofed house where they are kept by themselves, and full of *Odontoglossum Alexandræ* and *Pescatorei* in best varieties, also *cirrhosum*, *tripudians*, *triumphans*, with a quantity of young specimens of all the best *Masdevallias*: and if the fact that their last growths are as strong again as those previously made may be taken as a criterion of their well-being, then surely nothing better than their present appearance could be wished for. In that same house also is what I believe to be the unique plant of *O. cordatum*, with leaves clearly and distinctly variegated. To complete the enumeration of the choicest and most uncommon Orchids in the collection must be added to the already very numerous list a very fine specimen of *O. vexillarium* of a very deep variety, which this year produced thirty-four flower-spikes, grand pieces of *O. Roezli* and *Roezli album*, *O. Reichenbachii*, a splendid specimen of *O. brevifolium*, and, finally, a huge mass of *Arpophyllum giganteum*; this last plant is growing in a tub, and measures over 4 feet across. It is an agglomeration of an immense quantity of vigorous growths with dark leaves; it flowered very well this year, but is still more promising for the next season on account of the cooler treatment which it has received this year. Although Orchids are certainly the main attraction at Gouville, there are also other very interesting cultures, as they are not grown to the exclusion of other plants; far from it, and it is only fair to state that anything taken in hand by M. Rondeau is carried out to perfection. A feature well worthy of a special notice is the *Gloxinia* house, which in the middle of November was as gay as if it had only been May or June, so robust were the plants, clothed with healthy foliage, and so plentiful were the flowers which they produced. Some of them had as many as fifteen on them at the time, and very good flowers they were, too, of good substance, bright colours, and measuring 4 inches across. Also a group of those gems of tropical vegetation, the *Sonerilas*, which are there in great numbers for decoration. They are grown into specimens of nearly 2 feet across, and at that time of year their pretty pink-coloured flowers, which are produced in great profusion, make a very striking contrast with their white spotted foliage. There I also saw the largest specimen of the best form of *Anthurium Andreanum* producing its showy flowers in great abundance, and every successive spathe larger than the preceding one; in fact, every fresh leaf brings a flower as it develops. The magnificent collection of large, well-shaped *Azaleas* and the beautiful specimens of pot *Roses*, which are so seldom seen on the Continent, are above all praise; but one of the most surprising objects there, and one which the visitor cannot pass unnoticed, is a glorious group of *Todea superba*, grown in the open in a lofty, large conservatory. It is true the plants, about thirty in number, are in a shady corner, but they are nevertheless in a lofty structure, and far from deriving the benefit of close treatment, as is generally advocated for that class of plants, yet they are immense plants with luxuriant foliage, their fronds of a deep dark green as usual, and perfect, I may say, to their very tip.

This is altogether a very remarkable establishment, and, as one of our eminent French colleagues call it, "a paradise of Orchids and of orchidists." Indeed, everything is done in perfection, and it is, I consider, a real treat to have the good fortune to visit such a place, where every attention is graciously paid to the visitor by its noble owner, as well as by everyone concerned in its management.

DISA.

Cœlogyne Gardneriana.—This rather rare species is now flowering in Mr. Bull's nursery at Chelsea. It is very distinct from any other species in cultivation both in growth and manner of flowering. The bulbs are long and flask-shaped. From the base of the bulbs is produced a crowded raceme of flowers which hangs gracefully over the side of the pot. The flowers are pure white, except the lip, which is conspicuously blotched with lemon-yellow. It naturally flowers in the dull winter months, hence its value. Being a native of Nepal at a high elevation, it consequently may be grown in a cool house.

Aerides cylindricum.—This rare species is, we hear, in a flowering state in Mr. D. B. Crawshaw's Orchid collection, at Rosefield, Sevenoaks. It is a remarkably singular plant, very unlike most other species of *Aerides*, and more resembling the teroid growth of *Vanda teres* or *Hookeriana*. The flowers are produced either singly or in pairs from the axils of the leaves, and are an inch or more across, and of pure waxy whiteness. It appears to be identical with the plant called *A. vandarum*, which we have frequently alluded to within the past two or three years when flowering.

Lælia Stelzneriana, in the way of *L. elegans alba*, is flowering in Mr. Bull's nursery. It is a truly superb variety, finer even than the white variety of *L. elegans* so much admired by everybody. It differs chiefly in having broader and whiter sepals and petals, which, moreover, do not reflex or crumple. The labellum, too, is different, inasmuch as it is larger. It is pure white, with the exception of a heavy blotch of the richest velvety maroon at the tip. This colour does not extend all around the edge of the lip, as in *L. elegans alba*, but is confined to the lowermost projecting lobe. The contrast between the snowy whiteness of the sepals and petals with the lobe of the lip produces a striking effect rarely seen even among Orchids.

Cymbidium elegans, one of the rarest of cultivated *Cymbidiums*, is now in bloom in Messrs. B. S. Williams' nursery, Upper Holloway. It may be best described as possessing the habit of growth and foliage of *C. Lowianum* and the flowers of *C. Mastersii*, except that the latter are much more numerous, there being over twenty flowers and buds in one raceme on Mr. Williams' plant. The colour is yellowish white, which gives the plant a distinct appearance; indeed, it may be recognised at a glance as being quite a different plant from any other species in cultivation. It is, we believe, the first time Mr. Williams has flowered, or even seen the flowers of this species, so that it may be considered a rarity indeed. In the same nursery the beautiful *C. Mastersii* makes a beautiful display with its elegant racemes of ivory-white blossoms amidst its grassy foliage, and we notice, too, that *C. Lowianum*, one of the handsomest of the genus, is developing uncommonly fine spikes of flowers this season, which will shortly be expanded.

Orchids in bloom at Mr. Bull's nursery, Chelsea, make a long list even at this, almost the dull season of the year for Orchid bloom. The house devoted to cool Orchids, of course, yields the greatest display, that in the *Odontoglossum* house being beautiful in the extreme, there being quite a thicket of spikes among the crowds of plants that fill a capacious, span-roofed house some 60 feet or more in length. The endless varieties of *O. crispum*, of course, predominate, and include some of the finest we have ever seen, their beauty being quite beyond description. In the best forms the flowers are over 3 inches across, and have broad, overlapping, and exquisitely fringed petals and sepals, and variously marked. There is a great diversity, too, as regards the habit of growth; in some the flower-spikes are nearly erect, while in others it falls over in that graceful manner which adds so much to the beauty of the plant. It seems almost a pity that these very remarkable forms of *O. crispum* should not receive distinctive names, for they are so widely different from the ordinary forms of the species. One variety, however, we noted was named *roseum*, and very appropriately too, for the whole flower

was suffused with a delicate shade of rosy purple, rendering it very charming. The blossoms of this variety were simply perfection as regards size and form, and the spike exhibited that solidity so much admired by *connoisseurs* of Orchids. There were likewise some uncommonly pretty varieties of *O. crispum*, having the flowers copiously spotted, some on white grounds, others on yellow. Little inferior in beauty is the chaste *O. Pescatorei*, which is represented even at this time of the year by some wonderfully finely flowered specimens. There is also a considerable diversity among these, and we noted a form named *oculatum*, the distinctive character of which was a deep, rich purple spot on either side of the base of the labellum. The other parts of the flower being pure white, these two spots produce a very beautiful effect. Among other species of *Odontoglossum* in bloom were *O. Sanderianum*, a new and attractive species, and, moreover, quite unlike any other kind with which we are acquainted. The flowers, produced in a loose raceme, are some 2 inches across. The sepals and petals are heavily blotched with chocolate-brown on a yellow ground, while the white labellum is long and attenuated, and is marked with a conspicuous blotch of bright yellow. An extremely fine variety of *O. Inseayi* named *superbum* also attracted us, as it was the finest we had ever seen. The flowers were nearly as large as those of *O. grande*, and were of a sort of bronzy yellow, transversely barred with a brighter shade; the roundish labellum was of the brightest glowing yellow imaginable and edged with a paler shade. It is a much finer form even than *leopardinum* or *pantherinum*, and will undoubtedly be much sought after. Its ally, the old and well known *O. grande*, was still in flower in an intermediate house, a proof of its protracted season, it having been in bloom uninterruptedly for some two or three months. One other species we might mention, and that is *O. crocidipterum*, a very neat little plant having congested spikes of numerous flowers an inch or so across, prettily speckled with brown on a yellowish ground. It belongs to the *O. gloriosum* and *O. odoratum* type of the genus, which is by the way becoming rather too numerous.

Cattleya Walkeriana.—This charming Orchid, one of the finest of all the dwarf growing *Cattleyas*, is now beautifully in bloom in Mr. B. S. Williams' nursery at Upper Holloway, and likewise in the Royal Exotic Nursery, Chelsea. The pseudo-bulbs are stout and dwarf, being only about 4 inches high. From the base of the bulb the solitary flower is produced on what may be termed a partially developed bulb, and this flower-bearing bulb again develops from its base a sterile bulb. The flowers vary from 3 inches to 5 inches across in the best varieties. The colour of the petals and sepals is a soft rose, while that of the lip is many shades deeper. It remains in perfection a long time, provided the plant be placed in a cool, dry house. In Mr. Williams' nursery it is grown in an intermediate house with other Brazilian Orchids, and it makes an elegant little plant for a basket or block. There seems to be some confusion between this and an allied species, *C. dolosa*, but the latter is very distinct on comparison, it being much larger in growth, and produces its flowers from the apex of the matured bulb instead of from a new and partially developed one. *C. dolosa* is a much rarer plant, but we noticed Mr. Williams possesses some exceptionally fine examples of it in the rudest health. *C. bulbosa* is another name for *C. Walkeriana*.

Sophranitis grandiflora.—The exceptional brilliancy displayed by this little Orchid entitles it to a place even in the smallest collection. Where a house exists in which the temperature is maintained at about 50° it should be grown, and as it is fortunately of easy culture it may be had in perfection by anyone possessing a fair knowledge of the requirements of plants generally. It would be difficult to find two more effective winter-flowering subjects than this *Sophranitis* and the large-flowered form of *Dendrobium formosum*, forming, as they do, a complete contrast as regards colour.—J. C. B.

NOTES OF THE WEEK.

ROYAL BOTANIC SOCIETY.—The spring shows of this society are announced to be held in the Regent's Park Botanic Garden on March 28 and April 25.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.—The spring show of this society is announced to take place in Edinburgh on April 4 and 5. As usual, the schedule is very comprehensive, containing eight sections and 139 classes, the prizes ranging from £5 to 5s. The subjects for competition will consist of stove and greenhouse plants, forced shrubs and plants, spring bulbous plants, cut flowers, fruits, and vegetables.

GISHURSTINE.—Allow me to advise all those who prefer dry, warm feet to cold ones, and who have not tried Gishurstine, to get a box at once. I have used it for two years, and have found it very beneficial both for heavy and light boots. A little rubbed on the boots after being polished will make them soft and waterproof. It is equally adapted for children's light boots as for heavy shooting boots. It will readily take a polish.—G. J. WARREN, *Balcombe Place, Sussex.*

ROYAL GARDENS, KEW.—The annual official report for 1881 on these gardens has just been issued. It contains the usual information concerning the work done, alterations and improvements carried out in the establishment during the year, together with a list of the principal additions that have been made to the collections of plants, and likewise a list of those of special botanical interest which have flowered. The bulk of the report is taken up by notes and extracts concerning economic plants—an important department, and one to which a good deal of attention is paid, but of which the outside public hears or knows but little. The correspondence between Kew and the colonial botanic gardens shows how instrumental Kew Gardens are in distributing hitherto unknown economic plants to our colonies and elsewhere. The last few reports have been accompanied by an appendix, containing a complete list of some important class or family of plants. The present report embodies a list of all the economical plants in the collection, numbering upwards of 400. To the botanical name of each plant the popular name is added, together with the native country. The total number of persons who visited the gardens during the year was 836,676.

LAMBETH PALACE GROUNDS.—A movement is on foot to secure as a public recreation ground the meadow land attached to Lambeth Palace, the official residence of the Archbishop of Canterbury, which is about 9 acres in extent. The correspondence that has taken place between the authorities concerned augurs well for the movement, and the Metropolitan Board of Works has

offered to preserve the grounds as an open space for the free use of the public if the concession is made. A "lung" in this particular part of London is much needed, for the neighbourhood is crowded, and there is no public park in the immediate locality.

ANTHURIUM SCHERZERIANUM VAR. MADAME Emile Bertrand.—The last number of the *Illustration Horticole* contains a coloured plate of this remarkable variety, which differs from the type inasmuch as its spathe is white and spotted with red instead of being concolorous. One side of the spathe, which measures about 4 inches long by 2 inches in breadth, is much more profusely spotted than the other—a singular circumstance. It seems to be a hybrid between *A. Williamsi* with white spathe and the typical *A. Scherzerianum*. It is very similar to that shown in London a year or two since by Messrs. Veitch as *A. Rothschildianum*.

SCHOOL OF FORESTRY AT NANCY.—The examination of candidates for the School of Forestry at Nancy, which is attended by so many Englishmen, has been concluded, and the fifteen successful candidates will commence their course of studies directly. This school was founded in 1824, but it has been reorganised as many as four times since then, and at the present time there are four regular and four assistant professors, the course of study comprising practical forestry, mathematics, construction and drawing, natural history, law, and German. The students now remain for two years at the school, though, up to 1880, those who were going to be employed in the service of the State had to remain a third year. Since the foundation, 1258 students have been passed from it into the service of the State, and it has also given a complete or partial education in forestry to twenty free students of French origin, and to 107 foreigners, this latter figure being exclusive of the seventy-four students who have been sent to the school by the English Government, preparatory to their being employed in the Woods and Forests Department in India.

OBITUARY.

WE have to record the death at the early age of 38 years of Mr. WILLIAM HINDS, lately travelling reporter for our contemporary, the *Gardeners' Chronicle*. Mr. Hinds was for several years gardener at Roby Hall, and subsequently at Otterspool, near Liverpool, and when leaving that place about four years ago, to take up a larger charge at Canford Manor, Dorset, he was presented by his Liverpool friends with a gold watch, in recognition of the high regard in which he was held among them. While at Otterspool he was an occasional contributor to the columns of THE GARDEN.

A ROSE WITHOUT A THORN.

(Just about this Festive Season in full bloom.)

KNOW ye the flower that just now blows,
In the middle of Winter—the Christmas Rose?
A plant, indeed, of the Crowsfoot kind,
Not really a Rose—but never mind.
It blooms out o' doors in the garden bed,
Its petals are white, with a tinct of red.
Though it lacketh perfume to regale the nose,
To the eyes right fair is the Christmas Rose.
A fiddlestick's end for the frosts and snows;
Sing hey, sing ho, for the Christmas Rose!

Your Christmas Rose is a lowly flower,
But a herb with a root of marvellous power,
Helleborus niger—the Hellebore,
Which the leeches, both Latin and Greek, of yore,
In high repute as a remedy had,
Withal to physic the crazed and mad.
So lunatics, as the story goes,
They sent to the Isle of the Christmas Rose.
A fiddlestick's end, &c.

No Colney Hatch was known to men,
No such institution as Hanwell then.
No Bedlam had they, but, in Bedlam's room,
Ye might say, the Anti-Bedlam bloom.
Were Hellebore still held a herb of grace
That could heal the patients in such a place;
Would the Medical Faculty now suppose
They could mad folk mend with the Christmas
Rose?

A fiddlestick's end, &c.

Such virtue in sooth had Hellebore,
That health of mind it would restore,
What a goodly New Year's Gift 'twould be
To others, of course, than you and me!
For to most of ourselves the fact is plain,
Great part of the world around's insane.
And what a relief to Ireland's woes
The Shamrock to twine with the Christmas Rose!
A fiddlestick's end, &c.
Punch.

Roses (Pr. O. T.).—Try Messrs. William Paul & Son, Waltham Cross.

Shoddy.—Can any reader of THE GARDEN inform me where a manure called "shoddy" or "refuse of wool" is procurable, and to what class of plants is it generally applied with beneficial results? What is the cost per cwt. or bushel?—A. D.

Names of plants.—X.—1, *Erica gracilis*; 2, *E. cinerithoides*; 3, *E. persoluta*.—Scot.—1, *Dendrobium heterocarpum*; 2, *Lelia anceps*; 3, *Cœlogyne* species, not sufficient material to name correctly; 4, *Cymbidium sinense*.—G. Dupre.—Some species of *Agave*.—T.—*Helleborus altifolius*.—Mrs. Taylor.—We cannot undertake to name plants out of flower or more than four at a time. The Ferns you send are not in a condition to name correctly.



